

- The number of cycle parking spaces and the quality and quantity of provision of end of trip facilities should be based on the proposed occupancy and nature of the land use.
- Ensure alignment to the current and planned active modes infrastructure network – provide facilities where existing routes exist and where future routes are planned.
- Publicly provided cycle parking in the vicinity of a proposed development should be considered when reviewing requirements for private provision of cycle parking as part of the proposed development. The public provision should be suited to the same purpose as that which might be provided as part of the development. For example, any cycle parking requirement for a shop on a retail street should account for the number of publicly provided short-stay cycle parking spaces (such as Sheffield stands) in the public domain on the street in question.
- Facilities should be provided where there is existing demand and or/the potential to attract use. Facilities should be sufficient to meet existing peak demand, allow for spare capacity (ideally 20%) and should allocate adequate space for expansion to allow for increased future higher rates of active travel.
- Cycle parking provision should be fit for purpose - a mix of long stay and short stay parking should be provided to reflect the nature of use of the development.
- Focus on hubs where many journeys will converge at high trip generating activities, for example:
 - Town centres
 - Employment centres
 - Services and community facilities e.g. hospitals, libraries
 - Schools
 - Entertainment and leisure venues
 - Potential future public transport stops – park and ride stations and ferry wharfs
- Imposing unnecessary costs on the developer to provide facilities should be avoided if it can be demonstrated the facilities will ultimately remain unused or severely underused. Exceptions should be made for particular development scenarios to which walking and cycling is unlikely to be practical e.g. workplaces located in elevated positions or with inadequate access roads for active modes such as ski fields or other out of town tourism operations. The grounds for exception should be carefully considered, taking foreseeable future changes in the development's context into account, for example changes in the road environment and traffic conditions and changes in level of public transport service.
- Means of providing end of trip facilities economically should be accommodated while maintaining minimum quality standards. For example, the requirement for end of trip facilities can be aligned with Building Code requirements for disabled toilets. Showering and changing facilities can be integrated into disabled toilets at relatively little additional cost and with small design impacts.

4.3 Implications of emerging technologies and trends for QLD

It should be noted that electric bicycles (e-bikes) and emerging technologies including 'dock-less' bike share systems have the potential to influence requirements for cycle parking and end of trip facility provision, although it is too early to draw concrete conclusions as to what the impact in QLD might be.

National sales of e-bikes have increased rapidly in recent years and are estimated to be in the order of 20,000 for 2017¹⁰. A rising prominence of e-bikes could have a number of important implications for levels of cycling and the requirements for parking and end of trip facilities in QLD, including:

- Increased levels of cycling by increasingly diverse groups.
- Increased bicycle-based tourism. Nationally, participation in cycling has recently grown more than participation in any other outdoor activity in recent years. Queenstown is among the most popular cycling destinations, including for mountain biking¹¹.
- Changes in the needs of end of trip facilities – a person using an e-bike may be less likely to require shower facility due to the lower level of physical exertion required.
- Changes to standards for cycle parking and integration with public transport. A person using an e-bike may be less likely to be willing or able to lift their e-bike onto a second tier or vertical rack or onto a public transport vehicle.

Dock-less bike share systems use mobile technology to administer the sharing or short-term rental of bicycles which remain in the public domain at all times. These systems are typically privately owned and operated, but occupy space in the public domain. Bike share is widely seen as an important ingredient for establishing mainstream cycling in urban centres with existing low levels of cycling, and dock-less systems may present an opportunity for inducing increased cycling in QLD by residents and visitors alike. Challenges may also arise, for example, the bicycles may, in practice, be locked to publicly provided cycle parking occupying that space for longer periods while not in use.

5. Recommended District Plan Provisions

The following draft provisions reflect figures for many development types that are likely to generate significant numbers of trips. The figures take into account the policy basis for inducing increased cycling; the current practices of QLDC in the Three Parks Zone; the research reviewed on the benefits of providing cycle parking and end of trip facilities; and the various requirements in other New Zealand and international cities that have minimum cycling requirements.

¹⁰ Stuff (2017) *Sales of e-bikes to pass 20,000 a year*. Available at: www.stuff.co.nz/business/money/89409372/sales-of-ebikes-pass-20000-a-year. Accessed 25 July 2017.

¹¹ Queenstown Trails Trust (2015) *Queenstown Trails for the future: A strategic plan for the Queenstown Trails Trust*. Queenstown: Queenstown Trails Trust.

Table 5: Recommended Minimum Cycle Parking and End of Trip Requirements for the QLDC PDP

Activity	Customer/Visitor Short-Term Bicycle Parking (development floor areas rounded down)	Private Long-Term Bicycle Parking (for staff/students/residents) to be provided in a secure facility (development floor areas rounded down)	End of trip facilities
Office	2 bike spaces (i.e. 1 stand) for the first 500 m ² GFA and 1 space for every 500m ² GFA, thereafter.	1 space per 125 m ² GFA	1 long-term bicycle parking space required: no end of trip facilities required. 2-8 long-term bicycle parking spaces required: 1 locker per every space required. >8 long-term bicycle parking spaces required: 1 locker for every space required and 1 shower per every 10 spaces required*.
Industrial and Service Activities	Nil	1 space per 300 m ² GFA	
Hospital	1 bike space per 25 beds	1 per 10 beds	
Other Health Care Facilities	1 per 100 m ² GFA	1 space per 200 m ² GFA	
Restaurants, Cafes, Taverns and Bars	2 bike spaces (i.e. 1 stand) for the 125 m ² PFA and 1 space for every 125m ² GFA, thereafter	1 space per 500 m ² GFA	
Daycare facilities	2 bike spaces per centre	1 bike space per 10 on-site workers	
Education Facility – primary and secondary	1 visitor space per 50 students (capacity)	1 per 5 pupils Year 5 and above (capacity) for primary and secondary schools	1 long-term bicycle parking space required: no end of trip facilities required. >1 long-term bicycle parking spaces required: 1 locker per every space required.
Education Facility - tertiary	1 visitor space per 50 students (capacity)	1 student/staff space per 5 FTE students (capacity)	1 long-term bicycle parking space required: no end of trip facilities required. 2-20 long-term bicycle parking spaces required: 1 locker per every space required.

Activity	Customer/Visitor Short-Term Bicycle Parking (development floor areas rounded down)	Private Long-Term Bicycle Parking (for staff/students/residents) to be provided in a secure facility (development floor areas rounded down)	End of trip facilities
			>20 long-term bicycle parking spaces required: 1 locker for every space required and 1 shower per every 10 spaces required*.
Restaurant	1 space per 250m ² of GFA	1 space per 500 m ² GFA	Nil
Retail < 300 m ²	Nil	Nil	Nil
Retail ≥ 300 m ²	1 space per 300 m ² GFA	1 space per 200 m ² GFA	Nil
Recreational Activity	1 space per court/bowling alley lane Gymnasium: 1 space per 200m ² of GFA 3 spaces per field for field sports 3 spaces per netball court 1 space per tennis court 1 space per 15m ² of GFA for Club for clubhouse component	Nil	Nil
Places of assembly, community activities, and places of entertainment	2 bike spaces per 500 m ² located directly outside the main entrance or ticket office	1 space per 500 m ² GFA	Nil

**Note: One unisex shower where the shower and associated changing facilities are provided independently of gender separated toilets, or a minimum of two showers (one separate shower per gender) with associated gender separated toilet/changing facilities.*

Three points with regard to the recommended requirements are discussed below.

The number of bicycle parking spaces required is proportional to the scale of the development in terms of floor area, number of beds or students in most cases. In the case of daycare facilities, the number of children attending is likely to be more variable, and hence the number of bicycle parks is proportional to the number of workers. The requirement for provision of long-term spaces could be linked to the number of on-site workers if this proves successful in the Three Parks Zone.

Similarly, the proposed requirements for end of trip facilities are linked to the number of long-term bicycle parking spaces required, which in turn are linked to the scale of development. If the requirement for the provision of long-term spaces being linked to the number of on-site workers proves successful in the Three Parks Zone, then end of trip facility requirements aligned to those used for the Three Parks Zone (see Table 2) could be employed in the PDP.

The proposed requirement for provision of bicycle parking for retail activities is conservative, not requiring any provision for retail activities under a gross floor area of 500m². The more stringent requirement used in the Three Parks Zone as shown in Table 1 could be employed in the PDP if it is judged that this will not result in the generation of vastly excessive provision of bicycle parking spaces which imposes costs on the developer unnecessarily.

6. Conclusion and Recommendations

Based on the analysis above, we recommend that minimum cycle parking and end of trip facility requirements are included in the PDP as an extension of the Three Parks Zone requirements (both geographically and in scope). We have established the benefits and costs of providing cycle parking and end of trip facilities and that in both New Zealand and abroad it is not uncommon to regulate for their inclusion in development in statutory planning documents. All regulation requirements imposed on land development, redevelopment or changes in use impose additional costs, but if the benefits of these requirements exceed the costs, the regulation can be justified. The following reasons stand out which we consider justify regulation for the inclusion of minimum cycle parking and end of trip facility requirements in the PDP:

- Extended regulation would support and supplement QLDC's commitment to support the growth in cycling and its objectives to increase cycling's mode share, and notably support future cycle network improvements. Regulation is aligned to the policy basis in the Queenstown Integrated Transport Programme Business Case and Wakatipu Basin Public Transport Business Case, which recognise the need for a change in approach to respond to the growth pressures being faced by the region.
- The New Zealand and overseas research demonstrates that cycle parking and end of trip facility provision are important factors in influencing decisions on whether to cycle for transport.
- The benefits of providing cycle parking and end of trip facilities clearly outweigh the costs of provision to individual developers.
- Many other local authorities, in New Zealand and internationally, already regulate for minimum cycle parking and end of trip facility requirements and the occurrence of such regulatory intervention is increasing.
- Unlike parking spaces, developers do not usually provide cycle parking facilities or end of trip facilities as a matter of course, and therefore intervention in the market is justified.
- Cyclists cannot viably utilise car parking spaces, loading spaces or other spaces reserved for other transport modes, and regular cycling for transport without the access to end of trip facilities are unlikely to hold wide appeal.
- The implementation of minimum cycle parking and end of trip facility requirements can overcome some potential barriers to cycling such as steep topography and rainfall and in conjunction with improved infrastructure, make cycling safer and more accessible to QLD's population.
- End of trip facilities provide benefits for building occupants or users other than cyclists. Showers, changing rooms and lockers also encourage active lifestyles by facilitating other active modes such as walking, jogging or scooting, and provide flexibility for those who may wish to incorporate physical exercise into their daily life.

Additionally, we recommend that QLDC collect data regarding the utilisation of its existing public cycle parking facilities and repeat this on a regular basis (e.g. annually) to understand the demand for these, in a similar way to the Council's public parking spaces.

APPENDIX A Minimum Cycle Parking and End of Trip Requirements - International Districts and Towns

City/Local Authority	Yes/No	Minimum Cycle Space Requirement		End of Trip Facilities
Byron Shire Council New South Wales, Australia	Yes	Section B4.2.12		Section B5.2.4 The number and extent of bicycle storage, parking and end of trip facilities provided must be capable of accommodating the anticipated demand for cycling and cyclist numbers demonstrated by the Transport Management and Access Assessment prepared for the development.
		Activity	Minimum cycle parking requirement	
		Amusement centre	8 per 100m ² of GFA	
		Backpackers accommodation	1 per 5 beds	
		Boarding house	1 space per bed	
		Business premises	2 per 100m ² (or part thereof) up to a floor area of 200 m ² and 1 per 200 m ² thereafter	
		Community facilities	1 per 100 m ² of GFA	
		Educational establishment (primary, secondary and tertiary)	1 per 5 students (over year 4 for schools)	
		Entertainment facility	1 Space per 10 car parks	
		Food and Drink Premises	1 per 25m ² of GFA	
		Health consulting rooms	1 space per consulting room	

City/Local Authority	Yes/No	Minimum Cycle Space Requirement		End of Trip Facilities	
		Hotel or motel accommodation	2 Spaces for accommodation units only If public restaurant or function room included, add 1 per 25m ² of GFA		
		Market	1 space per 10 stalls		
		Medical centre	1 space per consulting room		
		Place of public worship	1 space per 100 seats		
		Pub	2 per 25 m ² of public areas in bars and 2 per 100 m ² of lounges and beer gardens		
		Recreation facility (indoor/outdoor)	1 per 4 employees and 1 per 200m ² of GFA		
Cairns Regional Council, Queensland, Australia	Yes	Cairns Plan 2016, Section 9.4.8		Queensland Development Code Mandatory Part 4.1 - Sustainable Buildings: End-of-trip facilities must be installed for all new major developments and major additions to major developments.	
		Activity	Minimum cycle parking requirement	Performance requirements	Acceptable solutions
		Club	1 space per 200m ² of GFA	P12: End of trip facilities are provided for employees or occupants, in the	A12: (1) Bicycle parking and storage facilities are:
		Community use	1 space per 200m ² of GFA		

City/Local Authority	Yes/No	Minimum Cycle Space Requirement		End of Trip Facilities	
		Educational establishment	Primary: 1 per 10 students over year 4. Secondary: 1 per 10 students. Tertiary: 1 per 50 students.	building or on-site within a reasonable walking distance, and include: (a) adequate bicycle parking and storage facilities; and (b) adequate provision for securing belongings; and (c) change rooms that include adequate showers, sanitary compartments, wash basins and mirrors. [exceptions apply]	easily accessible and provided in the building, or on-site within 100 metres of an entrance to the building, in accordance with: (i) five percent (5%) of the number of employees, based on workforce numbers; or (ii) specified occupant ratios; and [design standards apply to the provision of lockers, change rooms and showers]
		Food and drink outlet	1 space per 250m ² of GFA		
		Function facility	1 space per 500m ² of GFA		
		Hardware and trade supplies	1 space per 500m ² of GFA		
		Health care services	1 space per 250m ² of GFA		
		Hospital	1 space per 500m ² of GFA		
		Hotel	1 space per 250m ² of GFA		
		Indoor sport and recreation	Diverse and numerous, example: Squash courts: 1 space per court.		
		Multiple dwelling	1 space per dwelling unit which may be provided as internal storage areas for the multiple dwelling.		
		Office	1 space per 250 m ²		
		Outdoor sport and recreation	Very diverse and numerous, examples:		

City/Local Authority	Yes/No	Minimum Cycle Space Requirement	End of Trip Facilities
		Football fields: 3 spaces per field. Lawn bowls: 5 space per green	
Town of Banff, Alberta, Canada	No		
City of Aspen, Colorado, USA	No		
Resort Municipality of Whistler, British Columbia, Canada	No	The Municipality will consider reduced on-site parking requirements for developments that are designed and located to encourage pedestrian, bicycle and transit access.	
		8.4.2 FORM AND CHARACTER OF DEVELOPMENT j) Storage space for bicycles and other employee needs shall be incorporated in the design.	
City of Portland, Oregon	Yes	Very diverse and numerous, examples: Multi-dwelling: 1.5 resident space per 1 unit in Central City; 1.1 resident space per 1 unit outside Central City; 2 visitor spaces or 1 visitor space per 20 units Office: 2 staff spaces or 1/10000 ft ² of net building area; 2 or 1/40000 ft ² of net building area All Retail and Service: 2 staff spaces, or 1 per 12,000 sq. ft. of net building area; 2 visitor spaces, or 1 per 5,000 sq. ft. of net building area Manufacturing and production: 2 staff spaces, or 1 per 15,000 sq. ft. of net building area; no visitor requirement	Nil

Technical Note

Subject: Providing for Public Transport and Active Modes

Project: Queenstown Lakes District Council Transport Chapter Advice

Our file: NZ2217

Prepared by: Lukas Adam

Status: Final Issue

Date: 18 October 2017

1. Introduction

Queenstown Lakes District Council (QLDC) is aiming to improve provision for public transport, walking and cycling through provisions in the Proposed District Plan (PDP) and other policy levers. This technical note assesses the existing environment for public transport and active modes in Queenstown Lakes District (QLD); reviews existing levels of walking and cycling; outlines existing planning documents; recommends a process for developing the network of active modes infrastructure; and discusses some of the potential impacts of walking and cycling infrastructure provision.

2. Existing Environment

2.1 Public transport

There is currently a scheduled bus public transport system in Queenstown (including Arrowtown) planned by Otago Regional Council and operated by Ritchies Connectabus. Ritchies also operates a scheduled service between Queenstown, Cromwell and Wanaka, and scheduled services to Lake Hawea and Aspiring National Park for recreational cyclists, walkers and hikers. There is also a scheduled water taxi service operating in Lake Wakatipu around the Queenstown and Frankton area.

The existing public transport services are commercial services and fares are relatively high.

The Regional Public Transport Plan: Otago 2014 and its addendum Wakatipu Basin 2017 (RPTP) presents a fundamental shift in the approach to public transport services in the region, anticipating more certainty over routes, reduced travel times, more regular frequencies, the application of national standards for buses, and simplification of the fare structure. We understand that there is a subsidised fare structure proposed, which will reduce the cost of using the public transport services.

The RPTP focuses mainly on the Dunedin and Wakatipu Basin networks. Overall, the plan anticipates significant improvements to the public transport network and service, and a steady increase in the number of trips being made on public transport.

2.2 Active modes

The QLD has an established network of active transport mode facilities, comprising street corridor infrastructure within towns and walking and cycling trails within and surrounding the towns.

2.2.1 The urban walking and cycling environment

The walking and cycling environment in QLD benefits from the high scenic quality of its landscape and the wealth of recreational facilities on offer. The requirements of people using active modes for transport are, however, different from those who seek a leisure experience. One important factor aside from the physical network of infrastructure is the use of road and street corridors by general traffic, as measured by traffic volumes and speeds.

The State Highway Routes and main streets into and through the District's centres are compromised as walking and cycling corridors due to their high traffic volumes, especially in and around the Queenstown town centre. The presence of high counts of traffic impacts the real and perceived safety of people walking and cycling and negatively impacts their sensory experience, discouraging the uptake of active modes. This has an adverse effect, particularly where little route choice exists or traffic is concentrated along corridors which pass through activity centres where they coincide with the highest numbers of pedestrians and cyclists. For example, the State Highway 6 and 6A corridors leading into and connecting Queenstown and Frankton experience average daily traffic (ADT) in the order of between 10,000 and 22,000¹. This is comparable to busy arterial roads in New Zealand's main population centres. While pleasant parallel routes outside of the transport corridor are provided in some instances, such as the Queenstown Trail along Frankton Arm, these do not always provide access to destinations along the route.

Traffic speeds along the corridors with the heaviest traffic in QLD are high for the urban context and are likely to impact on mode choices by making the urban extents of the road corridors unsafe and unpleasant to walk and cycle along. Posted speed limits follow standard practice of being set at 50 km/h within built up areas.

The corridor design of the many State Highways through built up areas continues to resemble a highway environment despite lower posted speed limits than in rural areas. Factors such as the width of traffic lanes, the presence of wide, paved medians and shoulders and a lack of active street frontages encourage higher speed travel along many routes. For example, as Ardmore Street passes through Wanaka, features of a highway-type environment continue despite the change in function of the street.

2.2.2 Street corridor and urban public open space infrastructure

2.2.2.1 Walking

Within QLD's urban areas, the majority of streets and public open spaces are accompanied by a level of pedestrian infrastructure typical for New Zealand towns and cities. This includes

¹ NZTA (2017) *Queenstown Integrated Transport Programme Business Case*. Wellington: NZTA

footpaths on both sides of the street and through parks in most locations, intersection treatments and zebra crossings in places.

The level of provision for walking in town centres is high relative to elsewhere in the District although issues linked with traffic volumes and a lack of legibility of the street environment exist. This is especially the case in the centre of Queenstown, where the built form is more conducive to a comfortable and rewarding walking experience, and pedestrian malls and wide footpaths invite people to get around on foot. Walking conditions in Queenstown are diminished by the number of vehicles using and passing through in the centre and confusion between modes.

In contrast to the higher level of provision and congestion of QLD's town centres, the quality of walking facilities in some suburban areas are lacking or are low in quality. For example, footpaths are not provided in many parts of Arrowtown, and in Fernhill, Queenstown, footpaths are provided on one side of the street only, and are relatively narrow.

2.2.2.2 Cycling

Cycle-specific facilities in QLD's urban areas are very limited. The cycle lanes that are in place are typically restricted to painted on-street lanes or paved shoulders which are frequently interrupted by a lack of provision at intersections, on-street parking and bus stops.

2.2.2.3 Trails

QLD has an extensive network of off-road recreational walking and cycling facilities within and surrounding the major town centres (see Figure 1 and Figure 2). These provide high quality opportunities for recreation and tourism in scenic settings, but in most cases, do not perform a transport function due to the distance between destinations, the facility type and topography.

Figure 1:Wakatipu Basin Walking Planning Map (source: On Foot, By Cycle, QLDC, 2008)



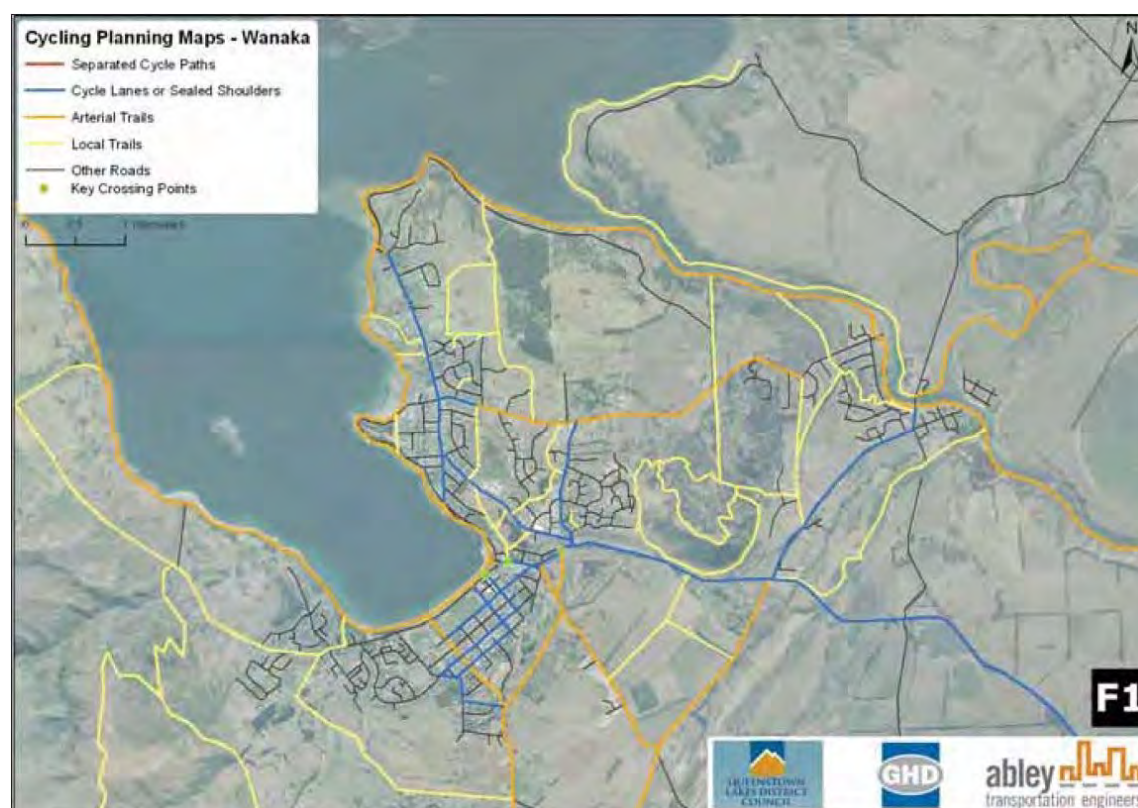
Figure 2: Wanaka Walking Planning Map (source: On Foot, By Cycle, QLDC, 2008)



Figure 3: Wakatipu Basin Cycling Planning Map (source: On Foot, By Cycle, QLDC, 2008)



Figure 4: Wanaka Cycling Planning Map (source: On Foot, By Cycle, QLDC, 2008)



2.2.3 Current levels of walking and cycling

Walking and cycling for transport are minority modes in QLD. The most readily available sources of data are the census journey to work data and the results of local journey to school surveys.

2.2.3.1 Journey to work

In QLD, the mode shares for main means of travel to work for walking and cycling are 15% and 4% respectively (for those who travelled to work on census day in 2013)². A further 2% used public transport, which incorporates some distance of walking. These figures are comparable with national averages of around 10% active modes and 6% for public transport.

2.2.3.2 School travel surveys

Data from the 2017 schools travel survey indicates a significant proportion of school students use active modes for part or all their journey to school. Mode shares by school for walking, cycling and scooting are between 12 and 45%³. Additionally, bus mode share is between 14 and 35%, incorporating walking some distance to and from bus stops. While there is considerable

² Statistics NZ 2013 census data

³ QLDC (2017) *Annual travel survey reports*

variability in modal shares between schools within QLD, they are broadly comparable with national averages. Nationally, in the order of 30% of school students walk to school and 2-3% cycle; around 9% of primary aged children take public transport and around 23% of secondary school students⁴.

2.2.4 Policy context

A number of strategies and plans include active modes. The content of these documents ranges from overall visions to plans for specific corridors.

2.2.4.1 Otago Southland Regional Land Transport Plans (2015)

This document sets the strategic direction for land transport in Otago Southland, including providing for walking and cycling. The role of walking and cycling is set out, along with an outline of intentions to encourage increased use of active modes for transport. Walking and cycling is incorporated into several of the Plans' objectives and policies, and forms a key part of Section 4 regarding providing appropriate transport choices. In the case of QLD, funding allocation does not appear to align with the regional objectives and policies. Of a total of \$63.6 million recommended expenditure for QLD for the period 2015-18, no funding is recommended to be allocated to walking and cycling specific transport projects. Active modes may, however, benefit from expenditure on the maintenance, renewal and upgrade of local roads.

2.2.4.2 2015-2045 Infrastructure Strategy (2015)

This document sets out QLD's strategy for investment in infrastructure, including walking and cycling, to address issues facing the District over a 30-year time frame. The improvement and expansion of cycleway and walkway networks and the improvement of safety are elements under the plan for transportation infrastructure. The wording of the provisions emphasises recreational and off-road walking and cycling as opposed to on-street facilities that are integrated with the wider road environment and land use.

2.2.4.3 Queenstown Integrated Transport Programme Business Case (PBC) (expected to be adopted by 1 September 2017)

This PBC sets out transport related problems facing Queenstown and makes the case for solutions to those problems. The recommended programme includes a significant investment in the improvement and extension of the network of active transport infrastructure in the form of the Wakatipu active travel network and an upgrade of the Frankton Track parallel to State Highway 6A. Increased pedestrianisation of the town centre is also proposed with the aim of improving conditions for people on foot and discouraging private vehicle usage. Reference is also made to a number of land use QLDC initiatives that will reinforce the aims of the programme and encourage walking and cycling.

Active transport initiatives form part of the programme. The PBC outlines proposed timeframes, identifies interdependencies, makes a financial case and sets out a delivery and monitoring strategy. Walking and cycling initiatives proposed in the programme are estimated to cost \$49.5 million, 64% of which will be provided by QLDC and 36% NZTA.

⁴ Ministry of Transport (2014) *NZ Household Travel Survey*

Following the recommendations of the PBC, a business case is expected to be developed for a District-wide active travel network in 2017.

2.2.4.4 On Foot, By Cycle (Draft) (2008)

On Foot, By Cycle is the QLD's dedicated active modes strategy. The degree of influence of the strategy is reduced, however, by the time passed since it was written, the fact that it was not finalised or implemented, and is expected to be largely superseded by the abovementioned active travel network business case.

This overarching strategy's purpose is to assist in applications for central government funding of walking and cycling initiatives. It incorporates the aims of the Upper Clutha Walking and Cycling Strategy and Wakatipu Trails Strategy, which are focused on recreational and off-road active modes infrastructure. On Foot, By Cycle sets out a vision and objectives which, in summary, seek to: *"see more people walking and cycling and greater satisfaction within the community with the ease, safety and security of walking and cycling in the district."* The strategy outlines the process for the design of walking and cycling facilities and recognises the need to improve future standards by considering the wider road environment and its impact on active modes. A proposed hierarchy of arterial and local urban walking and cycling facilities and rural trails is provided in map form (see Figure 1-4). Six targets are stated, relating to increasing walking and cycling, achieving high resident and visitor satisfaction with walking and cycling conditions and reducing pedestrian and cyclist casualties.

A strategy for implementation is summarised, including acknowledgment that improvements to the road environment through influencing broader strategies and setting and enforcing rules through local planning policy, traffic management plans, bylaws, subdivision standards and enforcement.

2.2.4.5 Queenstown Town Centre Transport Strategy (2016)

This strategy aims to improve enjoyment of the town centre by residents and visitors by reducing congestion caused by private vehicle reliance. Central to the proposals put forward by the strategy is the improvement of the pedestrian and cycling environment, including the creation of shared spaces and improvements to active modes facilities on town centre roads. Dedicated walking and cycling infrastructure will be supported by changes to car parking controls.

2.2.4.6 Land Development and Subdivision Code of Practice (2015) and Draft Land Development and Subdivision Code of Practice (2017)

This document guides the development of rural roads and urban streets in QLD. The substantive standards for the provision of walking and cycling facilities are summarised in a Table 3.2 which specifies land uses, development densities, operating speeds, and design parameters. While some best practice principles are set out, the implementation of best practice design standards is not ensured.

Generally, the Code of Practice adheres to best practice principles with regard to the provision of walking and cycling paths and lanes in terms of their suitability for the projected volume and speed of traffic, as set out in Table 3.2. Exceptions to the application of best practice occur in the rural environment where developments above 200 dwelling units, primary freight access or

access to offices and education are proposed. In these cases, targeted operating speeds of 70-100 km/h and maximum traffic volumes of 1000-2500 vehicles per day would make the facility types proposed inadequate to provide for safe walking and cycling. Separated facilities within the road corridor or standalone paths should be provided for pedestrians and cyclists in all cases where targeted travel speeds exceed 30 km/h and for cyclists where they exceed 50 km/h. Whether these facilities are provided in the rural environment should be decided on a case-by-case basis, informed by the context of the development within the walking and cycling infrastructure networks and with regard to destinations such as places of employment and schools.

Importantly, there is no functional mechanism which ensures that appropriate provision for cycling is made as part of land development and subdivision. The Code of Practice requires a 'trigger' of the road being a local authority defined cycle route, which implies that there needs to be an adopted cycle network plan in place for the guidance to effectively influence what is eventually built on the ground. As outlined above, cycle network planning for QLD is restricted to the hierarchy of routes set out in *On Foot, By Cycle* (2008), which was not finalised and has not been implemented.

There is little guidance on intersection design in the Code. Junctions are where most crashes involving cyclists occur, and are commonly the sites of increased rates of crashes involving pedestrians. As such, intersection designs should be specified as critical elements of the street network and should incorporate pedestrian and cyclist priority where possible to improve conditions for active modes and introduce traffic calming to minimise travel speeds, particularly in residential areas and village and town centres. Key parameters including pedestrian and cyclist crossing distances, vehicle turning radii and sight lines.

On-street painted cycle lanes are proposed in the Code and separated cycle paths are referred to. Where painted on-street cycle facilities are proposed, they should be a minimum of 1.8m wide. Where painted cycle lanes occur adjacent to parallel parked cars, there is a risk of cyclists having doors opened in their path. Where this occurs, the cycle lane should be separated from the parking bays by a horizontal surface treatment with a width of 0.8-1.0 m. A reference in the Code states that: *"Separate cycle paths shall be provided where good design requires separation from the carriageway or a different route to be selected"*. This provision is not sufficiently clear for it to lead to best practice cycle provision outcomes.

The Code does not include arterial roads and motorways and leaves the design of these corridors to the relevant road controlling authorities. While this omission is logical given the document's context, the lack of guidance of walking and cycling facilities should be addressed elsewhere in QLD planning policy. Arterial roads in particular are often key walking and cycling routes due to their directness and accompanying land uses.

The Draft Land Development and Subdivision Code of Practice (2017) (viewed by MRCagney on 16 August 2017), do not diverge significantly from the 2015 version of the document with regard to providing for public transport and active modes. No amendments are made to Table 3.2 aside from minor changes to terminology and notes. Exceptions where the 2017 draft is different include:

- Appendix J – Cycle Trail and Track Design Standards and Specifications is added, which outlines requirements for routes intended for recreational and touristic use and

recognises that design for the transport cycling infrastructure network is outside the scope of the guidance provided. Some recreational and touristic routes in QLD will also serve a transport function and should be designed accordingly. This overlap should be recognised in both the trail guide and any future street design guide by cross referencing.

3. Recommended process for improving level of service for public transport and active modes

3.1 Public transport

The public transport system requires a supportive network for the entirety of the journey, from door to door. This comprises public transport routes and services, and the infrastructure which allows people to travel to and from stops and stations. For QLD, the majority of public transport network planning is carried out by the Otago Regional Council (ORC).

As stated in the Regional Public Transport Plan, ORC will carry out detailed network planning. It is assumed that best practice principles to the design of the network will be applied, and that ORC's work will include the specification of bus and ferry stop locations as required and the design of bus stop shelter designs.

QLDC and ORC will need to collaborate to ensure that public transport network planning is effectively integrated with transport, resource and land use planning locally. This will include the planning and design of bus priority measures to ensure target levels of service are achieved and planning for access to bus stops by active modes using the street network. Bus stops for rapid services which stop less often and park and ride facilities are more likely to be accessed by a variety of modes, including walking and cycling, and should be planned for and designed accordingly. Provided that stops are appropriately spaced, local bus stops will mostly be accessed by walking. Best practice principles for public transport access include:

- The first consideration should be pedestrians crossing the street at the immediate stop location. Public transport stops should be located close to intersections where pedestrian crossings can be provided.
- Key paths leading to public transport stops should provide for access for varying ages and physical abilities. Paths should be universally accessible, direct, and well-lit.
- Particular attention should be focused on area that may be deemed unsafe by a range of users, particularly at night.

Further bus stop design guidance should be sought from existing publications. The following documents should be referred to:

- Bus Stop Infrastructure Design Guidelines (Auckland Regional Transport Authority, 2009)
- Public Transport Interchange Design Guidelines (Auckland Transport, 2013)
- Auckland Urban Street and Road Design Guide (Auckland Transport, 2017)
- Auckland Transport Code of Practice (2013)

- Transit Street Design Guide (National Association of City Transportation Officials (USA), 2016)

3.2 Active modes

As outlined above, QLD has a number of important elements in place to facilitate the development of an extensive, high quality network of walking and cycling infrastructure. A series of actions is proposed below to bring together existing initiatives and progress the development of the network integrated with other transport programmes, cognisant of land use changes and in conjunction with District Plan update process.

3.2.1 Audit existing walking and cycling facilities

Stage 1 of an audit of walking and cycling facilities was carried out in early 2016. This report outlined the characteristics of a high-quality walking and cycling network, reviewed existing policy and provided a methodology for the collection of data.

Recommendation: Complete the Walking and Cycling Audit as proposed in the Queenstown Town Centre Transport Strategy.

3.2.2 Establish a monitoring programme

On Foot, By Cycle set out targets for encouraging the improvement of active modes infrastructure in the QLD.

Recommendation: Walking and cycling activity should be monitored against the following targets:

- To increase the proportion of journey to work walking trips beyond 15% and cycling trips beyond 5%
- To increase every year the proportion of residents and visitors who are satisfied with the ease, safety and security of walking and cycling within the QLD
- To reduce the number of pedestrians and cyclists injured or killed in crashes as a proportion of all injuries and fatalities

3.2.3 Network planning update

Recommendation: An active network should be planned and communicated as recommended in the Queenstown Integrated Transport Programme Business Case. It should encompass the Wakatipu area as well as Wanaka.

The active travel network plan should update and build on the network proposed in On Foot, By Cycle and Plan and link into the existing trail network.

It should follow the below steps:

- Identifies target customers – i.e. all ages and abilities or more targeted toward particular groups to begin with?

- Identify target trip types that network development should focus on to inform facility types – for example short to medium distance trips to activity centres and future park and ride stations, journeys to work and school.
- Identify and plan around key destinations and trip generators e.g. schools, town centres, Fernhill and Frankton suburbs
- Apply best practice network planning principles to identify key active modes corridors:
 - o Select routes that provide direct access to key destinations and follow corridors of high (current or latent) demand
 - o Select routes that link with other parts of the network to form a coherent and legible network
 - o Establish an appropriate network density, with a finer-grained network in areas of higher demand
 - o Select routes that are attractive for users and that offer a pleasant, interesting, safe and secure environment
 - o Selecting routes that minimise major gradient changes.

3.2.4 Active modes infrastructure

The hierarchy of pedestrian and cycling facilities should be allocated according to their location and function within a framework of street types.

QLDC is in the process of establishing a hierarchy of roads and streets according to the One Network Road Classification (ONRC), published by the NZ Transport Agency. While this will set out a structure, more detailed planning and design guidance will need to be carried out to ensure best practice provision for people on foot and on bicycles.

A recent example of a more detailed framework which guides provision for active modes is provided in Auckland Transport's Urban Street and Road Design Guide. Considerations for choosing facility types include land use, public transport infrastructure and traffic conditions. Examples of street types, which determine the type of pedestrian/cycling facility include:

- Mixed use arterial – high travel speeds (40-50km/h) and traffic volumes, pedestrian crossing facilities including at bus stops. Footpaths should be a minimum of 3.0 m in addition to 3.0 m of commercial space and a 1.5 m wide street tree and street furniture zone between the footpath and travel lane.
- Main street – a destination in its own right with continuous street frontages and large clear footpaths 3.0 m wide. A 1.5 m wide commercial zone along the street frontage and a 1.5 m wide street tree and street furniture zone can also be included.
- Local street – mostly residential land use, very low traffic volumes and speeds, fine grained street design and footpaths 1.8-2.4 m wide.

Figure 5 outlines the situations in which different types of on-street cycling facilities should be implemented. This represents a refinement of the cycling guidance provided in the Land

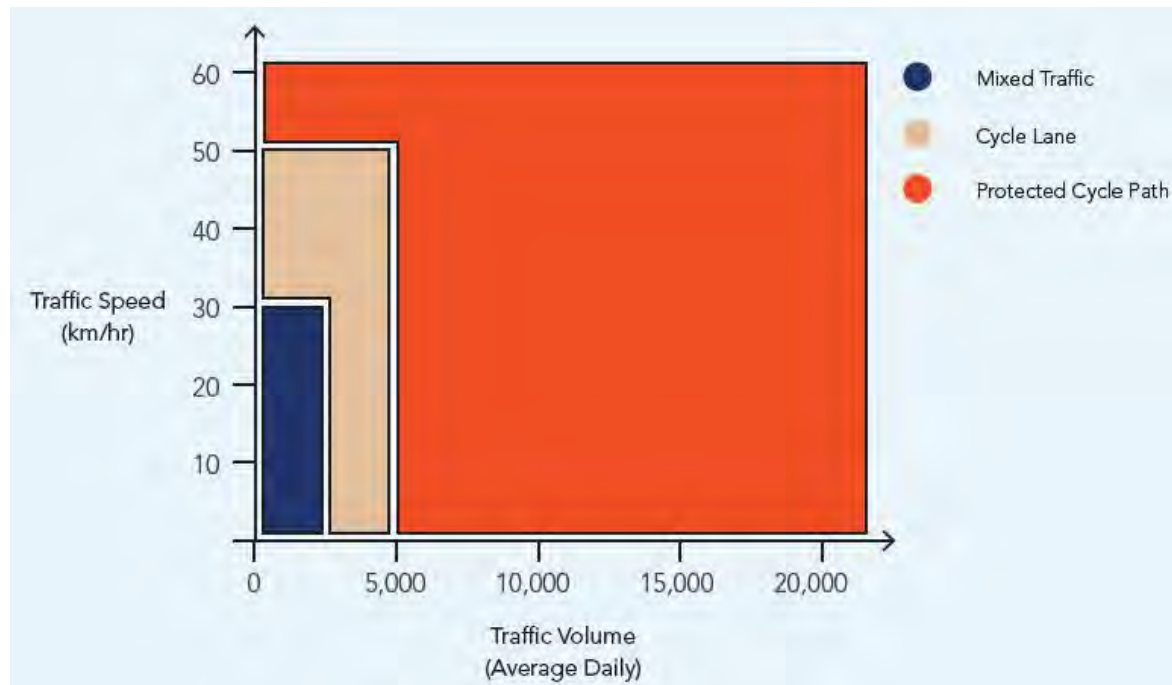
Development and Subdivision Code of Practice (2015) based on current best practice. The most important difference between the two sets of guidance are the lower speed thresholds set in Figure 5.

The facility types in the Auckland guidance are similar to those used in the Development and Subdivision Code of Practice [QLD equivalents are listed in square brackets]. The facility types traffic and conditions are:

- Mixed traffic/greenways/traffic calming on quiet, low speed streets [shared (in movement lane)]
- Painted on-street cycle lanes on streets moderate speeds and traffic volumes [on sealed shoulder where it is a local authority defined cycle route]
- Separated cycleways (also referred to as protected cycle paths) on busy streets [separate provision where local authority defined cycle route]
- Standalone cycling or shared paths through public open space

There are two main differences between the two sets of guidance. Firstly, sealed shoulders are replaced by painted on-street cycle lanes in the Auckland guidance. The latter refers to a specifically designed cycling facility as opposed to a leftover paved space also intended for emergency stopping. Secondly, separate provision is divided into separated cycleways and standalone cycling or shared paths.

Figure 5: Cycling facilities according to traffic conditions (Auckland Transport, 2016)



3.2.4.1 Cycle parking

In commercial areas, cycle parking should be provided in the road corridor. The QLDC Cycle Facilities Guidelines (2009) should be reviewed against the following best practice principles from the London Cycle Design Standards (2014) and revised as required.

- *“Fit-for-purpose – meeting identified current and future demand, with an appropriate balance of short-stay and longer-stay provision.*
- *Well-located – convenient, accessible and as close as possible to the destination.*
- *Secure, visible and well-overlooked – stands that allow for secure locking in places that are well-lit and with high levels of natural surveillance.”*

Recommendation: Include cycle parking to best practice standards in streetscape upgrades along commercial/main street corridors.

3.2.5 Design standards/guidelines

The design of walking and cycling facilities for developments in QLD is guided by the District Plan and Land Development and Subdivision Code of Practice. There is no District-wide guidance for existing roads and streets for the implementation of corridor upgrades or redesigns, although QLDC is in the process of establishing a hierarchy of roads and streets according to the ONRC.

Recommendation: A roads and streets design framework should be developed which provides greater detail of classification and design guidance than the ONRC including design principles, parameters and dimensions for each road and street type. It should reference best practice examples should be developed covering existing urban areas within QLD as well as future developments.

The road and streets design framework should be integrated with existing QLDC, ORC and NZTA transport and urban planning policy, including the ONRC. Best practice precedents of comprehensive street design guides exist within the New Zealand context, such as Auckland's forthcoming Urban Street and Road Design Guide and recently published Local Paths Design Guide.

3.2.6 Review of proposed infrastructure

Specialist capability within QLDC should be allocated to the design of walking and cycling infrastructure and the design review of facilities proposed by consultants. If the required resources and expertise are not available within QLDC, it should be developed or out-sourced. This process should draw on knowledge from other councils, the NZTA and private sector as required.

3.2.7 Post-implementation monitoring

Post-implementation reviews of walking and cycling infrastructure should be conducted regularly. Reviews could follow the methodology used by NZTA in assessing its infrastructure developments. NZTA's post-implementation reviews aim to:

- “assess and explain how well projects and packages have achieved their main expected transport benefits...to give an overall assessment of the value for money of completed projects or packages reviewed
- Explain any variation between actual results and expected benefits and costs, and
- Identify lessons learned that can be used to make business improvements”

4. Potential impacts of improved level of service for public transport and active modes

4.1 Public transport

Public transport has the potential to play a key role in addressing the problems facing QLD, as outlined by the Queenstown Integrated Transport PBC. Aligned to the purpose of the PBC, the Wakatipu Basin Public Transport Detailed Business Case identified benefits of improving public transport provision in the District, which are summarised as follows:

- Improved liveability and visitor experience/attractiveness
- Improved access to the Queenstown town centre and improved functionality of the town centre transport network for all users
- Improved network performance and capability
- More effective investment in transport
- Improved economic growth
- Reduced environmental impact from the transport system

4.2 Active modes

4.2.1 Safety implications for the QLD

Encouraging more walking and cycling in QLD can play a crucial role in improving local road safety. Increasing the levels of walking and cycling by designing the streets of its towns around the needs of pedestrians and cyclists is likely to improve safety for all road uses by encouraging lower speeds and safer driving behaviour. The effect of ‘safety in numbers’ or ‘numbers in safety’ is demonstrated by an international study by Jacobsen (2003)⁵. This study compared pedestrian and cyclist casualty rates with the levels of walking and cycling in numerous US and European cities. It was concluded that the likelihood of a motorist colliding with a pedestrian or cyclist decreases as levels of walking and cycling increase.

4.2.2 Quality of place and amenity implications for the QLD

In addition to having a transport function, more walking and cycling will increase place value in the QLD. Having people socially, economically and environmentally engaged in the public

⁵ Jacobsen, P.L. (2003) ‘Safety in numbers: more walkers and bicyclists, safer walking and bicycling’. *Injury Prevention*, Vol. 9, pp. 205-209

domain is the foundation of public life. Developing a human scaled environment that is design around a safe, comfortable and convenient pedestrian experience encourages positive interactions and will result in lower traffic volumes and speeds.

People on bicycles, like pedestrians, are able to interact with the urban environment using all of the senses. The moderate range, ease of stopping and parking a bicycle facilitates cyclists use of local amenities and contribution to the local economy. Furthermore, a combination of the relatively low speed of cycling and the relatively low mass of a person on a bicycle means cycling reduces the chances of a crash and makes casualties highly unlikely in the case of a collision. This, in addition to the absence of exhaust emissions and the very low noise levels of cycling means that the mode has negligible adverse impacts on the local environment. These factors combine to allow people on bicycles to play a positive role in public life and enhance place value.

4.2.3 Trade-offs

Due to set street corridor widths in much of the District, trade-offs will need to be met between different modes in order to improve conditions for alternative modes. Where spatial constraints occur, compromises on the type or design of transport infrastructure may be required. The following examples are listed in order of preference in terms of their adverse impact on improvements to the street network for alternative modes:

- The narrowing of general traffic lanes, the removal of on-street parking and turning/slip lanes and the reconfiguration of signal phasing cycles to favour alternative modes is likely to be necessary to accommodate improved provision for pedestrians, cyclists and bus service users. This may have an impact on the ease of accessibility of town centres by private car and increase travel times to and through centres by car.
- Where bus-only lanes cannot be provided, bus use of the kerb-side lane may be shared with parking outside of peak times and/or with high occupancy vehicles (transit or T2/T3 lanes).
- Shared path corridors may not be sufficiently wide to segregate the movements of pedestrians and cyclists, even where path widths and existing or projected numbers of people on foot and on bicycles should determine that separation is necessary to allow for safe and comfortable use.
- Cycle facilities may need to be provided at the minimum feasible width, or provided as shared paths or painted facilities where best practice design would be to introduce generous protected facilities.
- Footpaths may not be able to be widened to best practice standards and/or associated uses of the street corridor such as commercial zones and street tree and street furniture zones may not be able to be provided.

5. Current Regulatory Framework

5.1 Introduction

Public transport infrastructure can encompass a variety of different structures and land uses to support public transport services. In QLD's context, public transport infrastructure includes

structures and land uses such as bus shelters, bus interchanges, bus terminals, ferry piers, and park and ride facilities. The ways in which public transport infrastructure is provided for and managed by the Proposed District Plan will be crucial to the successful implementation of programmed improvements, and will be of significant relevance to key stakeholder agencies like ORC, NZ Transport Agency (NZTA) and public transport operators.

Furthermore, QLDC and its partner agencies also have plans to improve and expand the District's walking and cycleway network (as proposed in some of the aforesaid documents), and publicly available infrastructure to support these plans may include separated cycleways, painted cycle lanes, trails (e.g. off-road within a park), and cycle parking structures (e.g. hoops and racks).

The different types of infrastructure mentioned may be provided within the legal road reserve (e.g. bus shelter on a footpath), and/or it may be provided on a site (e.g. bus interchange or park and ride), with differing consequences on the ways these structures and land uses are regulated via a District Plan.

The following sections discuss the ways in which public and active transport (i.e. walking and cycling) are currently regulated in the Operative District Plan, and offer recommendations on a potential future regulatory framework for the same in the Proposed District Plan, based on recent best practice and our own experience.

5.2 On-road infrastructure

The road reserves in the District are unzoned, and do not assume the zoning of the land they adjoin. Consequently, the provisions in the individual zone chapters do not apply to transport infrastructure provided on the road reserve. Rather, the Operative District Plan's Section 14 (Transport) regulates transport infrastructure on the road reserve.

The Transport Section, in our view, takes an 'enabling' approach to transport infrastructure provision in the road reserve. Rule 14.2.2.1 states any activity which complies with all site standards and is not listed as a controlled or discretionary activity shall be a permitted activity. Except for parking areas such as park and rides (which are unlikely to be located on a road reserve), no infrastructure for public transport or active transport that are likely to be erected on the road reserve are captured as controlled or discretionary activities, meaning they would be permitted activities in all circumstances. As the site standards typically relate to parking and access design, these do not constrain the development of infrastructure like bus shelters, cycle parking, separated cycleways and painted lanes, and these are therefore permitted activities.

Any earthworks required for the erection of the infrastructure on the road reserve are regulated by Section 22 (Earthworks) of the Operative District Plan. Earthworks are permitted by Rule 22.3.2.1(a) subject to compliance with the relevant site standards. The site standards in this Earthworks Section regulate, among other things, earthworks volume, and the depth of cut and fill, but these pertain only to 'zones'. It is unclear how QLDC treats the definition of 'zone' vis-à-vis the road reserve, but if it is unzoned, then such site standards would not apply. Consequently, the only earthworks standards applicable relate to erosion and sediment control measures, earthworks near water bodies, cultural heritage and archaeological sites, and construction noise, as per Standards 22.3.3 (iv) to (vii).

Based on this assessment, the Operative District Plan takes an enabling approach to on-road transport infrastructure, and typical infrastructure such as bus shelters, cycleways and cycle parking would generally be permitted activities on the road reserve throughout the District. As it stands, this existing regulatory regime would facilitate future improvement and expansion of public and active transport infrastructure from a consenting perspective, to accompany planned transport service improvements. However, we would also point out that the Operative District Plan's Transport Section is not explicit about the types of transport infrastructure it wants to provide for within the road reserve, which creates a level of uncertainty for plan users.

5.3 Off-road infrastructure

5.3.1 Land transport

As mentioned, public and active transport infrastructure is not limited to the road reserve, and may be found on private or publicly owned land outside of the road reserve. For example, this could be in the form of park and rides, bus terminals, or ticketing facilities. As sites may be situated in a variety of zones, off-road transport infrastructure on the land is currently regulated by the zone in which a site is located, in addition to the Transport Section. This creates a level of regulatory complexity and uncertainty as the consenting requirements may change depending on location.

As stated by the *Parking Advice* technical note, car parking areas in the following zones are controlled activities under the Transport Section of the Operative District Plan:

- Town Centre;
- Business;
- Industrial A and Industrial B Zones;
- Ballantyne Road Mixed Use Zone;
- Corner Shopping Centre Zone; and
- Activity Area 2 of the Kingston Village Special Zone

Accordingly, park and rides, which are typically off-road, would be controlled activities in these zones, subject to compliance with the site standards which typically relate to parking and access design (Rule 14.2.2.2(i)). As it stands, this operative rule would facilitate any planned park and ride facilities in the above zones.

Other transport infrastructure such as bus interchanges and cycle trails are also located off-road and the planning requirements vary according to the zone. In addition, consideration must also be given to activities like bus depots to service public transport operators. We have used a plausible example to demonstrate how the Operative District Plan would regulate transport infrastructure. This is a bus interchange in the Queenstown Town Centre zone (as planned in the Queenstown Town Centre Masterplan).

A bus interchange in the Queenstown Town Centre zone would be regulated by rules addressing general buildings, i.e. there are no specific provisions for this particular activity. This would be captured by Rule 10.6.3.2, rendering a bus interchange a controlled activity, subject to compliance with the site and zone standards (assuming it is not located in any special overlays

such as the Special Character Area). As it stands, this operative rule enables the provision of bus interchanges within the Queenstown Town Centre, although not as a specific activity. Relevant site and zone standards include, among other things, maximum building height (12 metres, but varies depending on actual site location), verandas, and building coverage, which would need to be assessed on a case by case basis.

5.3.2 Water-based transport

As expressed in documents like the Masterplan and the Queenstown Integrated Transport PBC, there is a desire from QLDC and its partner agencies to explore water-based transport as a viable public transport mode in the District (e.g. regular scheduled ferries). Water-based transport would generally require infrastructure off-road, and would encompass the interface between land and water. For instance, associated park and rides and ferry terminals may be located on land-based sites, whereas piers for ferries are located on water, which is zoned Rural General in the ODP.

We note that the operation of ferry boats on the lakes in QLD is regulated in part by local bylaws. This is an appropriate method of regulating the safety and amenity effects of boating activity, rather than managing all aspects through the district plan.

As with the land-based off-road transport infrastructure discussed in the preceding section, the planning requirements for water-based transport infrastructure (located on land) vary according to the zone(s) in which the infrastructure is proposed. Again, this creates a level of regulatory complexity and uncertainty as the consenting requirements may change depending on location. Regardless of the zoning of the lakeshore, any structure or mooring which passes across or through the surface of any lake and river (such as a jetty) is a discretionary activity pursuant to Rule 5.3.3.3 or non-complying in certain areas. In addition to the zone's rules, the Operative District Plan planning maps for prospective locations for water-based transport services such as Kelvin Peninsula (Map 37) has a notation indicating 'all structures and moorings are non-complying except for jetties', which would capture infrastructure like piers on the water of Lake Wakatipu, creating added complexity.

The surface of the lakes in the district are zoned 'Rural', except for the area in proximity to the Queenstown Town Centre in Queenstown Bay. The Rural Zone includes provisions that regulate structures on or above the surface of the lakes, including jetties, wharfs and piers. All structures or moorings on waterbodies require resource consent assessment, because of their ability to impact upon landscape, recreational safety and conservation values associated with a shoreline or shore waters.

The Rural Zone rules effectively separate boating activities into either commercial or recreational categories, and apply more stringent regulations to commercial activities via the activity status, i.e. recreational boating is permitted subject to standards, whereas commercial boating is discretionary.

6. Recommended Regulatory Framework

Our review of the existing regulatory framework vis-à-vis public and active transport infrastructure in the preceding section highlights some plain differences in the way they are provided for and regulated – depending on whether they are on the road reserve or off-road, and if off-road, depending on the particular zone or if structures on the surface of water are

proposed. In our view, this creates an unnecessary level of complexity and uncertainty with regard to planning for public and active transport infrastructure via District Plan provisions.

As an alternative, we recommend ‘bundling’ all provisions related to transport infrastructure and associated works (e.g. earthworks) into the same chapter, and make some differentiations depending on whether that infrastructure is on-road or off-road, or on land or on water. The upcoming drafting of the Proposed District Plan’s Transport Chapter therefore presents a good opportunity to do this under one chapter, to facilitate understanding of the planning requirements of transport infrastructure by plan users, and to ensure the benefits of public transport infrastructure are appropriately accounted for in the PDP provisions and resource consent processes.

6.1 On-road infrastructure (Public Roads)

We support the ‘enabling’ approach taken by the Operative District Plan with regard to transport infrastructure on the road reserve, and the present approach with placing these activities within the Transport Section. We support rolling over this approach to the proposed Transport Chapter, although this should be done with added clarification of the types of infrastructure that should be permitted or controlled activities on the road reserve (e.g. bus shelters, cycle parking, etc.). In this way, this provides greater certainty to plan users, rather than relying on generic ‘catch-all’ provisions that state any activity not listed as being classified as a higher activity status is permitted or controlled.

QLDC could subsequently classify as permitted or controlled activities the transport infrastructure it anticipates for the District. Alternatively, QLDC may also wish to consider a ‘catch-all’ permitted/controlled activity type and definition, e.g. ‘public transport facilities’ or ‘transport utility’ that would encompass all types of transport infrastructure. The latter approach would simplify the plan and reduce the length of the list of different types of infrastructure permitted or controlled by the plan.

Furthermore, activities associated with providing transport infrastructure such as earthworks, would also benefit from being bundled into one transport chapter. The new Transport Chapter could subsequently adopt the same permissive earthworks rules and standards for transport infrastructure, but make the same exceptions where earthworks are in sensitive areas (e.g. heritage, takata whenua overlays).

6.2 Off-road infrastructure

The current regulatory approach to off-road transport infrastructure is relatively complex, creating a level of uncertainty for plan users which is able to be mitigated. Rather than using individual zone provisions to regulate transport infrastructure, we recommend bundling off-road transport infrastructure provisions into the one unified Transport Chapter of the Proposed District Plan. It is recommended that a separate set of rules and standards for off-road infrastructure be created, to distinguish between the range of transport activities anticipated or deemed acceptable off-road by way of activity status vis-à-vis on-road infrastructure.

To address potential concerns regarding the adverse effects of off-road infrastructure on the broader environment and surrounding sites, activity standards and assessment criteria can be set to appropriately manage these effects. For example, standards and assessment criteria could be set around trip generation and traffic effects for park and rides exceeding a certain

number of spaces, or around the proximity of infrastructure to residentially zoned sites or culturally sensitive locations.

In this way, QLDC can adopt a streamlined and easy to understand approach to consenting off-road infrastructure, while managing location or intensity-based concerns via standards and assessment criteria. In our view, this would assist in accounting for the positive effects of public and active transport within the broader environment, and facilitating the planning and provision of public and active transport infrastructure planned in documents such as the Queenstown Town Centre Masterplan and the Integrated Transport Programme Business Case.

6.3 Surface of Lakes

One aspect of public transport provision regulation we think would be better retained in a separate section of the PDP, i.e. not the Transport Chapter, is aspects related to the surface of lakes and rivers.

As noted above, the Rural Chapter and the Queenstown Town Centre Chapter of the PDP include rules that are proposed to regulate structures on the surface of lakes and rivers, e.g. wharfs and piers, and rules that are proposed to regulate boating activities on the surface of lakes and rivers, e.g. commercial sailing or jetboating.

Including rules to regulate wharfs or piers servicing a scheduled public ferry, and rules to regulate the boating activity itself, in the Transport Chapter of the PDP, would in our view create a potentially confusing overlap between the separate sections of the plan, which could be used to create effectively the same structure on the surface of the water, but with different applicable objectives and policies and different assessment criteria, intended to manage the same effects on the environment. This situation might also create some difficulties with the definition of commercial boating versus the definition of a public ferry service, and multiple different users of the same wharf or pier facility.

Therefore, rather than creating additional rules regulating activities on the surface of lakes and rivers, we suggest that if the opportunity presents itself, e.g. via a plan change/variation, the Council should consider adding objectives and policies to the relevant parts of the Queenstown Town Centre Zone and Rural Zone. The additional objectives and policies should reference the QLD desire to implement an effective public transport network, and acknowledge the broader positive effects a well-connected public transport network provides.

7. Summary and conclusions

This technical note has examined the existing conditions and policy direction for alternative modes. At present, the use of public transport is lacking, although this is anticipated to improve following the imminent rollout of the new bus and fare system, and further improvements planned long-term. In relation to active transport, on-road cycling facilities are generally limited, although there is an established off-road cycle trail network that is useful for recreational purposes, but not necessarily for everyday transport.

The value of providing for active and public transport infrastructure and services is well documented in a number of strategic plans and documents for the District, including the most recent Queenstown Town Centre Masterplan. We recommend establishing a clear active modes network plan and a process for implementing the network and reviewing development

proposals, to ensure all future improvements are consistent with these strategies and best practice, and most importantly, to get more people walking and cycling. The implementation of this network plan will involve making trade-offs to improve provision for all modes due to spatial constraints.

In terms of the planning requirements for transport infrastructure, there is an existing enabling approach for on-road infrastructure, but the consenting requirements for off-road and water-based infrastructure are currently complex and uncertain. We therefore recommend carrying over the enabling approach towards on-road infrastructure to the new Transport Chapter, albeit with greater clarity, and to bundle the provisions for on-road and off-road transport infrastructure into one unified Transport Chapter of the Proposed District Plan. This would have the benefit of streamline and facilitating the consenting and planning process for the public and active transport infrastructure planned for the District.

Appendix 3. Operative Queenstown Lakes District Plan Operational Standards Review (August 2017)



mic

OPERATIVE QUEENSTOWN LAKES DISTRICT PLAN OPERATIONAL STANDARDS REVIEW

Prepared for Queenstown Lakes District Council

August 2017



This document has been prepared for the benefit of Queenstown Lakes District Council. No liability is accepted by this company or any employee or sub-consultant of this company with respect to its use by any other person.

This disclaimer shall apply notwithstanding that the report may be made available to other persons for an application for permission or approval to fulfil a legal requirement.

QUALITY STATEMENT

PROJECT MANAGER

Ali Sher Siddiqui

PROJECT TECHNICAL LEAD

Iain Banks

PREPARED BY

Theek Morapaya



18/08/2017

CHECKED BY

Oliver Brown



18/08/2017

REVIEWED BY

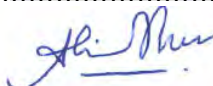
Iain Banks



18/08/2017

APPROVED FOR ISSUE BY

Ali Sher Siddiqui



18/08/2017

AUCKLAND

MWH House Level 3, 111 Carlton Gore Road, Newmarket, Auckland 1023
PO Box 13-052, Armagh, Christchurch 8141
TEL +64 9 580 4500, FAX +64 9 580 7600

REVISION SCHEDULE

Rev No.	Date	Description	Signature or Typed Name (documentation on file)			
			Prepared by	Checked by	Reviewed by	Approved by
1	14/06/2017	Draft for comment	Theek Morapaya	Oliver Brown / Sarah Connolly	Iain Banks	Ali Sher Siddiqui
2	17/07/2017	Draft for comment_v2	Theek Morapaya	Oliver Brown	Iain Banks	Ali Sher Siddiqui
3	27/07/2017	Draft for comment_v3	Theek Morapaya	Oliver Brown	Iain Banks	Ali Sher Siddiqui
3	18/08/2017	Final_v4	Theek Morapaya	Iain Banks	Iain Banks	Ali Sher Siddiqui

Executive Summary

MWH, now Stantec, was commissioned by Queenstown Lakes District Council (QLDC) to undertake a review of the Transport Rules (Chapter 14) of the QLDC Operative District Plan, to ensure that these rules align with relevant industry standards and practice. To ensure that this review is undertaken efficiently by making use of all available information, the previous reviews undertaken by TDG, GHD and MWH were also taken into consideration.

The review has compared the Rules with relevant New Zealand and Australian standards and guidelines as well as best practise used in comparable district plans of other Councils. In doing so, the review has identified the current rules which do not align with these documents, and provides recommendations as to the changes required. Where certain rules are considered as requiring changes, but no relevant information relating to the proposed changes are found in the industry standard or practice, these rules have been identified as requiring further investigation.

Section 1 of this report is an introduction which provides background information relating to this study and describes the study approach. It also outlines the industry standards and guidelines used for the review.

Section 2 of this report provides a review of all sub rules of *14.2.4.1 Parking and Loading*, with the exception of *Rules 14.2.4.1(ii), 14.2.4.1(iii) relating to the Frankton Flats Special Zone*. This identified that all rules within this section require changes, including *Rule 14.2.4.1 Minimum Parking Space Numbers* which require further analysis.

Section 3 of this report provides a review of all sub rules of *14.2.4.2 Access*. This identified that with the exception of *14.2.4.2 (v) Maximum Number of Vehicle Crossings*, all other rules require changes.

Section 4 of this report provides a review of *Appendix 7*. This identified that with the exception of the *Car Space Layout Diagram*, all other information within *Appendix 7* require changes.

Section 5 of this report provides a review of *Appendix 6*. This identified that the updated QLDC road hierarchy and the updated classification of all QLDC roads needs to be provided within *Appendix 6*. In addition, all references to road classifications within the Transport Rules needs to be updated to match the new road hierarchy.

Queenstown Lakes District Council

Operational Queenstown Lakes District Plan

Operational Standards Review

CONTENTS

Executive Summary	i
1 Introduction	1
2 Transport Rule 14.2.4.1 Parking and Loading	2
2.1 Rule 14.2.4.1 (i) Minimum Parking Space Numbers	2
2.2 Rule 14.2.4.1 (iv) Location and Availability of Parking Spaces	4
2.3 Rule 14.2.4.1 (v) Size of Parking Spaces	5
2.4 Rule 14.2.4.1 (vi) Parking Area and Access Design	6
2.5 Rule 14.2.4.1 (vii) Gradient of Car Parks	7
2.6 Rule 14.2.4.1 (viii) Car Spaces for People with Disabilities	8
2.7 Rule 14.2.4.1 (ix) Reverse Manoeuvring	9
2.8 Rule 14.2.4.1 (x) Residential Parking Spaces	10
2.9 Rule 14.2.4.1 (xi) Queuing	11
2.10 Rule 14.2.4.1 (xii) Set Down Areas	12
2.11 Rule 14.2.4.1 (xiii) Loading Areas	13
2.12 Rule 14.2.4.1 (xiv) Surface of Parking and Loading Areas	15
2.13 Rule 14.2.4.1 (xvi) Landscaping and/or other obstructions	16
2.14 Rule 14.2.4.1 (xvii) Illumination	16
3 Transport Rule 14.2.4.2 Access	17
3.1 Rule 14.2.4.2 (i) Length of Vehicle Crossings	17
3.2 Rule 14.2.4.2 (ii) Design of Vehicle Crossings	18
3.3 Rule 14.2.4.2 (iii) Maximum Gradient for Vehicle Access	19
3.4 Rule 14.2.4.2 (iv) Minimum Sight Distances from Vehicle Access	20
3.5 Rule 14.2.4.2 (v) Maximum Number of Vehicle Crossings	21
3.6 Rule 14.2.4.2 (vi) Distances of Vehicle Crossings from Intersections	21
3.7 Rule 14.2.4.2 (vii) Service Stations	22
3.8 Rule 14.2.4.2 (viii) Minimum Distance Between Vehicle Crossing onto State Highways	23
4 Appendix 7	24
4.1 Table 1: Car Parking Layout	24
4.2 Table 2: Heavy Vehicle Parking Layout	25
4.3 1. Car Space Layouts (refer tables 1 and 2)	25
4.4 2. Bicycle Layouts (refer tables 1 and 2)	25
4.5 (Part 1) Vehicle Swept Path Design – (refer tables 1 and 2)	26
4.6 Vehicle Swept Path Design – Part 2	28
4.7 Diagram 1: Sight Distance Measurement Diagram	32

4.8	Diagram 2, Diagram 3 & Diagram 4	33
4.9	Diagram 5: SH6 Roundabout Works.....	35
4.10	Diagram 5 & Diagram 6: Residential and Commercial/Industrial Vehicle Crossings	35
4.11	Diagram 7: Distances of Vehicle Crossings from Intersections	37
5	Appendix 6: Road Hierarchy	38

1 Introduction

MWH (now Stantec and referenced as such throughout the document), has been commissioned by Queenstown Lakes District Council (QLDC) to undertake a review of the Transport Rules set out in Section 14 of the QLDC Operative District Plan ('District Plan'). The main purpose of this study is to ensure that these transport rules align with relevant industry standards or best practice, and provide justification where these rules differ from the standards. This report provides a summary of the review recommendations.

Background

A review of the Transport Rules section of the District Plan was previously undertaken by Traffic Design Group (TDG) and GHD in 2009 to provide recommendations that reflect what was then best industry practice and standards. In addition, a more recent review was undertaken by MWH in 2013, where the transport rules were compared against the industry standards as well as district plans of other similar Councils within New Zealand.

The findings of the previous reviews are documented in the following reports, which have been utilised for this study.

- Plan Change 27: Updating District Plan References – Transport Section, TDG, Feb 2009.
- Plan Change 27B Proposed Amendments to Part 14: Transportation of Partially Operative District Plan, GHD, March 2009.
- Queenstown Lakes District Council District Plan Review, MWH (now part of Stantec), April 2013.

Study approach

To ensure this review is undertaken efficiently by making use of all available information, the aforementioned documents were first peer-reviewed to identify whether their recommendations are still relevant. Where the industry standards and guidelines referred to in these reports have changed, the District Plan rules have been reviewed against the latest standards.

The District Plan rules have been compared against the following key standards and guidelines:

- Australian / New Zealand Standard – Parking Facilities, Part 1: Off-street car parking (AS/NZS 2890.1:2004);
- Australian Standard – Parking Facilities, Part 2: Off-street commercial vehicle facilities (AS 2890.2:2002);
- New Zealand Standard – Design for Access and Mobility: Buildings and Associated Facilities (NZS 4121:2001);
- New Zealand Standard – Land Development and Subdivision Engineering (NZS 4404:2010);
- Queenstown Lakes District Council – Land Development and Subdivision Code of Practice, Superseding NZS 4404:2004 and Council Amendments (2015);
- AUSTROADS Guide to Road Design Part 4A: Unsignalised and Signalised Intersections (AUSTROADS Part 4A);
- New Zealand Transport Agency (Formerly Land Transport Safety Authority) Road & Traffic Standards 6, Guidelines for Visibility at Driveways (RTS 6);
- New Zealand Transport Agency (Formerly Land Transport Safety Authority) Road & Traffic Standards 13, Road Safety Guidelines for Service Stations (RTS 13);
- New Zealand Transport Agency (Transit New Zealand) Planning Policy Manual (2007) (PPM)
- Compliance Document for New Zealand Building Code, Clause D1 Access Routes – Second Edition (2011) (Building Code)

In addition, the District Plan rules have also been compared to District Plans of the following local Councils:

- Auckland City Council (ACC) Unitary Plan.
- Buller District Council (BDC) District Plan.
- McKenzie District Council (MDC) District Plan.
- Western Bay of Plenty (WBoP) District Plan.
- Hamilton City Council (HCC) District Plan.
- Christchurch City Council (CCC) District Plan.

2 Transport Rule 14.2.4.1 Parking and Loading

The following sections present each of the existing transport rules within section 14.2.4.1 *Parking and Loading* and confirm whether the current rule is considered appropriate or if modification should be considered. Where modification is recommended the potential wording is presented with supporting rationale. The potential wording is shown in ***bold italics*** with the current rule wording amended with strikethrough (~~strikethrough~~) where required. It is noted that the purpose of the recommended wording is to convey the general intent of the rule and is not considered to be final. It is expected that some re-drafting will be undertaken by a planner prior to notification in order to ensure that the recommended changes to the rules are clear, vires and provides sufficient certainty.

The particular transport rules examined are:

- 14.2.4 Site Standards, excluding;
 - o 14.2.4.1 (ii) Frankton Flats Special Zone
 - o 14.2.4.1 (iii) Parking requirements within Frankton Flats Special Zone (B)
 - o Rules relating to Three Parks Zone.

2.1 Rule 14.2.4.1 (i) Minimum Parking Space Numbers

As there are no industry standards which specify appropriate parking rates for land uses, a full review of this rule against industry standards and practice cannot be undertaken. However, Trips Database Bureau (TDB) is considered an appropriate source of information as it provides New Zealand and Australia wide parking rates which can be used by QLDC as guidance. The QLDC Land Development and Subdivision Code of Practice (CoP)¹ and NZS 4404:2010 also states that TDB can be used for guidance on parking and loading requirements.

Stantec agrees with TDG findings which identified that reviewing the land uses and parking rates provided in Tables 1 and 1A of the operative District Plan will be beneficial in ensuring that these are current and appropriate for Queenstown. This will allow for any gaps in land use types provided within these tables to be addressed, and appropriate parking rates to be specified using TDB as guidance. For example, there is often a need for drop off/ pick up parking spaces at pre-schools and primary schools. However this is not recognised within the current Rule. In addition, parking requirements for land uses such as storage, camping grounds, caravan parks and places of assembly are also currently not included within this Rule. It is noted that due to its complexity, the review of the current parking rates of Tables 1 and 1A based on TDB is not included in this report and is to be undertaken as a separate exercise prior to updating the District Plan.

In terms of parking rates, coach parking rates specified in Table 1 require some changes. At present Table 1 specifies coach parking for some High Density Residential Zones and visitor accommodation activities (e.g. hotels and hostels). A review of the parking rates provided for these activities indicated that the District Plan currently specifies more coach parking for unit type visitor accommodation compared to backpacker hostels, where each guest room will have a higher number of occupants. It is noted that some visitor accommodation may only require spaces for coaches to stop to drop off/pick up passengers and some may not even require coach parking/stopping provision due to the

¹ QLDC Land Development and Subdivision Code of Practice (2015), Section 3.3.6 Parking, passing and loading

visitors using coaches which only travel to/from the city centre. This is currently not recognised within this Rule and would form part of the separate advice on parking, referred to above.

Stantec agrees with TDG findings which identified that although QLDC aims to encourage sustainable travel and active modes, at present Table 1 and 1A provide no district wide, zone specific or activity specific bicycle parking requirements other than for the Three Parks Zone. Therefore, to improve consistency among different zones and to encourage modal shift, it is recommended that the bicycle parking requirements of Table 1D or a variation of it should be incorporated in Tables 1 and 1A. In addition, to encourage sustainable travel, and in line with TDG findings, it is recommended that a note is added to this Rule to explicitly state that a Travel Plan can result in reduced parking demand, thereby reducing the amount of parking required. The CCC District Plan can be used as an example² of using this approach in district plans, as it takes Travel Plans into consideration in the matters of discretion for the minimum number of car parks required. In addition it also provides a separate section³ on parking reduction adjustment factors which includes Travel Plans.

As identified by TDG, at present, note (i) of this Rule currently recommends that fractional parking spaces are rounded up when calculating the total parking requirement. However, it is unclear whether this requires fractional parking spaces of each different activity to be rounded up before summation, or if the rounding up of the total is undertaken. Stantec agrees with TDG findings as the lack of clarity may see this particular note being interpreted differently, resulting in a difference of several parking spaces in the overall parking provision. This may result in an oversupply of parking, and require more parking spaces than required at constrained sites. Coach parking requirements in particular will be affected by this as rounding up fractional parking spaces means that even smaller visitor accommodations will require a coach parking space. It is also unclear which factors trigger the need for coach parking.

In addition, as also identified by TDG, note (iii) of this Rule states that the total parking requirements for any development shall be the sum of the requirements for each area associated with different activities. Stantec agrees with TDG findings which identified that this Rule currently does not recognise the ability of complementary land uses to share parking spaces. Although this can be assessed under an Assessment Matter, it is recommended that stating this explicitly under the rules may promote effective use of land by only providing the necessary parking. This will also assist in QLDC achieving its aim to avoid excessive parking being provided and promote the efficient use of land.

Note (iii) of this rule also states that when calculating overall parking requirements for a development, the separation of the area into activities will only be required where the gross floor area of an activity exceeds 10% of the total gross floor area of the development. As the reason behind this 10% trigger is unclear and no justification for this can be established, it is recommended that this section of the note is removed from the Rule. Removal of this requirement is not expected to result in a significant effect on the overall parking space number and the need for parking requirements for a relatively small activity at large developments can be carried out as site specific assessment.

Recommendation:

- As a separate exercise, review parking rates in association with TDB and identify where Queenstown Lakes District specific surveys are required. As recommended in Section 2.3 of this report, campervan parking requirements for relevant land uses are to be identified as part of this review.
- Incorporate drop off/ pick up space requirements for educational facilities and day care centres into Table 1 and 1A as recommended in Section 2.10.
- Compare the Three Parks bicycle parking requirements to CCC District Plan and incorporate bicycle parking requirements either from Table 1D (Rule 14.2.4.3) or a variation of it into Tables 1 and 1A and compare to Christchurch District Plan.
- State within the Rule that a Travel Plan can result in reduced parking demand, thereby reducing the amount of parking required.

² CCC District Plan, Section 7.4.4.1 (a) (I)

³ CCC District Plan, *Table 7.5.14.1 Parking reduction adjustment factors*

- Amend Note (i) of Rule 14.2.4.1 (i) as follows:

Note (i): In calculating the total parking requirement, the requirement for residents/visitors and the requirement for guests or staff shall be added together, then rounded up to the next highest whole number. E.g. for 5 units the requirements are:

residents/visitors 5 x 1.25 = 6.25

staff/guests 5 x 0.25 = 1.25

total of 7.5, rounded up, gives a total requirement of 8.

Similarly, where the total parking requirement includes different activities, the requirements of all activities shall be added together, then rounded up to the next highest whole number.

- Amend Note (iii) as follows:

*Note iii: The parking requirements listed in Table 1 are categorised by activity. ~~When calculating the overall parking requirements for a development, the separation of area into different activities will be required where the gross floor area of an activity (or public floor space or other such measurement that the standards for the relevant activity is based upon) exceeds 10% of the total gross floor space of the development.~~ The total parking requirement for any development shall be the sum of the requirements for each area. **Where it can be demonstrated that joint provisions for parking can be provided for activities located on one site or several sites in an area in accordance with Rule 14.2.4.1 (iv) (e) (iii), dispensation in respect of the parking requirement for one or more of the activities may be allowed.***

2.2 Rule 14.2.4.1 (iv) Location and Availability of Parking Spaces

There are no industry standards which are applicable to this rule, therefore a full review of it against industry standards and practice cannot be undertaken. However, to improve clarity and readability, some changes are recommended to clause (b) of this rule.

Clause (b) is considered relevant to both heavy vehicle parking and manoeuvring. Therefore, it is recommended that this section of the rule is repeated under Rule 14.2.4 (ix). In addition, the latter part of this clause should be amended to clearly refer to 'heavy' vehicle reverse manoeuvring and to improve clarity the definition of a heavy vehicle should also be included. Similar to the CCC District Plan, the definition of a heavy vehicle has been obtained from Heavy Motor Vehicle Regulations 1974.

As outlined in clause (b), this rule specifies that heavy vehicle parking or loading spaces should be located to ensure that no reverse manoeuvring onto/from any road other than a service lane is carried out. This clause can be misinterpreted to consider that heavy vehicle reverse manoeuvring onto or from a service lane located off State Highways and arterial roads is acceptable, whilst *Rule 14.2.4.1 (xiii) Loading Areas* prevents any loading vehicles from reversing onto or from State Highways, arterial roads and collector roads.

It is considered that heavy vehicle reverse manoeuvring are only appropriate on local roads with low traffic volumes and speeds. The Code of Practice for Temporary Traffic Management defines a low volumes road as having less than 500 vehicles per day. An environment with a posted speed limit of 50 km/hr less is considered to be a low speed environment. Therefore, it is recommended that this rule is amended to only permit heavy vehicle reverse manoeuvring onto or off a road with a traffic volume of less than 500 veh/day and a speed limit of 50 km/hr or less. It is noted that although from a traffic engineering perspective this recommendation is considered appropriate, from a planning point of view, the wording of this rule may need to be changed. In addition, it is also recommended that the Clause (b) is amended to include heavy vehicle manoeuvre areas which should also comply with this rule.

As the updated QLDC road hierarchy is not known at this stage, to maintain consistency with *Rule 14.2.4.1 (xiii)*, the recommendations below use the outdated road hierarchy terminology (arterial, collector and local roads). Therefore, as discussed in Section 5 of this report, when updating this

Rule, the references to Arterial, Collector and Local Road needs to be amended based on the updated QLDC road hierarchy.

In addition, the section of Clause (b) which refers to noise emission standards is considered to be irrelevant to transport matters. Therefore, to improve clarity it is recommended that QLDC provides the noise emission related specification in a more suitable section in the District Plan.

Recommendation:

- Amend Clause (b) of Rule 14.2.4.1 (iv) to read:

*All required heavy vehicle **manoeuvring area**, parking or loading space shall be located so that **its use by those vehicles complies with the relevant noise emission standards for the activity to which the parking relates, and to ensure that no heavy vehicles are only is required permitted** to carry out any reverse manoeuvring onto or from ~~any road other than a service lane~~ roads where the traffic volume is less than 500 veh/day and the road has a posted speed limit of 50km/hr or less.*

Note: A heavy vehicle refers to a motor vehicle (other than a motorcar that is not used, kept, or available for the carriage of passengers for hire or reward) the gross laden weight of which exceeds 3,500 kg; but does not include a traction engine or vehicle designed solely or principally for the use of fire brigades in attendance at fires.

- Clause (b) to be cross referenced under Rule 14.2.4 (ix), Reverse Manoeuvring.
- If the noise emission related requirement is/can be covered elsewhere in the District Plan, remove the text highlighted in red above.
- Update the references to Arterial, Collector and Local Roads as per the new QLDC road hierarchy.

2.3 Rule 14.2.4.1 (v) Size of Parking Spaces

Rule 14.2.4.1 (v) currently states that:

All required parking spaces other than for residential units, and associated manoeuvring areas are to be designed and laid out in accordance with the requirements in Appendix 7.

However, as discussed in Section 2.8 of this report, it is recommended that residential parking space sizes are also provided in Appendix 7. Therefore, to maintain consistency it is recommended that this Rule is amended by removing the text which refers to residential units. As additional requirements relating to residential parking spaces are covered within Rule 14.2.4.1 (x), it is also recommended that a new note is added to refer to it.

At present the District Plan provides parking space dimensions for some large vehicles such as coaches, rigid trucks, midi-buses and B-trains. However, it provides no parking space dimensions for camper vans. As no information relating to parking space dimensions of campervans is found in relevant industry standards or any of the District Plans of other Councils, it is considered that parking space dimensions for such vehicles should be carried out as a site specific assessment where applicable. However, it is noted that providing no rule within the District Plan which requires parking spaces for such vehicles may mean that assessing this as a site specific matter may not be possible. Therefore, it is recommended that as part of the separate exercise undertaken for *Rule 14.2.4.1 (i) Location and Availability of Parking*, campervan parking requirements is also identified for relevant land uses.

The contents of Appendix 7 is discussed in detail within Section 3 of this report.

Recommendation:

- Amend Rule 14.2.4.1 (v) as follows:

All required parking spaces ~~other than for residential units~~, and associated manoeuvring areas are to be designed and laid out in accordance with the requirements in Appendix 7.

Note: refer to 14.2.4.1 (x) for additional requirements of residential parking spaces.

- As part of the separate exercise recommended in Section 2.1, campervan parking space requirements should be considered for relevant land uses.

2.4 Rule 14.2.4.1 (vi) Parking Area and Access Design

This rule specifies that all vehicle access design is to be undertaken in accordance with the standards contained in NZS4404:2004. This design standard has been updated since the publication of the District Plan, and has been superseded by NZS4404:2010. In addition, the CoP provides Council amendments to this standard. Therefore, it is considered that the CoP is more relevant to this Rule.

Review of this Rule indicated that although the key purpose of it is to provide specifications relating to accesses internal to subdivision, this purpose is currently not captured within this Rule. Therefore, it is considered that adopting the CoP requirements relating to this matter is appropriate. As the CoP provides extensive information relating to parking area and access design, it is recommended that the CoP is referenced within the Rule. However, we understand the CoP is currently in the process of being updated. Therefore, it is recommended that once this is complete, the updated CoP should be referenced within this rule.

The Rule currently specifies a specific formed width and a legal width for accesses serving 1 to 6 units and 7 to 12 units. This would mean that if an accessway is required to have a wider legal width, a resource consent would be needed. Therefore, to address this it is considered that this should be changed to 'minimum' legal width. Specifying a 'minimum' formed width will allow wider vehicle accesses which promote increased operating speeds and safety issues to be constructed. Therefore, no changes are considered necessary to the 'formed width' title.

Comparison of the Rule against the CoP indicated that the first table provided within the rule is inconsistent with the CoP as it requires more width for accesses serving 1 -3 units, less width for vehicle accesses serving 4- 6 units and less legal width for accesses serving 7 -12 units. However, the width requirements provided in this table is considered acceptable as the widths are sufficient to accommodate fire trucks (3.5 m), provides sufficient space for in-ground services and enables efficient land use. Therefore, the only recommended change to the table is to amend the formed width of accesses serving 7 to 12 units to 5.5 m – 5.7 m to align with the CoP.

The Rule currently restricts the width requirements to vehicular accesses serving residential and/ or visitor accommodation in High and Low Density Residential Zones. As these requirements should apply to shared vehicles accesses serving residential and/or visitor accommodation in all zones, it is recommended that this rule is amended to remove the zone restriction. In addition, the existing advise note should also be amended to state that in some zones (such as in High Density Residential and Rural where no density rule exists) where it may not be possible to determine the maximum capacity, the application will need to rely on the development being proposed in the resource consent application.

The current Rule also specifies that for formed accesses serving 1 – 6 units, passing bays are to be provided at intervals greater than 25 m and that the passing bays shall be at least 8 m long and 2.5 m wide. This does not align with the CoP which specifies that to allow vehicles to pass, accesses shall have a widening of not less than 5.5 m over a 15 m length and are provided at no more than 50 m spacing.

Recommendation:

- Replace all references to NZ4404:2004 found within this rule with '**QLDC Land Development and Subdivision Code of Practice (2017)**'.
- Amend the following section of the Rule 14.2.4.1 as shown
 - All vehicular access to fee simple title lots, cross lease, unit title or leased premises shall be in accordance with the standards contained in NZS4404:2004 **QLDC Land Development and Subdivision Code of Practice (2017)**, and*
 - Except all shared vehicular accesses serving residential and/or visitor accommodation units in the High and Low Density Residential Zones shall be in accordance with the out in NZS4404:2004 except for developments identified following:- table below:***

(a)

<i>The Greater of the Actual Number of Units Served or; the Potential Number of Units served by the Access as a Permitted or Controlled Activity</i>	<i>FORMED WIDTH (m)</i>	<i>MINIMUM LEGAL WIDTH (m)</i>
1 to 6	3.5	4
7 to 12	5 5.5 - 5.7	6

(b) Where the shared vehicle access adjoins a local distributor or higher road in the hierarchy, including a State Highway, it shall have a 5m formed width and a 6m legal width for a minimum length of 6m as measured from the legal road boundary.

(c) No private way or private vehicle access or shared access shall serve sites with a potential to accommodate more than 12 units on the site and adjoining sites.

(d) Private shared vehicle accesses shall have legally enforceable arrangements for maintenance put in place at the time they are created.

(e) **To allow vehicles to pass**, formed access widths for 1 to 6 units **shall have widening to not less than 5.5 m over a 15 m length at no more than 50 m spacing** ~~provide passing bays at intervals no greater than 25 metres~~ (end of one passing bay to the beginning of the next). ~~Passing bays shall be at least 8 metres long and at least 2.5 metres wide, plus any tapers desired.~~

The access width rules provided above do not apply at the time of subdivision to developments authorised and implemented under existing and live resource consents at the time of adoption of these rules.

The access width rules provided above do not apply to existing private shared vehicle accessways for the purpose of controlling the number of units that may be built using the accessways, unless the total land served by the accessway could provide for more than 12 units.

*Note: Calculation of maximum developable capacity shall require, where necessary, creation of sections to serve as future accessway extensions to link to other sites beyond the immediate development. **In some zones where it may not be possible to determine the maximum capacity, the application will rely on the development being proposed in the resource consent application.***

2.5 Rule 14.2.4.1 (vii) Gradient of Car Parks

Rule 14.2.4.1 (vii) states that:

“Car parking area shall have a gradient of no more than 1 in 20 in any one direction.”

This differs from standard AS/NZS 2890.1:2004⁴ as it specifies a maximum gradient of 1 in 20 parallel to the angle of parking, whilst allowing a maximum gradient of 1 in 16 in any other direction. The Building Code⁵ states that handrails need to be provided for accessible ramps which are steeper than a gradient of 1 in 20. This suggests that a maximum gradient of 1 in 20 is considered appropriate for wheel chair users. Given this, it is recommended that the current rule which specifies a gradient of 1 in 20 is kept unchanged as this would ensure that car parks are generally designed to provide a comfortable gradient for wheel chair users.

⁴ AS/NZS 2890.1:2004, Section 2.4.6.1 Maximum Gradients, (a) & (b)

⁵ Compliance Document for New Zealand Building Code, Clause D1 Access Routes, Section 6.0.3 Accessible Stairways and Accessible Ramps

Recommendation:

- As recommended in GHD findings, retain the rule as is, allowing applicants to argue for a steeper car parking angle in accordance with NZS 2890.1:2004 on a case by case basis.

2.6 Rule 14.2.4.1 (viii) Car Spaces for People with Disabilities

Clause (a) of Rule 14.2.4.1 (viii) states that:

- a) *Car parking areas shall include spaces for people with disabilities provided at the rate of*
- 1 to 10 spaces: no requirement*
- 11 to 50 spaces: 1 disabled person's space*
- up to 100 spaces: 2 disabled persons' spaces*
- plus 1 more for every additional 50 spaces.*

This clause does not align with the Building Code or NZS 4121:2001 as the mobility parking requirements specified in these standards are higher than that of this Rule.

Based on AS/NZS 2890.1, the Building Code⁶ specifies one mobility parking space for up to 10 parking spaces, two mobility parking spaces for up to 100 parking spaces and one mobility parking space for every 50 additional parking spaces.

The NZS 4121:2001⁷ requires no less than one mobility parking space for 1 – 20 parking spaces, no less than two mobility parking spaces for 21 – 50 parking spaces and no less than 1 mobility parking space for every additional 50 parking spaces.

As identified in GHD's review findings, the level of mobility parking provision set out in these two industry standards increases the number of mobility parking spaces required, particularly within smaller car parks. Therefore, changing the District Plan Rules to align with these standards may potentially be controversial.

However, it is considered that this Rule needs to be changed to align with relevant industry standard and practice. Stantec therefore agrees with GHD recommendations to adopt the mobility parking requirements specified in the Building Code to align this Rule with the national best practice. As mobility parking provision will mostly relate to a new or an alteration to a building, aligning this Rule with the Building Code is considered sensible as any new application will need to comply with the Building Code at the consent stage. In addition, the wording of the current rule should be amended to ensure that the mobility parking requirement does not apply for residential parking areas.

AS/NZS 2890.1 requires the width of parking spaces located adjacent to obstructions such as columns or walls to be increased by 300 mm. As noted in the Building Code, this requirement also applies for mobility parking spaces. However, in addition to columns and walls, obstructions for mobility parking spaces would also include kerbs and gardens. Therefore, it is recommended that this requirement is added as a note into Table 1 of Appendix 7.

In addition, it is considered that this rule also needs to be prescriptive in terms of accessible routes from the car park to the buildings. The Building Code provides a number of requirements relating to accessible routes such as slip resistance, width, protection from falling, door locations and accessible ramp design. As the Building Code provides extensive information relating to accessible routes, it is recommended that the Rule is amended to specify that accessible routes are designed in accordance with the Building Code.

Recommendation:

- Amend Rule 14.2.4.1 (viii) to align with the Building Code:
 - a) **Non-residential** car parking areas shall include spaces for people with disabilities provided at the rate of

⁶ Compliance Document for New Zealand Building Code, Clause D1 Access Routes, Section 10.2 Modifications to AS 2890

⁷ NZS 4121:2001, Section 5.4, Table 1 – Number of car parks

~~1 to 10 spaces: no requirement~~ 1 disabled person's space

~~11 to 50 spaces: 1 disabled person's space~~

~~Up to 100 spaces:~~ 2 disabled persons' spaces
plus 1 more for every additional 50 spaces.

- b) Car parking for people with disabilities shall be located as close as practicable to the building entrance. The spaces should be on a level surface and be clearly signed.
- c) **Accessible routes shall be provided to give direct access from the car park to the building. Accessible routes to be designed in accordance with Compliance Document for New Zealand Building Code, Clause D1 Access Routes.**

2.7 Rule 14.2.4.1 (ix) Reverse Manoeuvring

There are no industry standards which are applicable to this rule, therefore a full review of it against industry standards and practice cannot be undertaken. However, to improve clarity and readability, some changes are recommended.

This Rule currently requires off-street manoeuvrability to be assessed using a 90th percentile car. While this previously aligned with NZTA requirements, it is no longer valid as the NZTA now refer to AS/NZS 2890.1 for geometric design of facilities for light vehicles.

The AS/NZS 2890.1:2004 which has increased the size of design vehicles based on a survey of vehicle fleets in Australia in 2000, recommends the use of a B85 vehicle for parking spaces, and parking aisles. It also recommends the use of a B99 vehicle for all locations where failure of a vehicle to physically fit into facilities (e.g. access driveways, ramps and circulation roads) results in delay or safety issues.

A B85 vehicle is defined in AS/NZS2890.1:2004 as a design vehicle whose physical dimensions represent the 85th percentile class of light vehicles on the road. A B99 vehicle is defined as a design vehicle whose physical dimensions represent the 99.8th percentile class of all light vehicles on the road.

To align this Rule with AS/NZS 2890.1:2004, all references to 90th percentile car should be replaced with a B85 vehicle and references should be made to a B99 vehicle for locations where failure to undertake reverse manoeuvring could cause safety or congestion issues.

This Rule currently requires the off-street manoeuvring spaces to be designed to ensure that a 90th percentile car is able to manoeuvre into and out of parking spaces within only one reverse manoeuvre. While this may be possible for most angled parking spaces, when entering/exiting parallel parking spaces more than one reverse manoeuvre may be required. Therefore, similar to the CCC District Plan⁸, this section of the rule should be amended to exempt parallel parking spaces from this requirement. In addition, as this Rule applies to all light vehicles including cars, it is recommended that to improve clarity the wording within the Rule should be changed from 'car' to a 'B85 vehicle'.

The current rule provides no restrictions relating to the on-site reversing distance. This means that in some instances where the current rule allows reverse manoeuvring (e.g – accessway serving nine parking spaces on a local road) reversing along a long, narrow and winding access will also be allowed. Reversing along a significant distance has the potential to create safety issues, particularly if no space is available for oncoming vehicles to pass or the accessway alignment restricts visibility for the driver. Therefore, it is considered this needs to be incorporated into the rule.

The latter part of this Rule provides incorrect references to previous clauses which relate to heavy vehicle manoeuvring and loading, and this needs to be updated. The current clauses provided within this rule are not considered to be subsets of the first paragraph. Therefore it is recommended the first paragraph is also provided as a clause. In addition, as discussed in Section 5, the reference to Arterial, Collector and Local Road needs to be amended based on the updated QLDC road hierarchy.

⁸ Christchurch City Council District Plan, Appendix 7.5.6 (a)

Recommendation:

- Amend Rule 14.2.4.1 (ix) as follows:
 - a) *Where off-street manoeuvring facilities are required, a ~~90th percentile car~~ **B85 vehicle**, as defined in Appendix 7, shall be able to manoeuvre into and out of any required parking spaces with only one reverse manoeuvre, **except for parallel parking spaces**. The **B99 vehicle**, as defined in Appendix 7, shall be used at all locations where failure of a vehicle to be able to physically fit into the facility would occasion intolerable congestion and possible hazard. Such locations shall include all access driveways, ramps and circulation roadways.*
 - b) *~~(a)~~ Off-street manoeuvring shall be provided to ensure that no vehicle is required to reverse onto or off a State Highway or **arterial road**.*
 - c) *~~(b)~~ Off-street manoeuvring shall be provided to a ~~90th percentile car~~ **for a B85 vehicle** to ensure that no ~~car~~ **B85 vehicle** is required to reverse either onto or off any **collector** road where:

 - i. the frontage road speed limit is 80km/h or greater, or
 - ii. six or more parking spaces are to be serviced by a single accessway, or
 - iii. three or more residential units share a single accessway, or
 - iv. the activity is on a rear site*
 - d) *~~(c)~~ Off-street manoeuvring shall be provided to a ~~90th percentile car~~ **for a B85 vehicle** to ensure that no ~~car~~ **B85 vehicle** is required to reverse either onto or off any **local road** where:

 - i. ten or more parking spaces are to be serviced by a single accessway, or
 - ii. five or more residential units share a single accessway, or
 - iii. the activity is in a rear site*

*Note: refer to 14.2.4.1 # iv (b) and 14.2.4.1 xiii (b) (iv) for reverse manoeuvring provisions for heavy vehicles and loading spaces. **A list of Arterial and Collector roads and a definition of Local roads is contained in Appendix 6.***
- Update the references to Arterial, Collector and Local Roads (highlighted in Red) as per the new QLDC road hierarchy.

2.8 Rule 14.2.4.1 (x) Residential Parking Spaces

The residential parking space dimensions specified in Clause (a) of this Rule do not align with the parking space dimensions provided in Table 1 of Appendix 7. However, it appears that the minimum internal widths specified in this Rule equate to the sum of the minimum stall width and the 300 mm clearance (as specified in Table 1) either side of the parking space. In this respect, the dimensions specified in this Rule are also consistent with AS/NZS 2890.1:2004. Therefore, to reduce confusion it is recommended that clause (a) of this is removed and *Rule 14.2.4.1 (v) Size of Parking Spaces* is amended to ensure that it refers to Appendix 7 for all parking space dimensions including residential parking spaces.

This Rule currently requires the manoeuvring area from the property boundary to the garage entrance to be designed to accommodate a 90th percentile car. Similar to the previous, to align this Rule with AS/NZS 2890.1:2004, all references to 90th percentile car should be replaced with a B85 vehicle. In addition, it is also recommended that Clause (b) is amended to ensure that garage lengths can accommodate a B99 design vehicle, by specifying a minimum garage length of 5.5 m. This equates to the length of the B99 vehicle (5.2 m) plus a clearance of 300 mm to ensure vehicles do not encroach onto footpaths or roads.

Recommendation:

- Amend Rule 14.2.4.1 (x) as follows:

~~(a) Any residential parking spaces for Class 1 and Class 2 users (see definitions in Appendix A7), required by this Plan shall have the following minimum internal dimensions:-~~

	WIDTH	DEPTH
Single	3.1m	5.5m
Double	5.6m	5.6m

~~**Note:** A row of three parking spaces would require a total width of 8.7m and not the minimum 7.5m width indicated by Table 1 in Appendix 7. A row of more than three parking spaces would use Table 1 widths for the intervening spaces between the two end parking spaces of 3.1m each. The last spaces at the end of each row shall be counted as single spaces to provide sufficient width to fully open vehicle doors in the end parking spaces.~~

- a) ~~(b)~~ The minimum width of the entrance to a single garage shall be no less than 2.4m wide. **The minimum length of a garage should be 5.5 m.** The manoeuvring area from the property boundary to the garage entrance shall be designed to accommodate a 90 percentile car a **B85 design vehicle** as set out in Appendix 7.
- b) ~~(c)~~ Where two parking spaces are provided for on a site containing only a single residential or Visitor Accommodation unit, the two parking spaces may be provided in tandem.

2.9 Rule 14.2.4.1 (xi) Queuing

Stantec agrees with TDG's findings which identified that the queuing space lengths provided in Table 2 of this Rule are broadly comparable to Table 3.3 of AS/NZS 2890.1:2004. However, it is important to note that the queuing spaces specified in this standard are only applicable for car parks with control points (e.g. boom gates), whilst the queuing space specified in the District Plan rule applies to all vehicles entering a parking or a loading area. Therefore, consistent with TDG findings, it is considered that the queuing spaces specified in this Rule are more applicable to accesses with control points. For accesses with no such devices, the queuing length provided by the District Plan rule may be greater than what is required in practice.

In addition to the queuing spaces, AS/NZS 2890.1:2004⁹ also outlines a number of other factors which affect the size of the queuing area. These include the traffic volume in surrounding streets, the number of parking spaces in the car park, anticipated peak entry/exit flow, rate of entry/exit at control points, parking accumulation and turnover and the freedom of movement beyond the control point. However, Stantec agrees with TDG in that the standard is not prescriptive in terms of how these factors can be used for determining the queue spacing.

This Rule also states that 'where the parking area has more than one access the required queuing space may be divided between the accesses'. However, it provides no further information relating to how this division should occur. The AS/NZS 2890.1:2004 recommends that queuing areas in a multiple entry car parks should be based on the expected volume of traffic served by each entry point.

Given the above, it is considered that the standard provides more information relating to queuing in areas where the current District Plan rule falls short. However, the standard is considered more restrictive than the current District Plan rule, as it requires a minimum queue length of 2 vehicles for even smaller car parks, whilst the current district plan only requires a minimum queue length of 1 vehicle. This would mean that as per the standard, even land uses such as residential areas with one parking space would require a queue space to cater for 2 vehicles. Therefore, it is considered the current Table 2 within this rule should remain unchanged. However, a note should be added to

⁹ AS/NZS 2890.1:2004, Section 3.4 Queuing Areas

this table stating that in certain circumstances reduced provision may be possible based on the other factors listed within Section 3.4.

Recommendation:

- Stantec agrees with TDG recommendations to amend Rule 14.2.4.1 (xi) as follows:

*On-site queuing space shall be provided for all vehicles entering a parking or loading area. The required queuing space length shall be in accordance with the Table 2 below, ~~except that where~~ **Where** the parking area has more than one access the required queuing space may be divided between the accesses **based on the expected traffic volume served at each access point**. Queuing space length shall be measured from the road boundary at the vehicle crossing to the nearest vehicle control point or point where conflict with vehicles already on the site may arise.*

Note: Table 2 represents typical queue space requirements for car parks. In certain circumstances reduced provision or a greater provision may be possible based on factors set out below:

(i) Traffic volume in surrounding streets.

(ii) The number of parking spaces in the car park.

(iii) Anticipated peak entry/exit flow.

(iv) Rate of entry/exit at control points.

(v) Hourly parking accumulation and turnover.

(vi) Freedom of movement beyond the control point.

Except:

This Rule shall not apply to vehicles entering a parking or loading area gaining access from Local Access Roads within Activity Area 1 of the Mount Cardrona Station Special Zone.

Table 2 - Queuing Space Lengths

NUMBER OF PARKING SPACES	MINIMUM QUEUING LENGTH
3 – 20	6m
21 – 50	12m
51 – 100	18m
101 – 150	24m
151 – or over	30m

- Stantec agrees with GHD recommendations to provide a new assessment matter as follows:

(u) whether a queuing space less than that required in Table 2 will serve the proposal safely and effectively, taking into account the factors set out within the note.

2.10 Rule 14.2.4.1 (xii) Set Down Areas

This Rule specifies that all educational and health facilities must provide an on-site manoeuvre area to allow vehicles to set down and pick up children or patients. However, it provides no further information as to the length/size of the manoeuvre areas required.

In addition, the latter part of this rule also notes that manoeuvre areas should be provided at these facilities to ensure that no vehicle is required to reverse onto or off the site. This effectively restricts reverse manoeuvring from these facilities completely, whilst Rule 14.2.4.1 (ix) only restricts reverse manoeuvring based on factors such as the classification of the road, speed limit of the road and the number of parking spaces. However, reverse manoeuvring at drop off/pick up parking spaces at these types of land uses has the potential to affect the safety of vulnerable pedestrians such as children, elderly, sick or disabled pedestrians. Therefore, it is considered that this section of the rule should remain unchanged and additional text should be added to ensure that reverse manoeuvring within the site is also restricted.

It is also considered that on-site manoeuvre areas or drop off/pick up spaces should be specified for land uses such as primary schools and childcare centres. However, no guidance relating to this is found in the industry standards. A review of District Plans of other Councils indicated that HCC currently specify drop off/pick up parking space requirement for large childcare centres and schools. As these drop off/pick up parking space requirements are considered appropriate, it is recommended that the drop off/pick up parking space requirements outlined in HCC District Plan are adopted in the District Plan and incorporated into Table 1.

Although set down areas at health care facilities could provide benefits in terms of managing traffic associated with these activities, this is currently not covered by any of the District Plans of other Councils. Therefore, it is recommended that set down area requirement for health care facilities is retained within this rule, and further investigation is undertaken with the use of TDB to identify relevant drop off/pick up spaces required for activities of this type. This can be undertaken as part of the exercise recommended in Section 2.1.

Recommendation:

- Add the following drop off/pick up parking space requirements to Table 1 of Rule 14.2.4.1 (xii):
 - Childcare facilities for six or more children: 1 drop-off/pick up car space per 5 children.***
 - Primary and Intermediate schools: 1 drop-off/pick up space per 50 students and 1 bus space per 200 students where school bus services are provided.***
 - Secondary schools: 1 drop-off/pick up space per 100 students and 1 bus space per 200 students where school bus services are provided.***
- As part of the separate exercise recommended in Section 2.1, review TDB to identify relevant drop off/ pick up parking space requirements for healthcare facilities and add them into Table 1.
- Amend the rule as follows:

All educational and health facilities or activities must provide an on-site manoeuvre area to allow vehicles to drop-off/pick up children or patients as per Table 1. Such areas shall be provided to ensure that no vehicle is required to reverse either onto or off the site as well as within the site.

2.11 Rule 14.2.4.1 (xiii) Loading Areas

Stantec agrees with TDG's findings which identified that this Rule assumes that the type of land use determines the type of delivery vehicle used, as it currently specifies the minimum dimensions of loading spaces based on the activity which it caters for. As this may not hold true for all activities which require loading spaces, similar to AS 2890.2:2002¹⁰ specifying them based on the type of loading vehicle may be more appropriate.

However, Stantec also agree with GHD findings, that for new developments in particular, it would be difficult to assess the size of the delivery vehicle required at the time of the development. It will also be difficult to predict whether a change in vehicle type will be required in the future due to changes in activities within the development or transport operations. Given this, it is recommended that the District Plan continues to specify the minimum loading space dimensions based on the land use at the time of resource consent. However, it is recommended that a new Assessment Matter is added to ensure that loading spaces are designed to accommodate the largest vehicle servicing the development.

Austroroads Guidelines recommend that local roads are designed to accommodate a medium rigid vehicle. As activities such as retail premises, offices and warehouses will mostly be located on local roads or be accessed via local roads, it is expected that these activities will most likely be serviced by a vehicle of this size. Therefore, it is recommended that based on loading space dimensions provided

¹⁰ AS 2890.2:2002, Section 2.1 General

in AS 2890.2:2002¹¹, the length of a loading space servicing retail premises, offices, warehouse etc. should be changed from 8 m to 9 m to accommodate a medium rigid vehicle.

In terms of height clearance for loading vehicles, AS 2890.2:2002 specifies a clearance of 4.5 m. This is higher than the current height restrictions of 3.8 m and 2.6 m specified within this Rule. The dimensions outlined in NZ Transport Agency Vehicle Dimensions Fact Sheet¹² indicates that rigid vehicles have a maximum height of 4.3 m. Given that the loading vehicles servicing the first two activities are expected to be of this size, it is recommended that the height restriction specified by the Rule is changed to align with the standard. As the third activity type is only likely to be serviced by relatively smaller loading vehicles such as vans, the current height restriction of 2.6 m is considered appropriate.

The changes recommended above would mean that this Rule will essentially specify the same loading space sizes for the first two activities and a smaller loading space for other activities which do not handle goods. Therefore, to improve clarity it is recommended that the table within Clause (b) is amended to only provide two activity types. As some activities which do not handle goods (e.g. preschools, dairy) will still require loading spaces, it is considered that the minimum loading space size for the third activity type in Clause (b) should be retained within this Rule. However, as it is considered that loading spaces are not required for residential and visitor accommodation, these activities should be excluded from the rule.

This Rule currently does not take into account the possibility of providing loading spaces which can be shared by several activities/developments located within close proximity. This will particularly be possible if the loading demand of some activities occur at different times to the other activities, allowing for many activities to share a single loading space. Therefore, it is recommended that providing for shared loading spaces should be incorporated into the Rule similar to that of WBoP District Plan Rules.

This rule currently exempts a number of streets within the Queenstown city centre from requiring on-site loading spaces. While this list of streets is considered appropriate, it is recommended that it should be reviewed to identify if it needs to include any additional streets which may not need loading space requirements due to urban design reasons.

In terms of heavy vehicle reverse manoeuvring, it is recommended that note (iv) of clause (b) is amended to be in line with the recommendations of Section 2.2 of this report. In addition, to maintain consistency with the table, it is recommended that Clause (b) (i) is amended to refer to the 'length' of a loading space rather than its 'depth'.

Recommendation:

- Amend the Clause (b) of Rule 14.2.4.1 (xiii) as follows:
 - Every loading space shall be of the following dimensions:*

ACTIVITY	MINIMUM SIZE
<i>Transport depots or similar</i>	<i>9m length 3.5m wide 3.8m high</i>
<i>Retail premises, offices, warehouse, bulk stores, industries, service industries and similar</i> All activities (except for residential, visitor accommodation and the activities listed below)	8m length 9m length 3.5m wide 3.8m 4.5m high
<i>Offices and activities of less than 1500m² floor area not handling goods and where on-street parking for occasional delivery is available.</i>	6m length 3m wide 2.6m high

¹¹ AS 2890.2:2002, Section 4.2 Dimensions of Service Bays

¹² <http://www.nzta.govt.nz/resources/factsheets/13>

Notwithstanding the above:

- (i) Where articulated trucks are used in connection with any site sufficient space not less than 20m in ~~depth~~ **length** shall be provided.
- (ii) Each loading space required by the Plan shall have unobstructed vehicular access to a road or service lane.
- (iii) Parking areas and loading areas may be served in whole or in part by a common manoeuvre area which shall remain unobstructed.
- (iv) ~~No vehicle is allowed to reverse manoeuvre into or out of a loading space from a State Highway, arterial road or collector road.~~ **Heavy vehicles are only required to carry out any reverse manoeuvring onto or from a road with a traffic volume of less than 500 veh/day and a speed limit of 50km/hr or less.**
- (v) **Whether each loading space required by the Plan shall be sufficient in size to accommodate the largest vehicle expected to service the activity**

Note: A heavy vehicle refers to a motor vehicle (other than a motorcar that is not used, kept, or available for the carriage of passengers for hire or reward) the gross laden weight of which exceeds 3,500 kg; but does not include a traction engine or vehicle designed solely or principally for the use of fire brigades in attendance at fires.

- Provide a new assessment matter within (iii) *Parking and Loading Provision* as follows:

(p) Whether it can be shown that joint provisions for loading can be provided for activities located on one site or several sites in an area.

2.12 Rule 14.2.4.1 (xiv) Surface of Parking and Loading Areas

As there are no industry standards which specify surfacing requirements of parking and loading areas, a full review of it against industry standards and practice cannot be undertaken. However, similar to TDG findings it was identified that Austroads Guidelines¹³ state that a sealed area of 10 m from the edge of the traffic lane is sufficient to ensure that debris does not enter the traffic lanes. Therefore, the current District Plan requirement of 6 m sealed distance is considered inadequate.

Stantec also agrees with the GHD findings that at times, sealing of these surfaces may be at odds with local heritage and character elements of certain areas such as Arrowtown. Therefore, agreeing with GHD, it is recommended that to manage such potential issues, a new assessment matter should be added to assess the suitability of any alternative surfaces in such areas.

Recommendation:

- Stantec agrees with TDG and GHD recommendation to amend Clause (b) of Rule 14.2.4.1 (xiv) as follows:
 - (b) ~~The first 6m~~ **10m** of such areas (as measured from the ~~road boundary~~ **edge of the traffic lane**) shall be formed and surfaced to ensure that material such as mud, stone chips or gravel is not carried onto any footpath, road or service lane.
- Add an assessment matter to allow for the suitability of alternative surfaces in areas such as Arrowtown to be assessed:
 - (n) Whether an alternative surface of parking and layout areas to that required by Rule 14.2.4.1 (xiv) may be suitable on sites due to local heritage and characteristics such as within the Residential Arrowtown Historic Management Zone.**

¹³ Austroads Guide to Road Design Part 4, Figure 7.2 Example of a layout of a rural property access

2.13 Rule 14.2.4.1 (xvi) Landscaping and/or other obstructions

As there are no industry standards which specify the extent of landscaping within a car park, a full review of it against industry standards and practice cannot be undertaken. However, Stantec agrees with TDG findings relating to AS/NZS 2890.1:2004¹⁴ which identified that this standard recommends that when providing trees and shrubs in car parks, safety aspects such as sight distances of pedestrians and vehicles should not be compromised. Therefore, it is recommended that a new clause is added to this rule to ensure specific consideration is given to the effect of landscaping on road users and safety, particularly for pedestrians.

Recommendation:

- Add a new clause to Rule 14.2.4.1 (xvi):
(d) Landscaping and/or other obstructions shall not restrict the visibility of motorists leaving a site or create an unsafe environment for persons using the car park or adjacent footpath.

2.14 Rule 14.2.4.1 (xvii) Illumination

This Rule currently requires all non-residential parking and loading areas which accommodate 5 or more vehicles and are used at night to be illuminated to a minimum lighting level of 3 lux with high uniformity. AS/NZS 2890.1:2004¹⁵ requires the minimum lighting levels for open air (including roof-top) car parks to be provided in accordance with AS/NZS 1158.3.1.

The District Plan Rule provides no clarification relating to the meaning of 'high uniformity' and a method of measuring this. Although AS/NZS 1158.3.1 provides specific requirements including uniformity, it is recommended that this Rule should reference the recently updated QLDC lighting standard as it provides technical specifications relating to lighting design based on AS/NZS 1158.3.1.

In addition, the reason for illumination of parking and loading areas which only accommodate five or more vehicles is unclear. To ensure that all non-residential parking and loading areas which are used at night are well lit regardless of the number of vehicles it accommodates, it is recommended that the rule is amended remove the section 'which accommodate 5 or more vehicles'.

Recommendation:

- Amend the rule as follows:
All parking and loading areas, excluding those for residential use ~~which are designed to accommodate 5 or more vehicles and which are used at night, shall be illuminated to a minimum maintained level of 3 lux, with high uniformity, during hours of operation.~~ shall be designed as per Queenstown Lakes District Council Southern Light Part One - A Lighting Strategy (March 2017) and Queenstown Lakes District Council Southern Light Part Two – Technical Specifications (March 2017).

¹⁴ AS/NZS 2890.1:2004, Section 4.8 Landscaping

¹⁵ AS/NZS 2890.1:2004, Section 4.7 Lighting

3 Transport Rule 14.2.4.2 Access

The following sections present each of the existing transport rules within section 14.2.4.2 Access and confirm whether the current rule is considered appropriate or if modification should be considered. Where modification is recommended the potential wording is presented with supporting rationale. The potential wording is shown in ***bold italics*** with the current rule wording amended with strikethrough (~~strikethrough~~) where required.

It is noted that the purpose of the recommended wording is to convey the general intent of the rule and is not considered to be final. It is expected that some re-drafting will be undertaken by a planner prior to notification in order to ensure that the recommended changes to the rules are clear, vires and provides sufficient certainty.

3.1 Rule 14.2.4.2 (i) Length of Vehicle Crossings

The NZ Transport Agency Planning Policy Manual (PPM) and the Road & Traffic Standards 6 (RTS 06) standards are considered to be relevant to this Rule as these documents provide information relating to maximum driveway widths / lengths.

Based on Ministry of Transport and Transit New Zealand (now NZTA) publications, RTS 06¹⁶ recommends a maximum driveway width of 9 m for two way traffic operation. It also recommends a maximum width of 6 m and 3.5 m for one way traffic operation where activities attract high volume of traffic and low volume of traffic respectively. The PPM recommends a vehicle crossing width of 3.5 m – 6 m in low volume (less than 30 veh/day) accessways.

Clause (a) of this rule states that the lengths specified are measured at the property boundary. This, indicates that this Rule essentially provides the width of vehicle crossings (excluding flares), although it refers to these dimensions as 'lengths'.

These widths broadly align with both standards discussed above. However, it is noted that a maximum crossing width of 9 m may not be sufficient for accessways which service land uses such as cool stores or which cater for coaches. It is considered such cases are an anomaly and can be dealt with through the resource consent process.

This rule currently provides no information relating to vehicle crossing flares or the vehicle crossing width at the kerb. However, this information can be found within the diagrams provided in the current CoP¹⁷ as they specify a width of 3.5 m at the kerb for residential vehicle crossings and a minimum width of 7 m at the kerb for commercial/ industrial crossings. The vehicle crossing widths at the property boundary specified in the CoP diagrams are identical to that of this Rule.

Although these CoP diagrams are relevant to this Rule, the 3.5 m width specified for residential vehicle crossings is considered inadequate particularly for residential vehicle crossings which are wider than 3 m at the property boundary. As per the diagram, for a vehicle crossing with a width of 3 m at the boundary, the width at the kerb is required to be 500 mm wider. This appears to only apply for vehicle crossing in non-rural zones, as Diagram 2, 3 and 4 in Appendix 7 provide radius at which the rural crossings need to be designed at the kerb. It is recommended that this vehicle crossing width at the kerb is increased from 500 mm to 1 m and this is included in the district plan rule. In addition, a new rule should be added to ensure that vehicle crossings are located as such that at least 500 mm offset is provided from the side property boundary and/or adjoining crossing on the same or adjacent lots. This will ensure that sufficient space for pedestrians is provided between crossings.

Given the above, it is recommended that the CoP diagrams are updated to reflect the proposed changes to the vehicle crossing width at the kerb and included within Appendix 7. As we understand the CoP is currently being updated, the recommended changes to the CoP diagrams can be undertaken as part of this process. In addition, a new assessment matter is provided to ensure that vehicle swept paths are provided to demonstrate that the proposed vehicle crossing access can

¹⁶ RTS 06, Section 4.3 Driveway Width

¹⁷ QLDC Land Development and Subdivision Code of Practice (2015), Appendix F – Vehicle Crossings

accommodate the expected vehicles. This will also ensure that vehicle crossings are not designed to be unnecessarily wide.

It is considered that referring to the 'width' of the vehicle crossing as the 'length' may be confusing to the reader. Therefore, to improve clarity it is recommended that the Rule title is changed to 'Width of Vehicle Crossings'. It is also recommended that Clause (b) is removed from the Rule as it contradicts Clause (a).

Recommendation:

- Amend the Rule as follows:
 - i ~~Length~~ **Width** of Vehicle Crossings
 - a) The following crossing ~~lengths~~ **widths** shall apply as measured at the property boundary:

LAND USE	LENGTH WIDTH OF CROSSING AT THE PROPERTY BOUNDARY (m)	
	Minimum	Maximum
Residential	3.0	6.0
Other	4.0	9.0

- ~~b) The length of culverts and crossings shall be the actual length of channel covers or the length of the fully dropped curb.~~
 - c) **For all vehicle crossings in a non-rural zone, the width of the vehicle crossings at the kerb is to be 1 m wider than the width at the boundary.**
 - d) **All vehicle crossings to be located a minimum 500 mm from side property boundaries and/or adjoining crossings on the same or adjacent lots.**
- Provide new assessment matter within (v) Access as follows:
 - (u) **Whether the vehicle crossing can accommodate the expected vehicles at the site is demonstrated by providing swept paths for appropriate vehicles.**

3.2 Rule 14.2.4.2 (ii) Design of Vehicle Crossings

This Rule currently allows for a vehicle access to cross the property boundary at an angle of 90 degrees plus or minus 15 degrees and a vehicle crossing to intersect the carriageway at an angle of between 45 and 90 degrees. As per industry practice, to maximise visibility and safety, vehicle crossings are generally provided as perpendicular as possible to the carriageway. Therefore, it is recommended the angles referred to in Clauses (a) and (b) are swapped.

As discussed in Section 3.1, two new diagrams of non-rural residential and commercial vehicles crossings are added to Appendix 7, it is considered that these new diagrams also need to be referenced within this rule. In addition, the Transit New Zealand standards referred to in Clause (d) need to be updated with the PPM, as this specifies¹⁸ that accessways are required to be sealed up to the property boundary.

Recommendation:

- Amend Rule 14.2.4.2 (ii) as follows:

*Vehicle crossings providing access to a road in a Rural Zone shall comply ~~with the standards in Appendix 7~~ (Diagram 2, 3 or 4 **in Appendix 7** depending on the activity served by the access).*

*For all other accesses the design of the vehicle crossing **shall comply with Diagram 5 or 6 in Appendix 7**, and shall be such that:*

 - (a) *the access crosses the property boundary at an angle of ~~90 degrees plus or minus 15 degrees~~ **between 45 degrees and 90 degrees**;*

¹⁸ PPM, Appendix 5A, App5A.2, Accessway Standard

- (b) *the vehicle crossing intersects with the carriageway at an angle of ~~between 45 degree and 90 degrees~~ **90 degrees plus or minus 15 degrees**;*
- (c) *roading drainage shall be continuous across the length of the crossing;*
- (d) *all vehicular accessways adjacent to State Highways shall be sealed from the ~~State Highway boundary to the edge of carriageway~~ **to the property boundary** in accordance with ~~Transit New Zealand's standards~~ **NZTA Planning Policy Manual (2007)**.*

3.3 Rule 14.2.4.2 (iii) Maximum Gradient for Vehicle Access

AS/NZS 2890.1:2004 is considered to be the most relevant standard to this Rule, as it provides information relating to design of access driveways.

The standard specifies a maximum gradient for different types of accesses such as domestic driveways, access driveways, as well as ramps (straight and circular) within parking buildings. In addition, it provides gradients for vehicular control points, queuing area, across footpaths and near property boundary separately.

Stantec agrees with GHD's findings in that the District Plan Rule only broadly specifies the maximum gradients for vehicle accesses and provides no distinction between public and domestic driveways. Residential driveways are usually used by drivers who are familiar with its geometry, and public vehicle accesses are used frequently by drivers who may not be familiar with the geometry. Therefore, in line with GHD's findings, it is considered that as the driver expectations of these two types of accesses are different, a blanket standard for both types of driveways may not always be appropriate.

Stantec also agrees with GHD's findings in that this Rule provides no information relating to gradients at curved ramps and provides no gradient restrictions at key areas such as vehicular control points, queuing area, across footpaths and near property boundary separately.

However, adopting these extensive gradient requirements of the standard within the District Plan rules may result in a complex assessment process. Given that the current vehicle access gradients specified within this rule are considered appropriate for most situations, and no issues relating to these gradients were noted by the Council during consent application stage, it is considered the current rule should remain unchanged.

In addition, it is considered that clause (c) of this rule should be amended to state that vehicle break over angles need to be measured at any location along the vehicle crossing.

Recommendation:

- Amend the Rule as follows:
 - a) *The maximum gradient for any private way used for vehicle access shall be 1 in 6.*
 - b) *In residential zones where a private way serves no more than 2 residential units the maximum gradient may be increased to 1 in 5 provided:*
 - (i) *The average gradient over the full length of the private way does not exceed 1 in 6; and*
 - (ii) *The maximum gradient is no more than 1 in 6 within 6m of the road boundary; and*
 - (iii) *The private way is sealed with non-slip surfacing.*
 - (c) *Vehicle break-over angles shown in Appendix 7 shall not be exceeded. **The vehicle break-over angle is measured at any location along the vehicle crossing.***
- For the purpose of this rule gradient (maximum and average) shall be measured on the centreline of the access.*

3.4 Rule 14.2.4.2 (iv) Minimum Sight Distances from Vehicle Access

The minimum sight distances provided in Table 3 of this Rule are consistent with District Plans of other Councils, PPM and RTS 06 as they are all specified based on speed. However, the concept of legal speed limit and the operating speed (or 85th percentile speed) is approached differently in these documents.

The PPM assumes the 85th percentile speed to be 10km/h higher than the legal limit unless measured onsite and Western Bay of Plenty has also followed this approach. RTS 06 provides sight distances based on operating speed which is specified as the measured 85th percentile speed or speed limit plus 15%. The NZS4404:2010 uses target operating speed, and recommends sight distances are determined from NZTA or Austroads Guides. Austroads Part 4A uses the 85th percentile operating speed concept for existing roads and design speed for new roads.

The target speed in NZS4404:2010, design speed in Austroads and the operating speed in RTS 06 and PPM do not have the same definition. Therefore, it is recommended that the RTS approach is adopted, as it only uses operating speed which can either be measured or assumed. However, for new developments on proposed roads the sight distance requirements may be potentially greater than a development on an existing road where the 85th percentile speed can be measured.

The current District Plan rule specifies sight distances for different activity types (residential and other activities), whilst the standards do not differentiate the sight distance between activity types. However RTS 06 differentiates the sight distances between low volume (up to 200 vpd) and high volume (over 200 vpd) driveways as well as different road frontages (local, collector and arterial). In addition, it also provides sight distances for a lower operating speed of 40 km/hr.

The sight distances of 'residential activities' broadly align with the sight distances provided within RTS 06 for accessways on local road, whilst most sight distances of 'other activities' are identical to the sight distances specified in RTS06 for accessways on arterial roads. However, a few sight distances of 'other activities' were identified to be lower than that the corresponding RTS sight distances.

Given the above, it is recommended that the current sight distances of 'other activities' provided in Table 2 that are lower than the corresponding RTS 06 sight distances are amended to be in line with RTS 06. In addition, sight distances for the lowest operating speed of 40km/hr is also added to the table. In addition, it is recommended that similar to RTS 06 a note is added to the table to state that where speed survey data is unavailable the operating speed is calculated as the speed limit plus 15%.

Recommendation:

- Amend Table 3 of Rule 14.2.4.2 (iv) as follows:

OPERATING SPEED LIMIT (km/hr)	SIGHT DISTANCE (m)	
	<i>Residential Activity</i>	<i>Other Activities</i>
40	30	70
50	45	80 90
60	65	105 115
70	85	140
80	115	175
90	140	210
100	170	250
110	210	290
120	250	330

Note: Operating Speed = 85th percentile speed on frontage road. This can be taken as the speed limit plus 15% if survey data is not available.

3.5 Rule 14.2.4.2 (v) Maximum Number of Vehicle Crossings

As there are no industry standards which specify the maximum number of vehicle crossings allowed for a property, a full review of it against industry standards and practice cannot be undertaken. However, it is noted that Table 4 is comparable to the CCC District Plan rules¹⁹ which also specify the maximum number of vehicle crossings based on similar frontage lengths and type of road frontage. Given this, it is recommended that Table 4 is retained within the District Plan to ensure that the impact of vehicle crossings on the adjacent network is minimised.

It is noted that a vehicle crossing provides a potential vehicle conflict point regardless of which side on the road it is located on. Therefore, in high speed environments, the impact of vehicle crossings on the opposite side of the road should also be taken into account. This can be done as a site specific assessment where applicable.

In addition, as discussed in Section 5, the reference to Arterial, Collector and Local Road needs to be amended based on the updated QLDC road hierarchy.

Recommendation:

- No changes are recommended to Table 4.
- Update the references to Arterial, Collector and Local Roads in Table 4 of Rule 14.2.4.2 (v) as per the new QLDC road hierarchy.

3.6 Rule 14.2.4.2 (vi) Distances of Vehicle Crossings from Intersections

The PPM and the RTS 06 standards are considered to be relevant to this Rule as these documents specify standard distances between vehicle crossings and intersections.

Based on Ministry of Transport and Transit New Zealand (now NZTA) publications, RTS 06²⁰ specifies appropriate distances required between vehicle crossings and intersections for land uses such as service stations, rural selling place as well as rural and urban environments.

The PPM²¹ specifies minimum access way separation from intersections for vehicle crossings located on state highways or on local roads which intersect with state highways. These distances are specified according to the posted and 85th percentile speed limits of the road at which the vehicle crossing is located, with speed limits ranging from 50km/hr to 100km/hr.

The accessway spacing recommended in the Rule is broadly comparable with the spacing specified in the PPM. However, it is unclear whether the spacing in the Rule and the standards take into account the intersections located on the opposite side of the road to the vehicle crossing. As an intersection provides a vehicle conflict point regardless of which side on the road it is located on, it is recommended that the accessway spacing requirement take this into account. The CCC District Plan²² clarifies this using a diagram which shows that the minimum spacing requirement needs to be met between vehicle crossings and intersections on both sides of the road. Therefore, it is considered that including this CCC District Plan diagram within Appendix 7 may provide further clarification to this Rule.

Following a comparison against District Plans of other councils, it is recommended that the speed limit thresholds of the two tables are changed to 'less than 70km/hr' and 'equal to or greater than 70km/hr'. The 70km/h split is consistent with the increase in minimum spacing recommended in the PPM. The current 100km/h split is not considered logical, as one table applies to 100km/h zones only. The proposed split is consistent with speed limits in semi-rural / rural and urban areas, with the larger spacing required in semi-rural / rural environments. A consequence of the change is some existing sites in areas with a speed limit of 70km/h or higher may not have long enough property

¹⁹ CCC District Plan, Appendix 7.5.11, Table 7.5.11.2 & 7.5.11.3

²⁰ RTS 06, Section 4.2 Distance from intersections and between driveways

²¹ PPM, Appendix 5B, Table App5B/3 – Guidelines for minimum accessway spacing

²² CCC District Plan, Figure 7.14b

boundaries to achieve a compliant access. This will not affect existing properties, but may alter the required section layout in new subdivisions.

In addition, as discussed in Section 5, the reference to Arterial, Collector and Local Road needs to be amended based on the updated QLDC road hierarchy.

Recommendation:

- Reduce the distances as noted below. The changes provide consistency with other District Plans and the NZTA PPM:
 1. Collector / Arterial – reduce distance from 35m to 30m
 2. Collector / Arterial – reduce distance from 75m to 60m
- Based on the above recommendations, amend the two tables as shown below:

No part of any vehicle crossing shall be located closer to the intersection of any roads than the distances permitted in Table 5 below and as shown in Diagram 7 in Appendix 7.

Table 5 - Minimum Distance of Vehicle Crossings from Intersections

Roads with a speed limit of less than 100 km/h – 70km/hr

FRONTAGE	INTERSECTING ROAD		
	Arterial	Collector	Local
Arterial	40	40	40
Collector	35 30	30	30
Local	25	25	25

Roads with a speed limit equal to or greater than 100 km/h – 70km/hr

FRONTAGE	INTERSECTING ROAD		
	Arterial	Collector	Local
Arterial	100	100	100
Collector	75 60	60	60
Local	50	50	50

- To provide further clarification to this Rule, adopt Figure 7.14b from CCC District Plan and provide this within Appendix 7.
- Update the references to Arterial, Collector and Local Roads (highlighted in Red) as per the new QLDC road hierarchy.

3.7 Rule 14.2.4.2 (vii) Service Stations

RTS 13 is considered to be the most relevant standard to this Rule, as it provides guidelines for service stations. The District Plan Rule is considered to be generally consistent with this standard, with the exception of a few differences. These differences include the width of one-way service station driveways, the pump location with respect to the road boundary and the minimum vehicle path width through the station forecourt.

This Rule specifies the width of any one-way driveways into a service station to be between 4.5 m and 6.0m while RTS 13 specifies a slightly smaller range of 3.5 m – 5.0 m. The RTS 13 specifies that pumps should not be to be located within 7 m of any point of the driveway, whilst the District Plan Rule requires the pumps to be located a minimum distance of 12 m from the midpoint of a driveway. In addition, the Rule specifies a minimum path width of 4.5 m through the service station forecourt for vehicles, whilst RTS 13 specifies a turn radius of 4.5 m for a path width of 4.5 m. RTS 13 also specifies a minimum path width of 3.5 m for turns of 7.5 m or greater inside radii.

Given most of this Rule aligns with the standards, it is recommended that the Rule is amended to include the turn radii specifications provided in RTS 13.

Recommendation:

- Amend Clause (f) of this Rule as follows:
 - (f) *A minimum path width of 4.5m and a minimum inside turning radius of more than 7.5 m shall be provided for vehicles through the service station forecourt, except that for pumps which are not proposed to be used by heavy vehicles, a minimum path width of 3.5 m may be provided.*

3.8 Rule 14.2.4.2 (viii) Minimum Distance Between Vehicle Crossing onto State Highways

This Rule requires a vehicle crossing spacing of 200 m between any two vehicle crossings located on state highways in areas zoned as Rural General, Rural Lifestyle, Rural Residential, Gibbston Character, Ski-Area Subzone and Resort. As this accessway spacing is based on the zoning of the adjacent land, it gives no consideration to the legal speed limit and speed environment of the state highway.

The PPM²³ specifies minimum accessway spacing on state highways based on the posted and 85th percentile speed limits of the state highway with speed limits ranging from 50km/hr to 100 km/hr. As ultimately NZTA will be required to provide approval for an access onto the state highway, it is recommended that the PPM is used as the guiding document in determining the required minimum spacing.

Recommendation:

- Amend the Rule as follows:

The minimum distance between any two vehicle crossings (regardless of the side of the road on which they are located), either single or combined onto any State Highway situated in ~~those areas zoned Rural General, Rural Lifestyle, Rural Residential, Gibbston Character, Ski-Area Sub-zone and Resort on the planning maps attached to this plan, shall be 200 m.~~ all zones shall be:

 - (i) 40 metres where the posted speed is 70 km/h or lower*
 - (ii) 100 metres where the posted speed is 80 km/h*
 - (iii) 200 metres where the posted speed is 100 km/h*

²³ PPM, Appendix 5B, Table App5B/3 – Guidelines for minimum accessway spacing

4 Appendix 7

4.1 Table 1: Car Parking Layout

The parking space dimensions specified within this table were compared with the parking space requirements outlined within AS/NZS 2890.1:2004. This indicated that the user classes of these two documents are defined somewhat differently with the District Plan only specifying three user classes whilst the standard currently provides six user classes. The District Plan user classes include long term parking (Class 1), short to medium term parking (Class 2) and disabled parking. The user classes in the standard are defined in terms of the number of vehicle doors which require opening. User Class 1 and 1A are for when only the front door is required to be opened whilst User Class 2, 3 & 3A for when full opening of all doors are required. User Class 4 is disabled parking.

Stantec agrees with GHD review comments in that the comparison of these documents indicated that District Plan Class 1 is comparable to the User Class 2 of the standard as they provide similar combined aisle and car park lengths for these classes of parking spaces. Similarly, District Plan Class 2 is comparable to User Class 3A of the standard as these also provide similar combined aisle and car park lengths. However, in terms of parking space dimensions and the aisle widths, the standard allows slightly narrower stall widths (2.1 m) and aisle widths than the District Plan.

The District Plan requires the stall widths to be increased by 300 mm where there are obstructions such as walls. This is similar to the blind aisle specification provided in the standard which also requires the stall width to be increased by 300 mm when situated at the end of the aisle. However, it also requires an additional 700 mm is provided between the parking space and the wall. Therefore, it is recommended a new note is added to Table 1 to specify a 1m blind aisle provision.

The disabled parking specifications provided in Table 1 were compared against NZS 4121:2001 as this standard provides information on designing for access and mobility. This standard specifies a minimum stall length of 5 m, stall width of 3.5 m and for 90 degree disabled parking spaces. The District Plan disabled parking dimensions are in line with this.

Similar to the QLDC District Plan, the CCC District Plan also provides specific dimensions for parking spaces based on the parking space angle and different user classes. However, it also allows for the NZ building code and AS/NZ 2890.1:2004 to be used as design guidance as this is clearly stated in the CCC District Plan.

As AS/NZ 2890.1:2004 provides extensive requirements relating to parking space dimensions, updating the dimensions in Table 1 with the dimensions provided in Figure 2.2 of the standard may not be sufficient. In addition, adopting the AS/NZ 2890.1:2004 parking requirements will mean that the District Plan will allow narrow parking spaces which may not be appropriate for some land uses/activities. Although the QLDC District Plan specifies stricter parking space dimensions than that of the AS/NZ 2890.1:2004, the current dimensions provided in Table 1 are considered acceptable. Given this, it is recommended that similar to CCC District Plan, an advisory note is added to the table to state that AS/NZ 2890.1:2004 can be used for design guidance for parking areas in buildings. This will mean that QLDC can ensure that narrow parking spaces in AS/NZ 2890.1:2004 are only allowed at locations where practical.

In addition, as per Section 2.6 and Section 2.8 discussed above, it is recommended that an additional note is provided in the table to refer to residential parking spaces and mobility parking spaces.

Recommendation:

- Add the following notes to Table 1 of Appendix 7:

Stall widths shall be increased by 0.300m where they abut obstructions such as columns or walls. For mobility parking spaces obstructions would include a kerb and garden.

At blind aisles, the aisle shall be extended a minimum of 1 m beyond the last parking space.

Advisory note: Narrower parking spaces may be acceptable for parking areas in buildings where they are designed in accordance with the Australian/New Zealand Standard Offstreet Parking, Part 1: Car Parking Facilities, AS/NZS 2890.1:2004, and any subsequent amendments.

4.2 Table 2: Heavy Vehicle Parking Layout

The heavy vehicle parking space dimensions specified within this table were compared with the parking space requirements outlined within AS 2890.2:2002. This table currently provides stall depths and aisle widths for each heavy vehicle type based on parking angles ranging from 30 – 90 degrees. However, it provides no stall width requirements. AS 2890.2:2002²⁴ specifies a minimum stall width of 3.5 m for all heavy vehicle parking spaces, and provides stall lengths based on each vehicle class.

Although the stall lengths specified in the District Plan for rigid trucks and semi-trailers are similar to that of the standard, it is recommended that the minimum stall width of 3.5 m specified in the standard is adopted, which is stricter than the current District Plan Rule. As no information relating to parking space dimensions of coach and bus parking is found in relevant industry standards, it is considered that a 3.5 m width should also be applied to these vehicle types.’

It is noted that although this table provides parking dimensions for a number of different vehicles such as rigid trucks, semi-trailer, b-train, midi-bus and tour coach, the District Plan currently contains no rules which specifically require parking provisions for most of these vehicles. This would mean that the enforcement of these parking space dimensions may not be a possibility.

Recommendation:

- Add the following notes below the table:
 - a) *All heavy vehicle spaces shall have a minimum stall width of 3.5 m.*

4.3 1. Car Space Layouts (refer tables 1 and 2)

As the existing *1.Car Space Layouts* diagram provides a concise pictorial depiction of key dimensions and descriptions presented in *Table 1* and *Table 2*, no changes are required to this diagram.

4.4 2. Bicycle Layouts (refer tables 1 and 2)

The title of this figure currently refers to Table 1 and Table 2. However, as these tables provide no dimensions relating to bicycle parking, the reference to these tables should be removed from the title.

As a greater separation between bicycles improves ease of use and reduces the likelihood of damage to adjacent bicycles, it is recommended that the diagram is modified to increase the separation between bicycles from 500mm to 650mm. This is identical to the TCC and CCC District Plans, and only 50mm wider than the AS/NZ 2890.3²⁵.

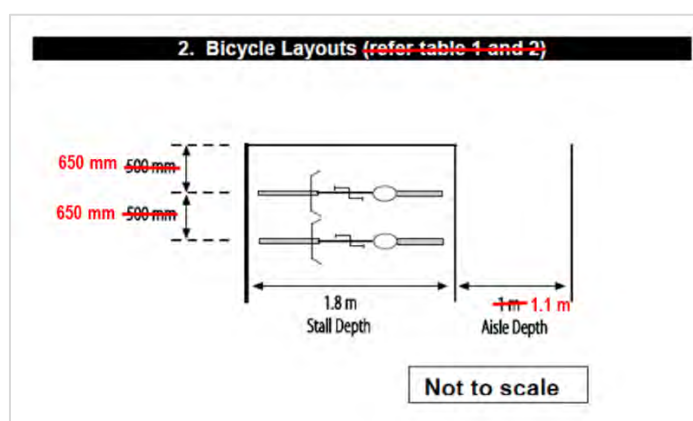
In addition, it is recommended that the aisle width is increased from 1.0m to 1.1m to align with the TCC and CCC District Plans. It is noted that this is less than the 1.5 m aisle width recommend for 90 degree parking in AS/NZ 2890.3. However, the proposed reduction in aisle width is considered appropriate due to the bicycle separation width being larger and the stall depth being 1.8m instead of 1.7m.

Recommendation:

- Amend the diagram to incorporate the changes shown in red follows:

²⁴ AS 2890.2:2002, *Section 4.2 Dimensions of Service Bays*

²⁵ AS/NZ 2890.3 Parking Facilities – Bicycle Parking Facilities



4.5 (Part 1) Vehicle Swept Path Design – (refer tables 1 and 2)

As discussed in Section 2.7 above, it was recommended that the 90th percentile design vehicle currently specified in the District Plan Rules is replaced with the B99 and B85 design vehicles from AS/NZS 2890.1. Therefore, to reflect this, the first diagram provided within this section should also be replaced with B99 and B85 design vehicles.

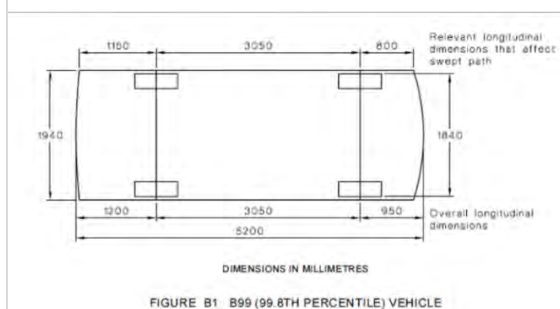
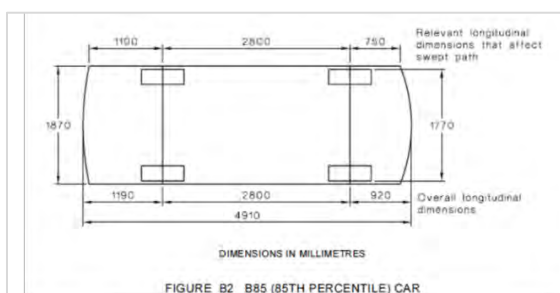
In terms of ground clearance, this diagram currently recommends a design clearance of 185 mm whilst, AS/NZS 2890.1:2004 recommends a lower design clearance of 120mm. A consequence of the higher clearance specified in the District Plan is that vehicles which are road legal may 'bottom out' in some circumstances.

In addition, the AS/NZS 2890.1:2004 specifies approach and departure angles of 10 degrees whilst the District Plan recommends an approach angle of 24 degrees and a departure angle of 17 degrees. As B99 and B85 vehicles have longer overhangs than the current District Plan vehicle, this combined with the reduced approach and departure angles will mean that the design of access ways will need to be flatter with larger transition curves used. The reduction in approach angle reduces the clearance from 370mm to 162mm and the departure angle reduces the clearance from 345mm to 210mm.

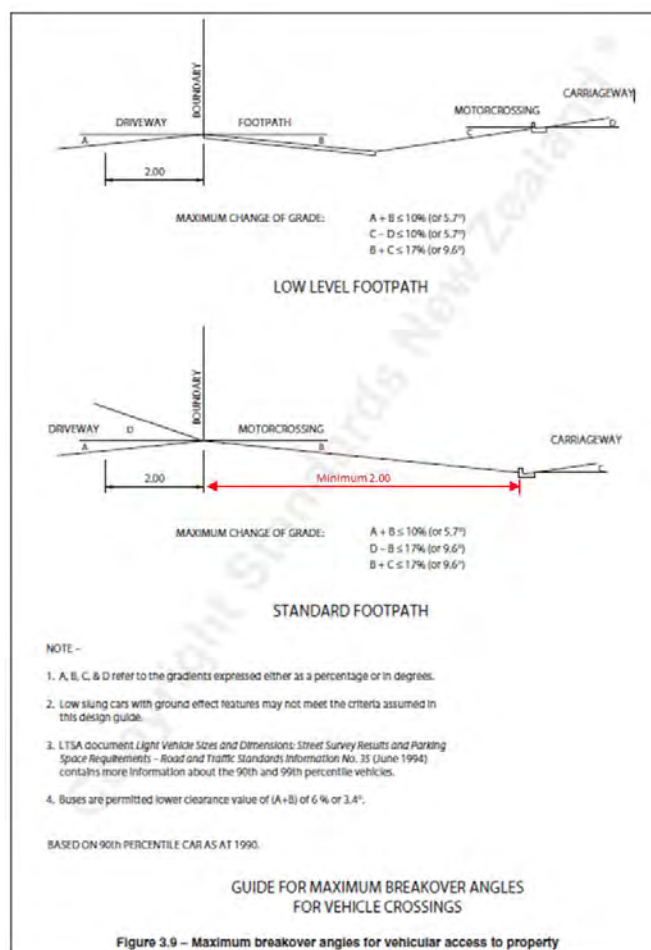
It is considered that that the Figure 3.9 from NZS4404:2004 provides a clear depiction of maximum breakover angles for a vehicle crossing. However this diagram is based on a 90th percentile car, whilst the design vehicles of the District Plan are B85 and B99 cars. Therefore, a check was undertaken to identify whether the breakover angles proposed in this diagram are able to accommodate the District Plan design vehicles. This indicated that a vehicle crossing across a standard footpath, a minimum distance of 2 m need to be provided between the property boundary and the carriageway. Therefore, it is recommended that the ground clearance angles presented within the NZS4404:2004 are adopted including the 2 m restriction discussed above.

Recommendation:

- Replace the current diagrams with the B99 and B85 design vehicles from AS/NZS 2890.1.



- Replace the current ground clearance diagram with Figure 3.9 from NZA 4404:2004 with the changes shown in red.

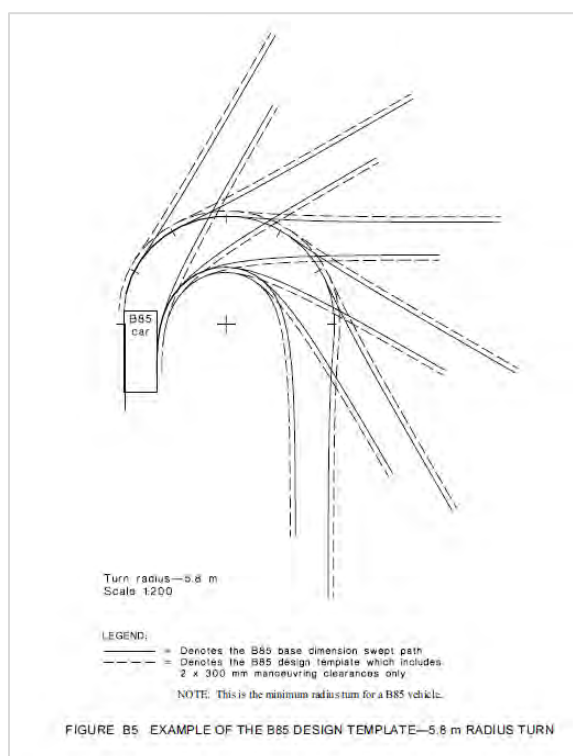


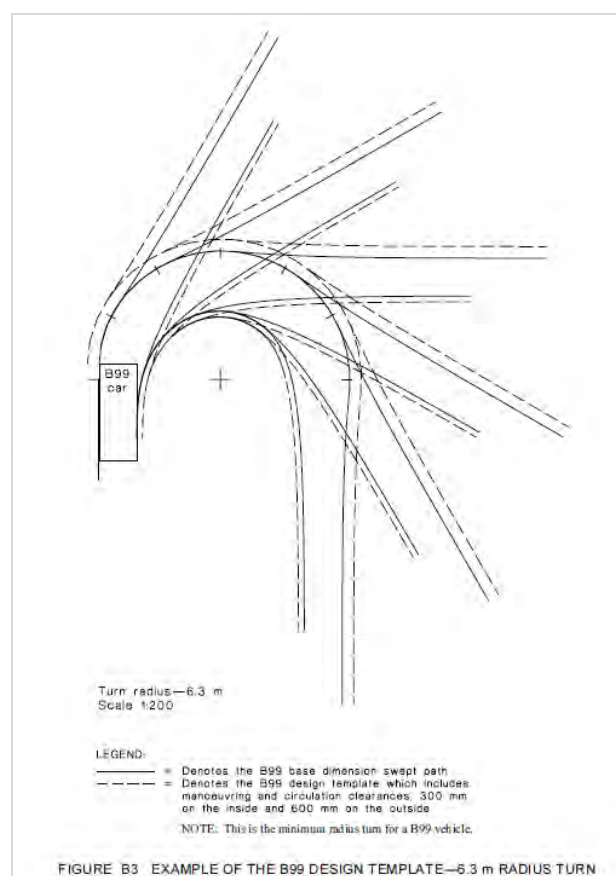
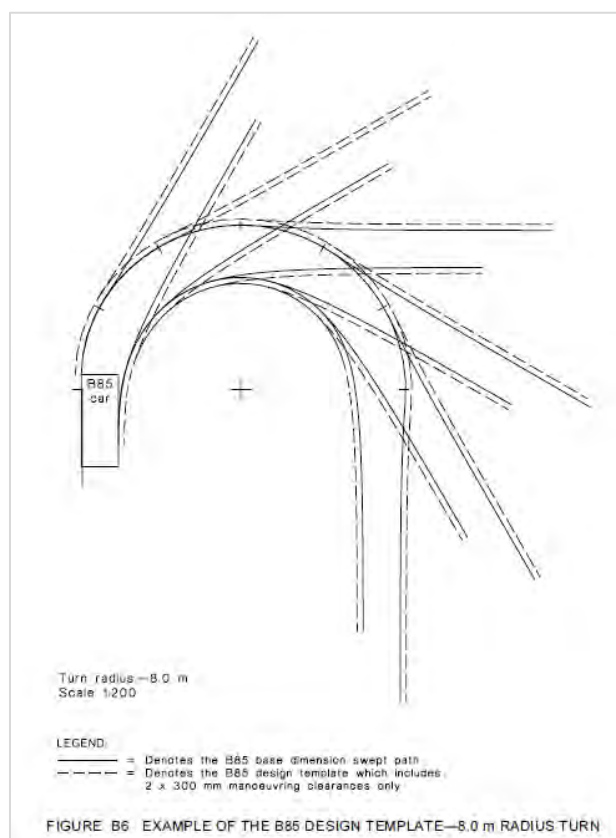
4.6 Vehicle Swept Path Design – Part 2

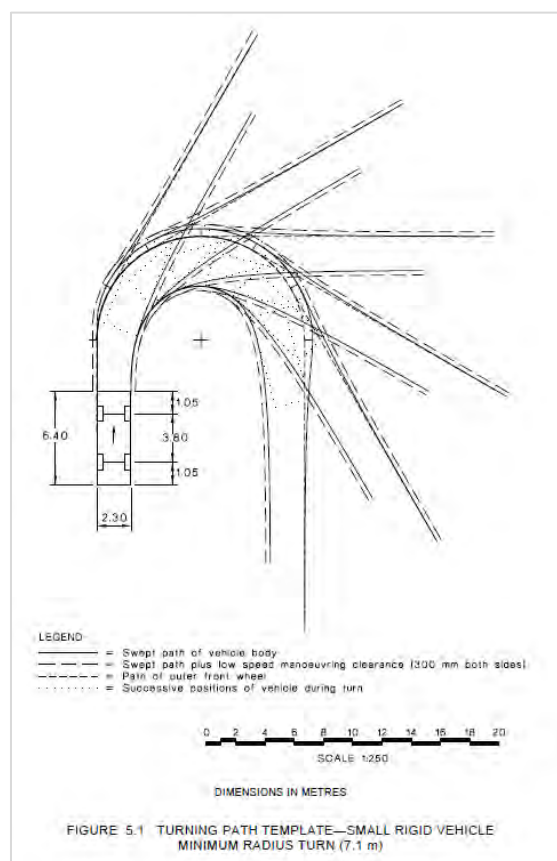
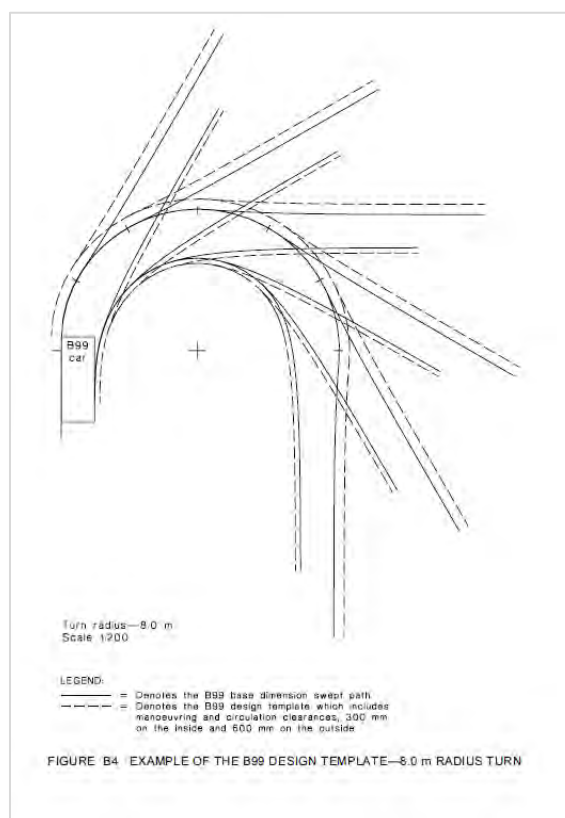
In line with the recommendations of Section 2.7, the current vehicle swept path provided within this section should be replaced with the swept paths of B99 design vehicle, B85 design vehicle and rigid trucks from AS/NZS2890.1. The swept path for a MRV shall be based on an 8.0m vehicle (which is a typical design vehicle in NZ), compared to the 8.8m long MRV specified in AS 2890.2.

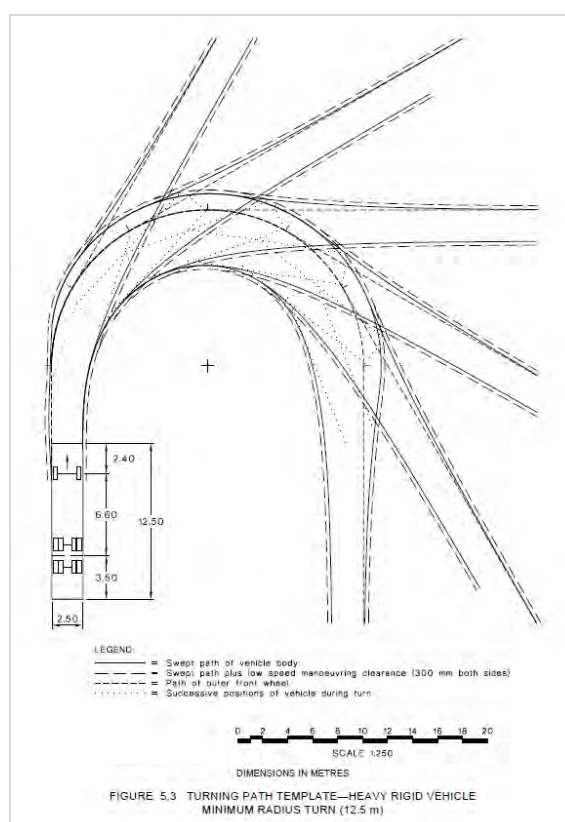
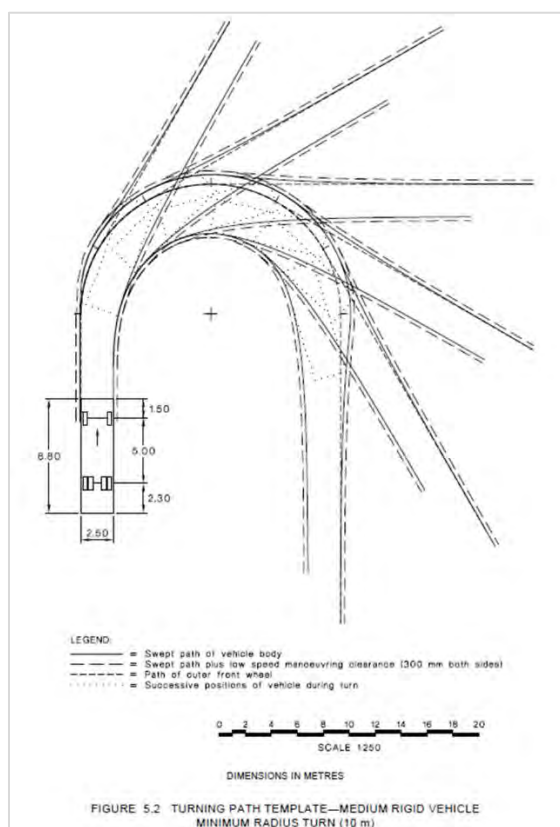
Recommendation:

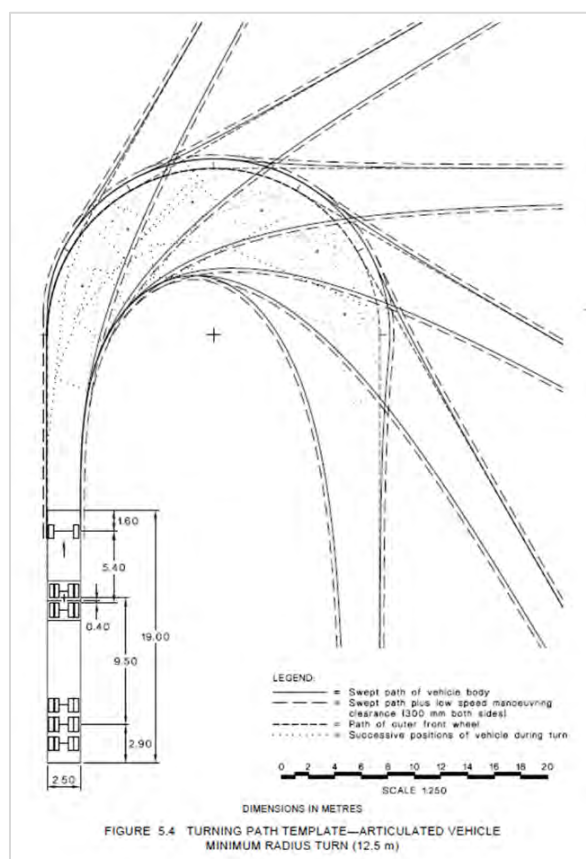
- Replace the current swept path diagrams with the following swept paths of B85 and B99 vehicles from AS/NZS2890.1 and rigid trucks from AS 2890.2.











4.7 Diagram 1: Sight Distance Measurement Diagram

This diagram currently indicates that for accesses, the sight distance is required to be measured 3.5 m and 5.5 m from the edge of the traffic lane at accesses and intersections respectively. This is measured at a height of 1.15 m.

This diagram aligns with Austroads Guidelines²⁶ which recommend that the sight distance at an intersection is measured at a distance of 5 m from the edgeline of the major road, and specifies a minimum distance of 3 m. However, Austroads measures the sight distance at a height of 1.1 m.

This diagram is comparable to the accessway sightline diagram provided in the PPM, as both these documents recommend that sight distances are measured at a distance of 3.5 m back from the edge line. However, the PPM measures the sight distance at a height of 1.05 m.

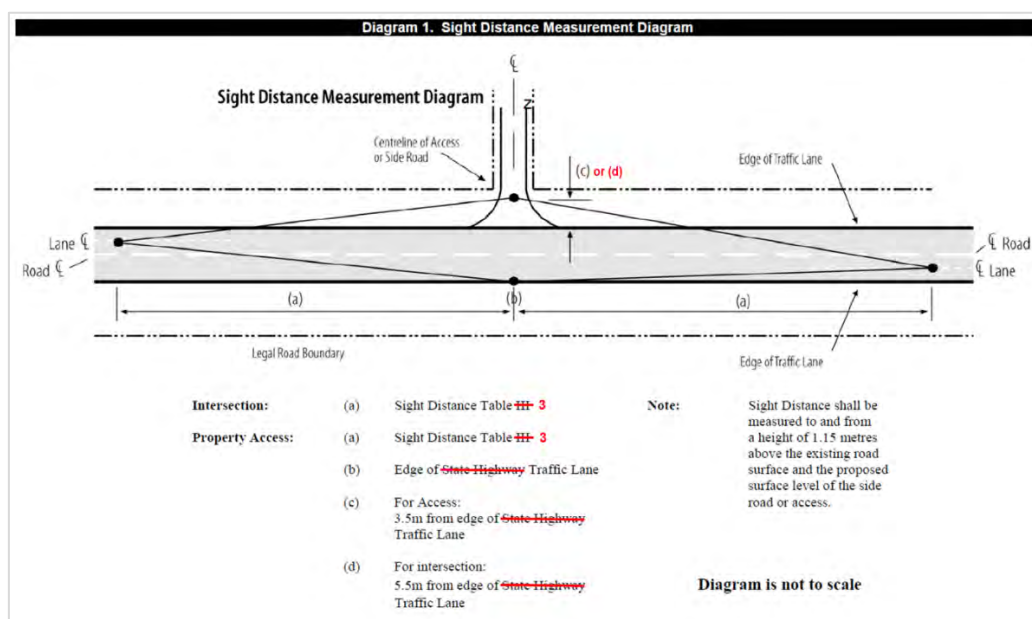
The specifications of RTS 06 is slightly different to that of the aforementioned standards as it recommends that the sight distances are measured 5 m from the centre of the nearest traffic lane. However, similar to the District Plan diagram, it recommends that this is measured at a height of 1.15 m.

As the current diagram align with most standards, no changes are proposed to the distances specified. However, to improve clarity it is recommended that all references to 'State Highway' are removed as this diagram applies to all roads within QLDC. In addition, references to 'Table iii' should be changed to 'Table 3' and the location of '(d)' should be shown in the diagram.

Recommendation:

- Amend the diagram to incorporate the changes shown in red:

²⁶ Austroads Guide to Road Design Part 4A, Section 3.2.2 Safe Intersection Sight Distance



4.8 Diagram 2, Diagram 3 & Diagram 4

Stantec agrees with TDG findings as it is considered that Diagrams 2, 3 and 4 appear to have been based on the Diagram C, D and E of the PPM²⁷. However, a number of elements are considered to be missing in the current diagrams. These include, the curve radii of the vehicle crossing, location of the culvert, minimum accessway width and information relating to the gate location. It is understood that as part of the updated CoP a new diagram (R04) showing a private rural access will be provided. This diagram is considered relevant for rural accesses with low volumes.

Therefore, in line with TDG findings, it is recommended that Diagrams 3 and 4 are replaced with Diagram D and E of the PPM, whilst Diagram 2 is replaced with the R04 of the updated CoP. In addition, to provide guidance as to which layout applies to which situation, it is also recommended that Table App5B/4²⁸ of the PPM is provided prior to the diagrams.

Recommendation:

- Prior to the diagrams, provide the Table App5B/4 of the PPM with the changes marked in red.

Type of traffic using accessway (more than one slow, heavy or long vehicle movements per week?)	Volume of traffic using accessway (ecm/day) ¹	Volume of traffic using road state highway (vpd) ²	Accessway type
No	1-30	< 10,000	Diagram and 2 and 2
		>=10,000	Perspective C Perspective C
	31-100	< 10,000	Diagram and 3 and 3
		>=10,000	Perspective D Perspective D
Yes	1-30	All	Diagram and 3 and 3
	31-100	All	Perspective E Perspective E

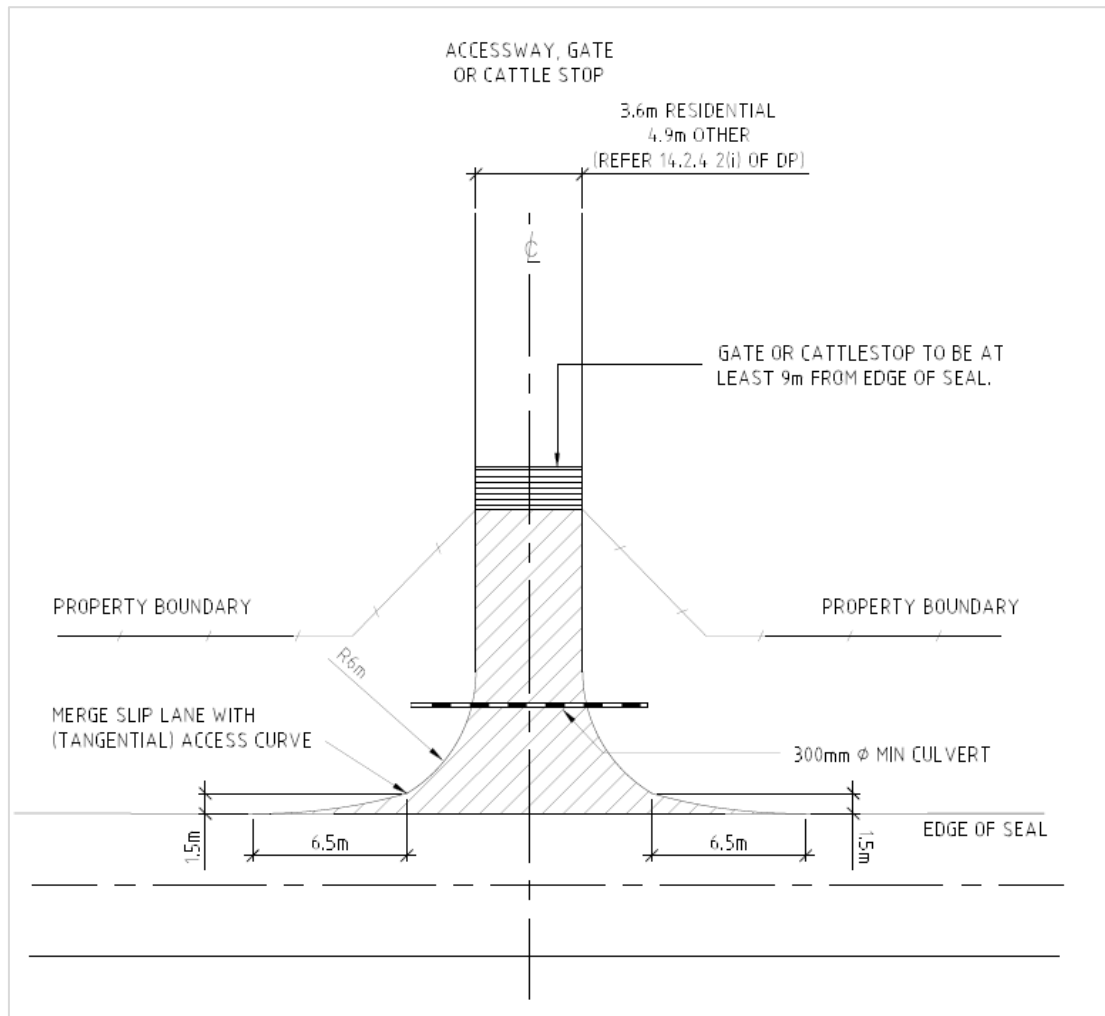
¹ Equivalent car movements per day. This is calculated either as an annual average, or as a weekly average, whichever is the greater, to cater for seasonal peaks.

² Vehicles per day

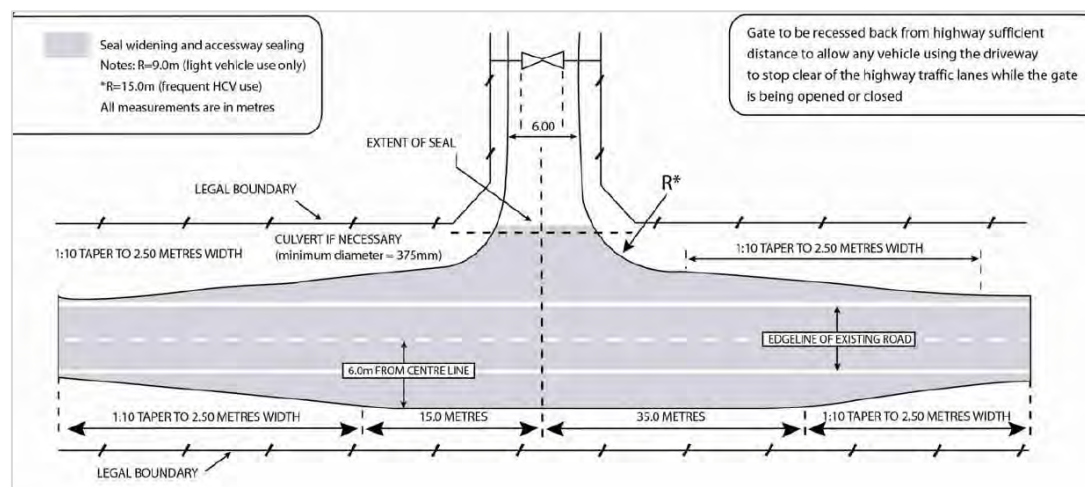
²⁷ PPM, Appendix 5B, Page 216, 218 & 220

²⁸ PPM, Appendix 5B, Page 215

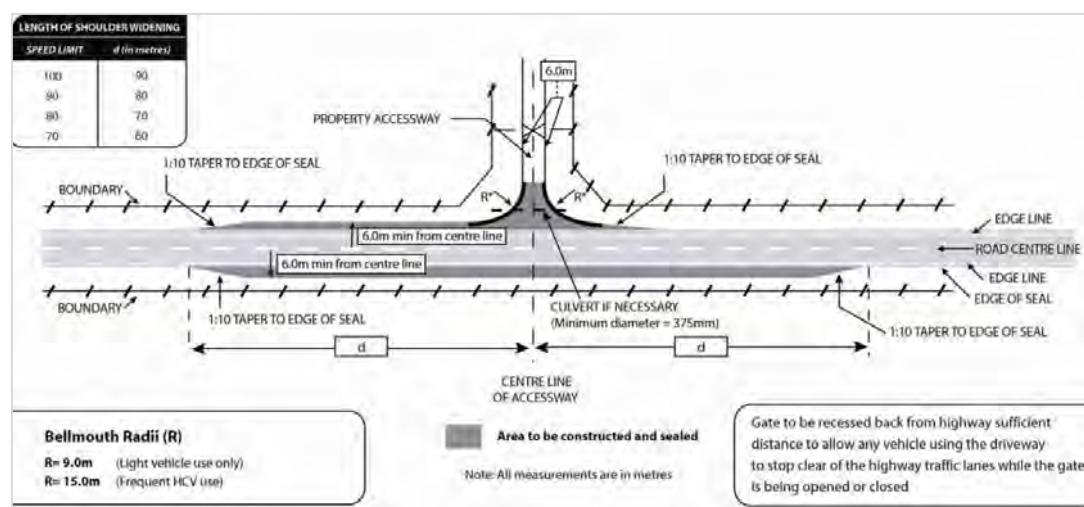
- Replace Diagram 2 with the R04 of the updated CoP as shown below:



- Stantec agrees with TDG recommendation to replace Diagram 3 with Diagram D of PPM shown below:



- Stantec agrees with TDG recommendation to replace Diagram 4 with Diagram E of PPM shown below:



4.9 Diagram 5: SH6 Roundabout Works

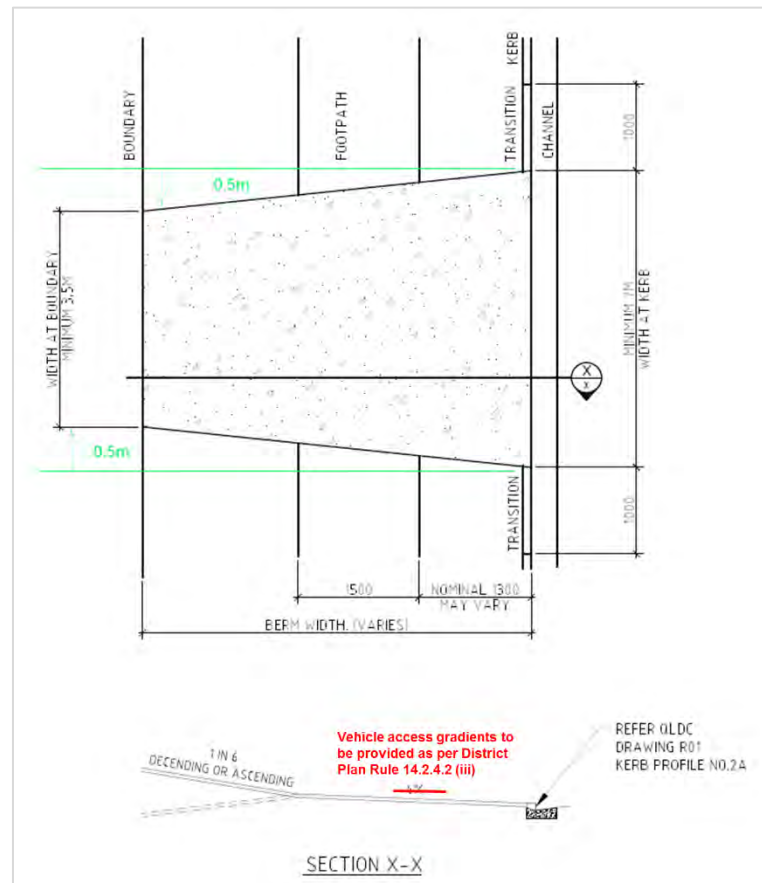
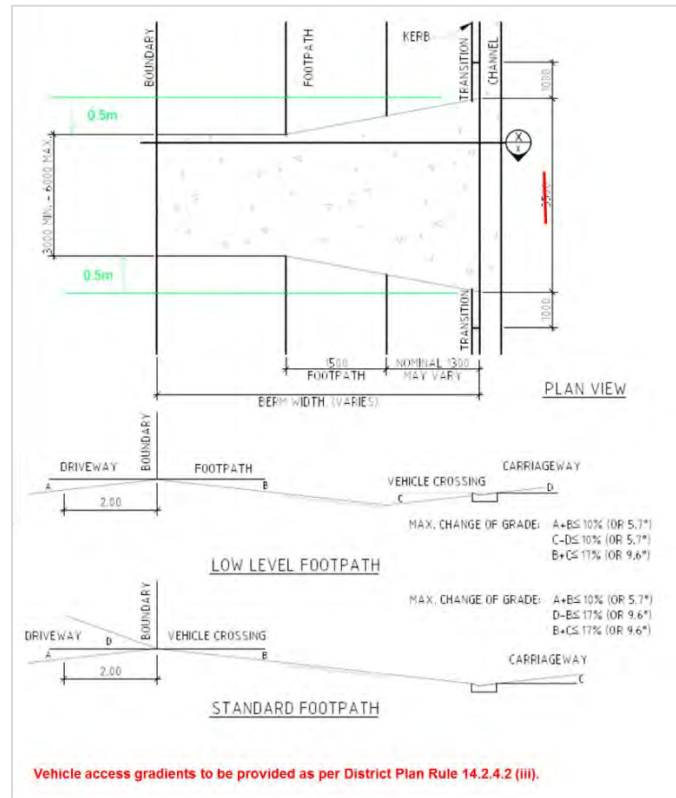
As this diagram provides a layout of an intersection that has already been built, it is recommended this diagram is removed from Appendix 7.

4.10 Diagram 5 & Diagram 6: Residential and Commercial/Industrial Vehicle Crossings

As discussed in Section 3.1, it is recommended that to clarify the required vehicle crossing widths at the property boundary and the kerb, Diagram R02 and R03 from the CoP is included within Appendix 7. It is understood that changes may be made to these diagrams as part of the updated CoP. Therefore, following the update, it is recommended that these diagrams are replaced with the updated diagrams with the CoP.

Recommendation:

- Provide the following diagrams from CoP with the mark ups (shown in red) as Diagram 5 and Diagram 6 within Appendix 7.

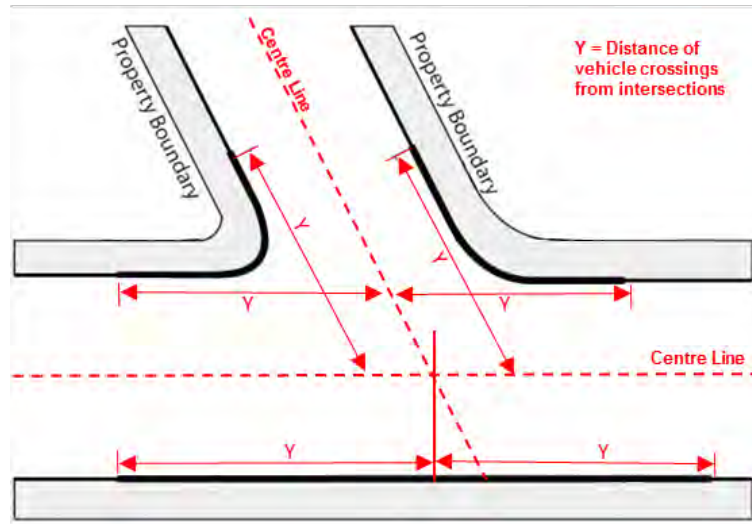


4.11 Diagram 7: Distances of Vehicle Crossings from Intersections

As discussed in Section 3.6, it is recommended that to clarify that the spacing requirements specified within Rule 14.2.4.2 (vi) applies to intersections on both sides of the road, Figure 7.14b from CCC District Plan is included within Appendix 7.

Recommendation:

- Provide the following diagram from CCC District Plan with the mark ups (shown in red) as Diagram 7 within Appendix 7.



5 Appendix 6: Road Hierarchy

At present, Appendix 6 of the District Plan provides a list of existing Arterial, Collector and Local roads located within the QLDC area. However, it provides no information relating to the method of road classification used to obtain this list or the QLDC definition of each road type. Therefore, a review of the current QLDC road hierarchy against relevant industry standards and practice cannot be undertaken.

We understand however that QLDC has recently undertaken a review of their road hierarchy based on NZTA's One Network Road Classification (ONRC) system. ONRC is considered an appropriate guidance document as it divides the roads in New Zealand into six categories based on the traffic volumes, connection to important destinations and the availability of alternative routes. The categories include National, Arterial, Regional, Primary Collector, Secondary Collector and Access.

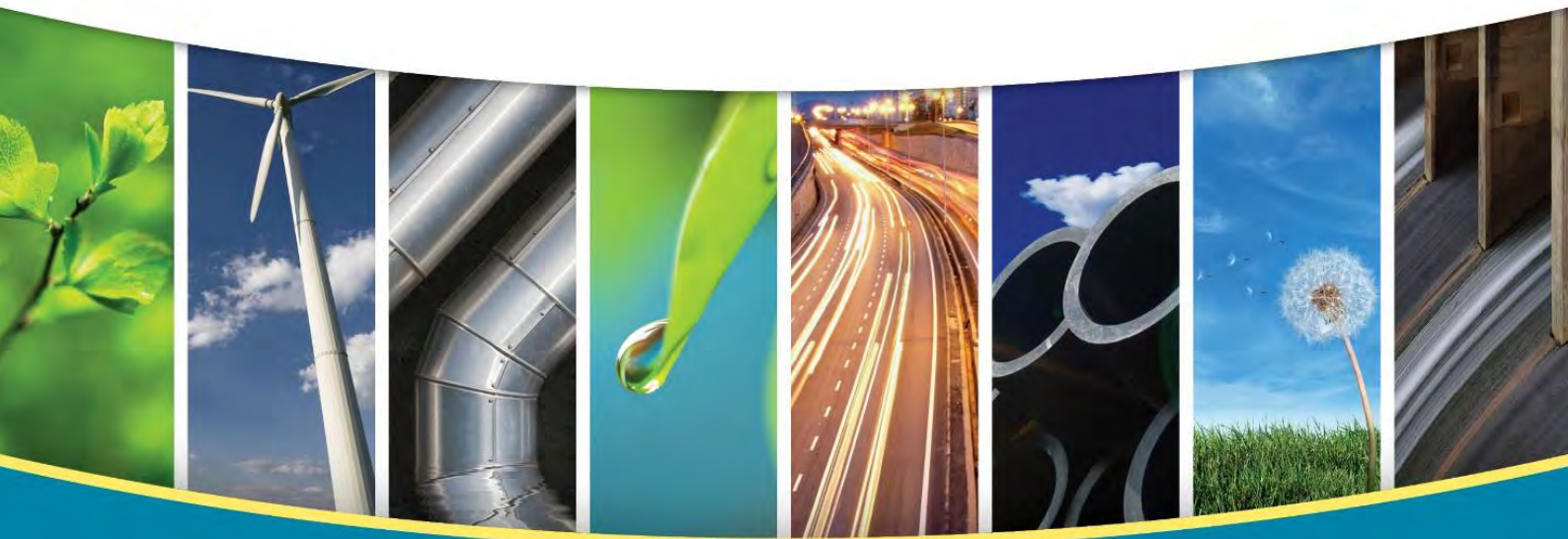
It is noted that although traffic volumes is a key element which affects the classification of a road, it is important that the intended function of the road is also taken into consideration. For example, a residential road with a high volume of through traffic may get classified as a Collector Road although its intended function is to provide local access only. Therefore, it is recommended that this is taken into consideration when updating the classification of each road.

Recommendation:

- Provide the updated QLDC road hierarchy and the updated classification of all QLDC roads within Appendix 6.
- Consider showing the updated road classification in a map form instead of the current tabular form.
- Update all current references to road classifications within the Transport Rules with the relevant ONRC road classifications.

Auckland

MWH House Level 3, 111 Carlton Gore Road
Newmarket, Auckland 1023
PO Box 13-052, Armagh
Christchurch 8141
Tel +64 9 580 4500
Fax +64 9 580 7600
www.mwhglobal.com



Appendix 4. Memorandum entitled “Onsite loading for Queenstown Town Centre Zone” (28 August 2017).

Memorandum

To: Peter Hansby
From: Stephen Hewett
Copy: Gabrielle Tabron
Subject: Onsite loading for Queenstown Town Centre Zone

Date: 28 August 2017
Our Ref: 3331989

Based on the transport and public realm work that has been undertaken to develop the Queenstown Town Centre Masterplan sites fronting the following roads will not be required to provide off-street loading. Loading zone for Good Service Vehicles will be provided on-street to provide servicing to these sites:

- Queenstown Mall - This would be a shared space with the ability for Goods Service Vehicles to access Queenstown Mall at agreed times
- Beach Street - This would be a shared space with the ability for Goods Service Vehicles to access Beach Street agreed times
- Shotover Street - Additional on-street loading spaces have been included in the Masterplan for Good Service Vehicles
- Camp Street - On-street loading spaces have been included in the Masterplan for Good Service Vehicles on the south side of Camp Street
- Rees Street - This would be a shared space with the ability for Goods Service Vehicles to access the street at agreed times
- Marine Parade - This would be a shared space with the ability for Goods Service Vehicles to access the street at agreed times
- Church Street - This would be a shared space with the ability for Goods Service Vehicles to access the street at agreed times
- Earl Street - This would be a shared space with the ability for Goods Service Vehicles to access the street at agreed times on the north-west side
- Ballarat Street - This would be a shared space with the ability for Goods Service Vehicles to access Beach Street agreed times
- Memorial Street - - This would be a shared space with the ability for Goods Service Vehicles to access Beach Street agreed times

Lakeview Subdivision has not been advanced sufficiently as part of the Masterplan to confirm the off-street loading zone requirements.

Stephen Hewett

Business Director - Transportation

Direct Dial: +64-9-300 9232

Email: stephen.hewett@beca.com

Appendix 5. An assessment of the zones in terms of their accessibility and the level of intensification anticipated by the zone

Zone	Accessibility and level of intensification anticipated by the zone
High Density Residential Zone - Queenstown (HDR)	The zone enables high density development and most areas are highly accessible for both walking to the Town Centre and to a public transport route. Discrete areas of the HDR zone in Queenstown are not within walking distance of the Town Centre; namely a small area of Lomond Crescent, parts of Frankton and Fernhill Roads, and the Kawarau Village area in Kelvin Heights. However, these areas are accessible by existing and proposed public transport³², with those along Frankton Road being highly accessible by public transport due to its frequency. Furthermore, the Kawarau Village area is walkable (within 800m - 1.2 km) to the Remarkables shopping area and the Remarkables Primary school and it is noted that much of this area is already or will be developed for visitor accommodation, which is subject to a higher parking ratio than residential development.
High Density Residential Zone - Wanaka	The zone enables high density development and is accessible to the Town Centre. With the exception of a very small area, it is within a flat 800m walk of the Town Centre.
Medium Density Residential Zone - Park to Suburb St	The zone enables medium density development and is highly accessible for both walking to the Town Centre (less than a 700m flat walk) and to public transport stops (less than a 200m walk).
Medium Density Residential Zone - Belfast to Vancouver	The zone enables medium density development but is more than an 800m walk from proposed public transport route and the Town Centre, via steep terrain.
Medium Density Residential Zone - Fernhill Road to Aspen Grove	The zone enables medium density development and is accessible (less than a 600m walk) to a public transport route.
Medium Density Residential Zone - Wanaka	The zone enables medium density development and is accessible to the Town Centre via walking and cycling (noting there is no public transport). With the exception of a small area, the zone is within an 800m flat walk from the Town Centre.
Medium Density Residential Zone - Arrowtown	The zone enables medium density development and is accessible for both walking to a secondary centre and to a public transport route (with the exception of a small part of the zone, it is within an 800m flat walk from both).
Business Mixed Use Zone - Queenstown	The zone enables high density development and is accessible to all modes. Activities exist and will establish within the zone which will provide daily amenities; it is highly accessible to a public transport route; and the entire zone is within a 1.2 km flat walk to the Town Centre.

³² For the purpose of this Appendix "proposed public transport (routes)" refers to the bus routes commencing throughout the Wakatipu in late 2017

Zone	Accessibility and level of intensification anticipated by the zone
	The desire to increase the feasibility of providing for affordable housing in this zone is considered to outweigh the slightly lower level of accessibility of the northern-most part of the zone.
Business Mixed Use Zone - Wanaka	The zone enables medium density development and is accessible for walking to a primary centre in that with the exception of a small area, the zone is within an 800m flat walk from the Town Centre and/ or from the Three Parks commercial core. The desire to increase the feasibility of providing for affordable housing in this zone is considered to outweigh the slightly level of accessibility of the part of the zone.