5. Proposed Plan Change

5.1 Overview

The plan change request will enable predominantly residential development at a range of densities, including low density (10 dwellings per hectare) to high density visitor accommodation. It is expected that over 600 residential / visitor accommodation units could be provided. In addition, there will be about 1ha of land adjacent to Ballantyne Road allocated for business activity.

5.2 Road Network

Figure 6 shows the proposed structure plan for the new zone, showing that the zone will have a highly permeable road network. The interface with the TPZ is a particularly important aspect of the plan change request, in that the two areas are contiguous and therefore should operate in a seamless manner for those using the transport networks. Care has been taken to achieve this, particularly in regard to existing residential properties in the area, although it is noted that in some cases the TPZ structure plan limits opportunities to better provide for these.

Access to SH84 is proposed via the Three Parks main road and its intersection with the highway, while two new intersections will be formed on Ballantyne Road.

It is expected that a hierarchy of Local Road types will be adopted within the zone to distinguish between those roads that provide an access function only and roads that provide a higher level of through movement.

5.3 Cyclists and Pedestrians

It is expected that roads will have footpaths on both sides and be designed in a manner to encourage low vehicle speeds, which will in turn encourage walking and cycling movements within the proposed plan change area. With low vehicle speeds, it is expected that cyclists will be able to share the traffic lanes with vehicles without the need for separate cycle lanes. There will however be a cycle and pedestrian route provided along the golf course boundary.

5.4 Development Pattern

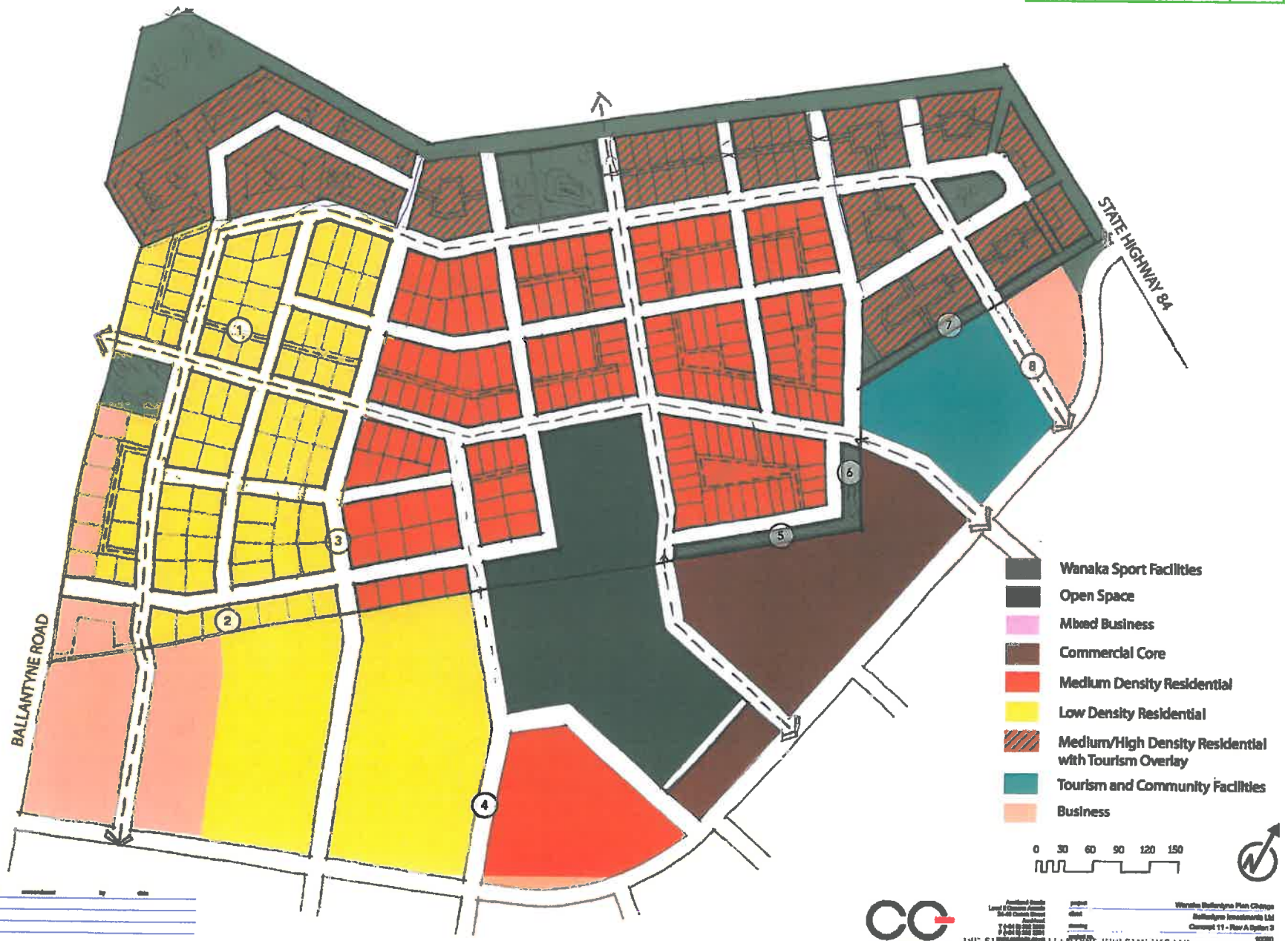
Apart from open space areas, the structure plan indicates three main sub-areas. The central portion of the zone will be developed to provide medium density residential accommodation. Low density residential development is proposed between Ballantyne Road and the central area with medium to high density visitor accommodation being envisaged in land adjacent to the Wanaka Golf Course. In addition, a small portion of land adjacent to Ballantyne Road is proposed for business activity and will be integrated with the TPZ business area.

The following table identifies the indicative development potential of the plan change area and has been used for the assessment of traffic effects described later in this report.

Activity	Land Area	Quantity
Low density residential	8.5ha	85 units
Medium density residential	14.0ha	210 units
Medium-High residential / visitor accommodation	11.5ha	345 units
Business	1.0ha	3,000m^2 GFA

Table 2: Indicative Development Potential of the Proposed Plan Change Area

The estimated number of units has been based on 10 dwellings per hectare for low density housing, 15 dwellings per hectare for medium density housing and 30 dwellings per hectare for the medium to high density visitor accommodation. Business development has been assumed to be 30% coverage of the area.



COMMON GROUND STUDIO

6. Traffic Generation and Distribution

6.1 Existing Traffic Generation

The proposed plan change area currently contains four houses and a small farm. For the purposes of this assessment, it has been assumed to generate no traffic movements.

6.2 Expected Traffic Generation

6.2.1 Three Parks Zone (Plan Change 16)

The Traffic Impact Assessment (TIA) that was prepared for the TPZ as part of Plan Change 16 (PC16) includes traffic generation data. The reported future daily traffic generation of the zone from the Wanaka Transportation Model is about 22,900vpd. About 10% of this traffic was forecast to use Ballantyne Road, 44% was expected to SH84 and 46% to use Riverbank Road.

Since the TIA does not contain any information on peak hour volumes, the current peak hour factors on SH84 have been used to determine the likely traffic volumes on each of the main approach roads associated with the TPZ.

Road	AM Peak Hour	PM Peak Hour
Ballantyne Road	175	220
Riverbank Road	800	1,000
SH84	760	960

Table 3: Three Parks Zone – Expected Peak Hour Traffic Generation

The PC16 TIA also includes an independent calculation of the expected traffic generation of the zone which is some 10% higher than forecast by the Wanaka Transportation Model. This result is not surprising given that the transportation model only calculates vehicle trips that are external to the zone whereas the independent calculation will include those trips that are wholly internal to the site. The 10% difference in the traffic generation is however likely to be conservative and a reduction of 20-30% could be expected in practice. It has been noted that for the assessment of traffic effects of Plan Change 19 (Frankton Flats Special Zone B) QLDC has adopted a 20% reduction factor and therefore, this factor has been adopted for this assessment.

6.2.2 Ballantyne Mixed Use Zone (Plan Change 32)

The TIA prepared as part of Plan Change 32 (PC32) to create the BMUZ includes traffic generation information for the evening peak hour. The PC32 TIA states that the zone could generate 665vph (two-way) with 60% of this traffic being associated with Wanaka and 40% associated with other locations.

No traffic generation information is contained within the PC32 TIA for the morning peak period. However, given the nature of the activities proposed within the zone, it is reasonable to expect a substantially lower traffic generation because the majority of movements will be employment based with few other trip types being undertaken at that time (notably retail or commercial). If the SH84 peak hour factor was applied to the zone, then the morning peak traffic volume would be about 530vph.

6.2.3 Future Year Traffic Generation

While the structure plans for the TPZ and the BMUZ show links between the zones, no assessment of the combined effects of both zones being fully developed has been undertaken. Large, integrated developments create more opportunities for trips to be linked and for vehicle trips to be made that will remain entirely within a development boundary (that is, those trips will not take place on the external roading network) as well as creating opportunity for other modes of transport to be used.

If 20% of the vehicle trips from the BMUZ were associated with the TPZ, this would reduce the external traffic generation of the BMUZ to about 530vph in the evening peak hour and 425vph in the morning peak. The external traffic generation of the TPZ would be expected to reduce by similar amounts. The anticipated combined effect of the development of both zones on traffic volumes is shown in the following table.

Road	TPZ	Internal	BMUZ	Total External Vehicle Movements
Ballantyne Road	175	-10	255	420
Riverbank Road	800	-50	170	920
SH84	760	-45	0	715

Table 4: Expected Traffic Generation with TPZ and BMUZ – AM Peak Hour

Road	TPZ	Internal	BMUZ	Total External Vehicle Movements
Ballantyne Road	220	-15	320	525
Riverbank Road	1,000	-60	210	1,150
SH84	960	-60	0	900

Table 5: Expected Traffic Generation with TPZ and BMUZ – PM Peak Hour

6.2.4 Proposed Plan Change Area

Business activity is proposed on land adjacent to Ballantyne Road with access primarily from Ballantyne Road. Since the business area forms parts of a larger business area within the TPZ and similar types of activity can be expected, a traffic generation rate of 2vph per 100m^2 GFA has been adopted for the evening peak hour for consistency with the PC16 TIA. On this basis, the business activity could generate about 60 vehicle trips in the evening peak hour.

The expected traffic generation of the residential parts of the proposed plan change area is shown in the following table. Again, for consistency the traffic generation rates have been taken from the PC16 TIA, which have been based upon industry-standard rates.

Activity	Quantity	Traffic Generation Rate	Traffic Generation (in+out)
Low density residential	85 units	1.2 / unit	102
Medium density residential	210 units	0.8 / unit	168
Medium-High residential / visitor accommodation	345 units	0.8 / unit	276
Total	640 units		546

Table 6: Peak Hour Residential Traffic Generation

With the proximity of the TPZ, there will significant opportunities for trip linking or other modes of travel to be adopted for short trips. As before, the total eternal traffic generation has been reduced by 20% to reflect the most likely number of external vehicle movements. For this assessment therefore, the number of external vehicle movements is expected to be about 500vph in the peak hour (440vph associated with residential development and 60vph for the business development).

6.3 Traffic Distribution

The distribution of vehicle movements reported in the PC16 TIA has been adopted for the plan change area. With this distribution, 10% of the residential traffic generation will use Ballantyne Road west of the plan change area, 46% of the traffic will use Ballantyne Road east of the plan change area with the remaining 44% using SH84 via the TPZ main road.

The overall directional split in the traffic volumes has been estimated using typical movement patterns for different activities as shown in the following tables. For the TPZ, the estimated numbers of vehicle trips have been based on the trip generation rates from the PC16 TIA. In the morning peak period however, the retail traffic generation component of the TPZ has been reduced to reflect the lower levels of activity associated with retail during the morning peak. A reduction factor of 3.7 has been adopted which is based on the difference in traffic generation rates for shopping centres between the morning and evening peak periods reported in the ITE Trip Generation Manual.

Zone	Activity	Vehicle movements	In / Out	Inbound	Outbound
Three Parks	Residential	760	25% / 75%	190	570
	Mixed-Use	90	85% / 15%	76	14
	Retail	520	60% / 40%	312	208
	Business	350	90% / 10%	315	35
Proposed Plan Change	Residential	440	25% / 75%	110	330
	Business	60	90% / 10%	54	6
	Total	2,220		1,057	1,163
				48%	52%

Table 7: Directional Movement Pattern – Morning Peak Hour

Zone	Activity	Vehicle movements	In / Out	Inbound	Outbound
Three Parks	Residential	760	65% / 35%	494	266
	Mixed-Use	90	30% / 70%	27	63
	Retail	1,930	50% / 50%	965	965
	Business	350	15% / 85%	53	297
Proposed Plan Change	Residential	440	65% / 35%	286	154
	Business	60	15% / 85%	9	51
	Total	3,630		1,834	1,796
				51%	49%

Table 8: Directional Movement Pattern – Evening Peak Hour

It can be seen that the overall pattern of vehicle movements is expected to be very similar in both the morning and evening peak periods because the residential movement patterns are largely balanced by the employment movement patterns.

7. Assessment of Traffic Effects

7.1 Road Network

7.1.1 Wide Area Effects

Since the proposed plan change will enable residential development in a manner that is consistent with the Wanaka Structure Plan shown on Figure 4, no further assessment of the wide area traffic effects of the plan change request has been undertaken because it can be expected that these will have been addressed as part of the development of the structure plan. Rather, this assessment has focused on the more localised traffic effects of the proposed plan change.

7.1.2 State Highway 84

The recent rate of growth in average daily traffic volumes on SH84 is 2.5%. If this rate of growth continues independently of any other developments, such as the TPZ, then the traffic volumes in 2021 will be about 25% higher than current volumes. On this basis the forecast traffic volumes on SH84 excluding development of the TPZ, BMUZ and proposed plan change area will be as follows:

Direction	West of TPZ		East of TPZ	
	AM	PM	AM	PM
Towards Wanaka	460	410	460	410
From Wanaka	260	500	260	500
Total	720	910	720	910

Table 9: SH84 Expected Peak Hour Traffic Volumes – No TPZ or BMUZ

If the traffic volume forecasts for the TPZ from the PC16 TIA are considered to be entirely additive to the simple linear growth forecast for SH84, then the peak hour traffic volumes on SH84 would be as shown below.

Direction	West of TPZ		East of TPZ	
	AM	PM	AM	PM
Towards Wanaka	710	710	690	730
From Wanaka	390	890	400	870
Total	1,100	1,600	1,090	1,600

Table 10: SH84 Expected Peak Hour Traffic Volumes – With TPZ and BMUZ

The AUSTROADS Guide to Traffic Management Part 3 (Traffic Studies and Analysis) sets out equations by which the level of service of a road can be calculated. Applying these to the state highway, the highway will provide Level of Service D. This is defined in the AUSTROADS Guide as:

> ***Level of service D*** *Close to the limit of stable flow and approaching unstable flow. All drivers are severely restricted in their freedom to select their desired speed and to manoeuvre within the traffic stream. The general level of comfort and convenience is poor, and small increases in traffic flow will generally cause operational problems.*

Table 11 shows the forecast traffic volumes with the additional traffic from the development enabled by the proposed plan change.

Direction	West of TPZ		East of TPZ	
	AM	PM	AM	PM
Towards Wanaka	790	760	760	780
From Wanaka	430	950	440	930
Total	1,220	1,710	1,200	1,710

Table 11: SH84 Expected Peak Hour Traffic Volumes – With plan change

Development of the plan change area could result in an increase in traffic volumes of 110vph on SH84 in the morning and evening peak hours which represents an increase of less than 10% or three to four years growth based on the current rate of growth. Applying the equations of the AUSTROADS Guide to Traffic Management Part 3 (Traffic Studies and Analysis) shows that the highway will continue to provide Level of Service D.

7.1.3 State Highway 84 / TPZ Main Road

As part of the development of the TPZ, a new road will be constructed through the zone to connect Ballantyne Road and SH84. The new road will form the main road for the zone with business activity located at the Ballantyne Road end and a commercial core closer to SH84. Neither the structure plan nor the PC16 TIA identifies the form of intersection that will be constructed to serve the development. However, with the anticipated growth in state highway traffic volumes and the forecast traffic volumes from the TPZ, a priority controlled intersection at SH84 would not provide an acceptable level of service and thus a roundabout would be required. In order to provide an acceptable level of service to meet the forecast TPZ demands, the roundabout would require two circulating lanes and two lane approaches.

Although development of the plan change area will result in increased traffic movements through the roundabout, the demands would remain well within the capacity of a two lane roundabout and acceptable levels of service would be maintained.

7.1.4 Ballantyne Road

Ballantyne Road east of Golf Course Road currently carries low volumes of traffic which is consistent with its classification as a Local Road in the District Plan. With the development of the BMUZ, the PC32 TIA forecasts two-way traffic volumes in the evening peak hour of 400vph from the zone on Ballantyne Road east of Golf Course Road. Based on a 10% peak hour factor, this would represent an average daily traffic volume of 4,000-5,000 vehicles which is higher than would be expected for a Local Road. With this volume of traffic, it is expected that the function of the road would be more consistent with the District Plan description of a Collector or Arterial Road and that road improvements such as turn lanes and cycle lanes would be required to accommodate the additional traffic with an acceptable level of service. The development of the TPZ will further increase the volumes of traffic on this section of Ballantyne Road and it's reclassification as an Arterial Road would be appropriate.

It is expected that the reclassification of Ballantyne Road will be (or will have been) considered through the already-operative plan changes. Consequently, while development of the proposed plan change area will also contribute to increased traffic volumes on Ballantyne Road, no further reclassification will be required as a result. The expected traffic volumes will be consistent with its function as an Arterial Road.

Two new intersections will be created on Ballantyne Road as part of the proposed plan change. The intersections will have a separation of about 250m and will also be separated from the TPZ main road intersection by a further 250m. This is sufficient to allow safe operation of each intersection without any interaction while still providing a good level of permeability. It exceeds the minimum spacing for intersections on arterial or collector roads specified in NZS4404:2010 ('Land Development and Subdivision Infrastructure').

7.1.5 Riverbank Road

Riverbank Road is located to the east of the TPZ and therefore cannot be accessed directly from the plan change area. As a result, it is unlikely that there will be any vehicle movements on Riverbank Road that would be directly associated with the plan change area and consequently, the development of the plan change area will have minimal effect on the operation of Riverbank Road.

7.2 Walking and Cycling

It is envisaged that principles of new urbanism will be applied within the plan change area such that low vehicle speeds will be encouraged, which in turn will encourage walking and cycling. However, it is also expected that a network of walking / cycling trails will be constructed within the proposed plan change area zone. This includes a route running along the southern boundary of the golf course, which will provide a dedicated route for those wishing to walk or cycle between Ballantyne Road and south/west areas of Wanaka to the Mt Iron Reserve.

With increased traffic volumes on Ballantyne Road arising from the development of the TPZ and the BMUZ, dedicated cycling and walking infrastructure may be provided to enable cyclists and pedestrians to be separated from motor vehicles. Since the proposed plan change increases traffic volumes only marginally compared to the operative plan changes, it is not considered that any additional provision will be required over and above that which is already envisaged.

7.3 Road Safety

The accident records do not suggest that there are any underlying road safety issues on the road network surrounding the plan change area, and thus the additional traffic generated by the proposed plan change is not expected to give rise to any significant adverse road safety effects.

All new roads and intersections will be designed to meet current best practice and consequently, it is not expected these intersections will result in any significant adverse road safety effects.

8. Planning Policy Framework

8.1 Introduction

There are various relevant strategic planning documents with which any plan change is anticipated to comply. The plan change request is slightly unusual because it is in accordance with the Wanaka Structure Plan and as part of the structure planning process it can be expected that an assessment against planning policies will have been undertaken. Nevertheless, an assessment has been carried out to ensure that all relevant matters have been taken into consideration.

8.2 Otago Regional Policy Statement

Chapter 9 ('Built Environment') of the Otago Regional Policy Statement (RPS) outlines the issues, objectives and policies relating to various aspects of the built environment and this includes transportation links. Issue 9.3.2 sets out the importance of an efficient network of utilities to provide for the social, economic and cultural well-being of Otago's communities, with Issue 9.3.3 noting that the district is:

> *dependent on an efficient transport network to utilise its resources, and to provide mobility and access for its people and communities.*

One relevant aspect of this issue is explained as relating to the adverse effects of land use activities on the transport network, especially adjacent land use activities which would otherwise reduce safety and efficiency. This is reflected in Policy 9.5.2:

> *Policy 9.5.2: To promote and encourage efficiency in the development and use of Otago's infrastructure through:*
>
> *(a) Encouraging development that maximises the use of existing infrastructure while recognising the need for more appropriate technology;*
>
> *(d) Avoiding or mitigating the adverse effects of subdivision, use and development of land on the safety and efficiency of regional infrastructure.*

The proposed plan change is consistent with this policy because the development facilitated by the plan change does not result in low levels of service being provided and therefore maximises the use of the existing infrastructure.

Policy 9.5.3 is specifically relevant to transport:

> *Policy 9.5.3: To promote and encourage the sustainable management of Otago's transport network through:*
>
> *(a) Promoting the use of fuel efficient modes of transport; and*
>
> *(b) Encouraging a reduction in the use of fuels which produce emissions harmful to the environment; and*
>
> *(c) Promoting a safer transport system; and*
>
> *(d) Promoting the protection of transport infrastructure from the adverse effects of land use activities and natural hazards.*

These are reflected in Chapter 12 of the RPS which outlines policies relating to energy, with the policy of relevance to transport being:

> *Policy 12.5.3: To improved energy efficiency within Otago through:*
>
> *(d) Encouraging energy efficient transport modes in Otago*

The Wanaka Structure Plan identifies the site as being suitable for residential development, indicating that development in this area provides a better environmental outcome than of alternative locations. As noted above, proximity to the TPZ means that a number of trips can be undertaken by non-motorised modes of transport, and the proposal provides for an east-west route along its northern boundary between south/west parts of the town and Mt Iron Reserve.

8.3 Otago Regional Land Transport Strategy

The Otago Regional Land Transport Strategy (RLTS) 2005-2015 describes a series of key result areas for achieving the vision of "a sustainable quality of life for current and future generations".

The RLTS takes into account the priorities, needs and aspirations contained in the New Zealand Transport Strategy and Road Safety Strategy 2010, as well as other national policy documents, and the Regional Policy Statement. It seeks transportation systems that:

- enable the Otago economy to thrive
- offer a safe physical environment for all users
- deliver a healthy, pleasant and low pollution environment
- promote a social environment that is supportive and enables participation by all sectors
- foster community ownership of land transport decision making
- integrate land use and transport needs
- are innovative and responsive to change

The RLTS identifies five core elements that represent a balanced approach to achieving this vision. These areas are:

- Economy: Freight and Tourism
- Transport Choice
- Roads: Efficiency, safety and the environment
- Demand management
- Land Use planning

The RLTS outlines the issues affecting Otago's regional transport, with Section 5 describing the regional transport policies and methods under each category. Those of relevance are noted below:

> *Issue 5.1 Economic wellbeing*
>
> *Policy 1.1 Assist economic development in the Otago Region*
>
> *Methods*
>
> *1.1.1 Protect the primary function of the strategic land transport network via District Plan strategic network provisions and adequate ongoing investment in maintenance and network development*
>
> *1.1.2 Proactively invest in priority strategic land transport network developments that improve flows of people, goods and services in Otago, and the quality of the travel experience*
>
> *1.1.4 Minimisation of transport-related energy consumption through integrated land use planning, route alignment improvements, and new links.*

1.1.5 Investment in more effective management of existing transport systems and promotion of integration of all major modes to be recognised as being as important as new investment solutions

The proposed plan change will facilitate a development that will not give rise to adverse effects on the strategic transport network, with levels of service remaining acceptable even at peak times. Further, no new roads will be required other than those within the plan change area to facilitate access into the area.

Issue 5.2 Environmental wellbeing - sustainability

Policy 2.1 Ensure transport decisions promote environmental sustainability.

Methods:

2.1.1 Transport is increasingly energy efficient and environmentally sustainable through reducing negative environmental effects (air emissions, noise and vibrations, choice of travel mode, urban design choices) via education, regulation, technology and investment.

2.1.2 Promoting alternatives to roads as a means of reducing traffic growth through improving integration between transport and land-use.

2.1.4 Reduce energy use by reducing the need for travel through district plan rules enabling local needs to be met locally.

2.1.6 Make greater provision and use of low energy transport options through encouragement of safe and attractive walking and cycling environments.

2.1.8 Promote use and development of energy efficient road networks and traffic management as part of urban subdivision layouts, and urban redevelopment projects.

The plan change area is located such that public transport services can be facilitated (as described in the Wanaka Structure Plan) and will therefore provide for a choice of travel mode. Local needs can be met within the retail and commercial centre that will be created by the development of the TPZ and is sufficiently close that many trips could be made on foot or by cycle.

5.3 Social and cultural wellbeing

Policy 3.1 Ensure transport related decision making supports improvement in safety and personal security.

Methods:

3.1.4 Addressing the safety needs of vulnerable users through prioritised investment in suitable lighting, urban design that promotes surveillance of public transport facilities, and reliable service timetables.

3.1.5 Addressing personal security concerns for pedestrians, cyclists and passenger transport users through identification of risks and targeted safety improvement investments.

Policy 3.2 Ensure transport related decision making improves access and mobility.

Methods:

3.2.3 Recognising roading space needs of users other than motor vehicles through encouragement of suitably designed and located cycle routes and lanes in suitably level parts of urban areas, and open road tourist routes.

Policy 3.3 Ensure transport related decision making protects and promotes Public Health.

Methods:

3.3.1 Promotion of walking and cycling for short trips through land use planning, urban design, direct investment in quality footpaths, walkways and cycleways, and marketing of 'healthy transport alternatives'.

3.3.2 Reducing dependence on private vehicles through land use planning that enables local needs to be met locally, providing a high level of network 'connectedness' to promote non-vehicle modes, and using parking availability and price signals to shift behaviour.

3.3.3 Encouraging modal shifts to enhance air quality and reduce exposure to transport noise or other aspects that can impinge on community and personal health

The detailed design of the various transportation networks will be cognisant of safety matters and the potential effects of interaction between different types of road user, and the level of provision made will reflect the likely volumes of pedestrians and cyclist flows.

8.4 Wanaka Structure Plan

Figure 4 shows the proposed zoning under the Wanaka Structure Plan. The plan change area is located within the "Structure Plan Inner Growth Boundary" and within the proposed Urban / Landscape Protection zone, which is intended to facilitate residential growth requirements of the town over the next 20 years. The plan change request reflects the intent of the Structure Plan.

The key transportation-related recommendations of the Structure Plan relate to ensuring a high level of connectivity and promotion of alternative travel modes. As noted above, this is considered to be achieved with walking and cycling within the site supported, and a potential 'critical mass' attained which will assist in supporting any future public transport provision.

Also of relevance is the proposed link for pedestrians and cyclists along the northern boundary of the site which will accommodate walking and cycling movements which are unrelated to the activities within the plan change area itself and thereby provide a benefit to the wider community.

8.5 Wanaka Transportation and Parking Strategy

The Wanaka Transportation and Parking Strategy provides for the safe and efficient movement of goods and people within Wanaka and environs in view of the expected sustained growth (and pressure) on transportation infrastructure. The strategy will be implemented over the next 20 years, aligned with the implementation of the Wanaka Structure Plan.

The strategy is intended to deliver a fully integrated transport system which meets the growth in travel demand while reflecting the four principles of the government's transportation strategy, of sustainability, integration, safety and responsiveness.

The strategy is a combination of complementary transport measures. Public transport, walking and cycling are to be promoted through the strategy, and the plan change request reflects this through the ability to accommodate future public transport services and the provision of suitable walking and cycling links.

8.6 Long Term Council Community Plan

From a transportation perspective, there are no conflicts between the plan change request and the Council's community outcomes as they relate to Wanaka in the LTCCP. Major transportation projects within the LTCCP lie well beyond the vicinity of the site, and as such the development is

not reliant upon them to ensure that the efficiency and safety of the transportation networks is improved and/or maintained.

8.7 Queenstown Lakes District Walking and Cycling Strategy

The Council's draft walking and cycling strategy document (Queenstown Lakes District, On Foot, By Cycle) was adopted in late 2009. It includes the vision that:

> *Our communities lead New Zealand in embracing walking and cycling for transport and recreation.*

This vision is supported by the following six objectives:

> *To provide and maintain outstanding cycling and walking facilities.*
>
> *To encourage and enhance walking and cycling as healthy and active activities.*
>
> *To improve pedestrian and cycle accessibility for sections of the community.*
>
> *To ensure advocacy by QLDC for walking and cycling initiatives.*
>
> *To incorporate appropriate provision for walking and cycling in Council activities.*
>
> *To provide an attractive and safe environment for cyclists and pedestrians that supports a stronger sense of community.*

The bulk of the strategy relates to various institutional measures to which the proposed plan change can only make a limited contribution. However, by locating new residential development close to the commercial and retail centre enabled by the TPZ, there will be opportunities created for many trips to be made by walking and cycling. There will also be opportunities for walking and cycling movement to/from Mt Iron Reserve associated with the linkage along the northern site boundary, and the roads within the plan change area will be designed to encourage slow vehicle speeds.

8.8 Queenstown Lakes District Transport Safety Strategy

The Council's transport safety strategy was adopted in late 2009. It sets out that a particular challenge facing the district relates to the growth in population and consequent traffic volumes, and upon the attractiveness of walking and cycling. The purpose of the strategy is set as being

> *to guide the management of safety issues that involve the entire transport network (including State Highways, local and private roads) in Queenstown Lakes District and how this network is used.*

The strategy includes in its scope all aspects and issues of transport safety including road network design and maintenance, bus infrastructure and services, walking and cycling infrastructure, community road safety education, enforcement, travel behaviour change, urban design, and parking.

The overall vision of the strategy is that the

> *transport system provides a safe and secure environment where users make travel choices without fear of danger or injury.*

The vision is supported by four Goals:

> *Goal 1: Reduction in road crashes.*
>
> *Goal 2: Ensure the design, construction and maintenance of the transport network is fit for purpose and follows best practice.*

Goal 3: The use of the transport system enables travel choice.

Goal 4: Recognise and accommodate the range of legitimate uses in the safe operation of the road network

The proposed plan change is consistent with these goals, in that the design of the internal roads (and any changes to the external network) will support safety for all types of road users and manage their interaction effectively. This will include for specific infrastructure for non-car users where appropriate and reflect principles of 'new urbanism'. In this way, and through the proximity of residential, commercial and educational land uses, choice of transport modes will also be supported.

8.9 District Plan Objectives and Policies

Section 14 of the District Plan sets out the transport-related objectives and policies.

Objective 1 – Efficiency

Efficient use of the District's existing and future transportation resource and of fossil fuel usage associated with transportation.

Policies:

1.1 To encourage efficiency in the use of motor vehicles.

1.2 To promote the efficient use of all roads by adopting and applying a road hierarchy with associated access standards based on intended function.

1.3 To promote the efficient use of roads by ensuring that the nature of activities alongside roads are compatible with road capacity and function.

1.4 To protect the safety and efficiency of traffic on State Highways and arterial roads, particularly State Highway 6A, by restricting opportunities for additional access points off these roads and by ensuring access to high traffic generating activities is adequately designed and located.

1.5 To promote the efficient use of fuel for transport purposes, by providing for a District wide policy of consolidated urban areas, townships, retail centres and residential environments.

1.6 To promote and provide for the consolidation of new areas of residential development and for higher density development within identified areas.

1.7 Enabling for home occupations within residential areas to reduce travel time and costs between home and work.

1.8 To consider options for encouraging and developing greater use of public transportation facilities and in particular to continue to investigate the options for alternative transport means.

1.9 To require off-road parking and loading for most activities to limit congestion and loss of safety and efficiency of adjacent roads and to promote the maintenance and efficiency of those roads.

1.10 To require access to property to be of a size, location and type to ensure safety and efficiency of road functioning.

The proposed plan change effectively represents an extension to the development enabled by the TPZ and BMUZ. Intersections will be designed to meet current best practice, ensuring that the efficiency and safety of the existing roading network is not adversely affected. No new accesses will be required onto the state highway network, and those intersections which are affected by increased traffic volumes will continue to operate with a satisfactory level of service.

Objective 2 - Safety and Accessibility

Maintenance and improvement of access, ease and safety of pedestrian and vehicle movement throughout the District.

Policies:

2.1 To maintain and improve safety and accessibility by adopting and applying a road hierarchy with associated design, parking and access standards based on the intended function.

2.2 To ensure the intensity and nature of activities along particular roads is compatible with road capacity and function, to ensure both vehicle and pedestrian safety.

2.3 To ensure access and movement throughout the District, and more particularly the urban areas, for people with disabilities is not unreasonably restricted.

2.4 To encourage the development of pedestrian and cycle accessways, within the main townships.

2.5 To maintain and upgrade, where appropriate, the existing roads and provide for new roads and related facilities where these are important for providing access.

2.6 To ensure intersections and accessways are designed and located so:

• good visibility is provided.

• they can accommodate vehicle manoeuvres.

• they prevent reverse manoeuvring onto arterial roads; and

• are separated so as not to adversely affect the free flow of traffic on arterial roads.

2.7 To ensure vegetation plantings are sited and/or controlled so as to maintain adequate visibility and clearance at road intersections and property access and to prevent the icing of roads during winter months, except and unless that vegetation is important to the visual amenity of the District or is protected as part of the Heritage Provisions.

The plan change area will include a roading network which will be consistent with the hierarchy as set out in the District Plan. All intersections will achieve appropriate sight distances and offer an appropriate level of service.

Objective 3 - Environmental Effects of Transportation

Minimal adverse effects on the surrounding environment as a result of road construction and road traffic.

Policies:

3.1 To protect the amenities of specified areas, particularly residential and pedestrian orientated town centres from the adverse effects of transportation activities.

3.2 To discourage traffic in areas where it would have adverse environmental effects.

3.3 To support the development of pedestrian and similar links within and between settlements and the surrounding rural areas, in order to improve the amenity of the settlements and their rural environs.

3.4 To ensure new roads and vehicle accessways are designed to visually complement the surrounding area and to mitigate visual impact on the landscape.

3.5 To maintain and enhance the visual appearance and safety of arterial roads which are gateways to the main urban centres.

3.6 To incorporate vegetation within roading improvements, subject to the constraints of road safety and operational requirements, and the maintenance of views from the roads.

3.7 To implement appropriate procedures, in conjunction with the takata whenua and Historic Places Trust, should any waahi tapu or waahi taonga be unearthed during roading construction.

3.8 To set areas aside for staff car parking in Business and Industrial Zones.

The structure plan provides for a range of residential dwelling densities and will include roads that provide good levels of service and connectivity.

Objective 5 - Parking and Loading - General

Sufficient accessible parking and loading facilities to cater for the anticipated demands of activities while controlling adverse effects.

Policies:

5.1 To set minimum parking requirements for each activity based on parking demand for each land use while not necessarily accommodating peak parking requirements.

5.2 To ensure business uses have provision for suitable areas for loading vehicles on-site.

5.3 To ensure car parking is available, convenient and accessible to users including people with disabilities.

5.4 To require all off-street parking areas to be designed and landscaped in a manner which will mitigate any adverse visual effect on neighbours, including outlook and privacy.

5.5 To require the design of parking areas to ensure the safety of pedestrians as well as vehicles.

5.6 To set areas aside for staff car parking in business and industrial zones.

No changes are proposed to the parking requirements set out in the District Plan, and it is expected that these can be achieved without difficulty.

Objective 6 - Pedestrian and Cycle Transport

Recognise, encourage and provide for the safe movement of cyclists and pedestrians in a pleasant environment within the District.

Policies

6.1 To develop and support the development of pedestrian and cycling links in both urban and rural areas.

6.2 To require the inclusion of safe pedestrian and cycle links where appropriate in new subdivisions and developments.

6.3. To provide convenient and safe cycle parking in public areas.

The proposed plan change will provide for walking and cycling activities, with specific networks provided for these road users as appropriate, in addition to linkages to external networks. This includes the walking/cycling route along the northern boundary of the site.

Objective 7 - Public and Visitor Transport

Recognition of public transport needs of people and provision for meeting those needs.

Policies:

7.1 To plan and encourage an efficient pattern of public transport.

7.2 To investigate opportunities for public transport as an alternative to, or in association with, changes or extensions to the major road network.

7.3 To promote and investigate opportunities for a public transport link between Queenstown and Frankton.

7.4 To support the development and operation of various types of tourist transport.

7.5 To liaise with the Otago Regional Council and public transport operators to ensure the public transport needs of the District are met.

The majority of the site lies within a five minute walking distance of Ballantyne Road or the TPZ main road which will represent key roads for any future public transport system. Therefore, the plan change area is well positioned in regard to any future public transport services provided to serve Wanaka and its environs, as described in the Wanaka Structure Plan.

8.10 District Plan Rules

The District Plan Rules set out in Appendix 7 and Council's Development and Subdivision Engineering Standards (Amendments and Modifications to NZS4404:2004) form an appropriate basis for the proposed plan change. However, it is unlikely that strict adherence to the Rules and Standards will be achieved (or is desirable) because NZS4404 was updated in 2010 to reflect principles of 'new urbanism', with narrower road widths recommended in order to provide better urban design outcomes for non-motorised road users.

It is understood that Council will have the opportunity to consider and comment upon any such deviations as part of the relevant subdivision resource consent application.

9. Summary and Conclusion

This Transportation Assessment Report has considered the potential transportation effects of the proposed rezoning of rural land between the Wanaka Golf Course and the Three Parks Zone (TPZ) to enable predominantly residential development in line with the Wanaka Structure Plan.

Since the proposed plan change will enable residential development in a manner that is consistent with the Wanaka Structure Plan, no further assessment of the wide area traffic effects of the plan change has been undertaken because it is considered that this will have been addressed as part of the development of the structure plan. Therefore, this assessment has focused on the more localised traffic effects of the proposed plan change.

With the development of the TPZ creating a new suburban area for Wanaka that includes a commercial centre, the proposed development of residential dwellings on the adjacent land will create opportunity for people to live and work in close proximity which will reduce the demand for the travel by motor vehicle.

An assessment of the effects of the additional vehicle trips on the future road network that is anticipated with the development of the TPZ and BMUZ has shown that the future road network will have sufficient capacity to accommodate the expected demands and provide an appropriate level of service.

The proposed plan change has also been assessed against the relevant transport planning framework set out in regional and local strategies, and overall, it is considered that the proposal is consistent with the transport-related objectives and policies of those documents. Of most relevance is that the proposed plan change gives effect to the Wanaka Structure Plan.

Accordingly, the proposed plan change can be supported from a transportation perspective.

Traffic Design Group
11 October 2011

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Duncan White
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Dear Duncan

North Three Parks Proposed Plan Change: Response to MWH Peer Review

Further to our recent e-mails and discussions, we are now able to respond to the peer review of our Transportation Assessment Report carried out by MWH on behalf of Queenstown Lakes District Council (dated 15 November 2011).

At the outset, we note that many of the matters raised relate to the potential effects of the proposed plan change on the transportation networks external to the site. In accordance with our conversation, in our response we have sought to be consistent with the scope and extent of analysis that was presented for the (now adopted) Three Parks plan change (TPZ, PC16) which is adjacent to North Three Parks and is much larger in size. As such, we have focussed wholly upon the internal transportation networks within the site.

1. Section 3.5 – Road Safety: Further Details of Crashes

While this information has not been presented within a Figure in the report, the text describes the common locations and factors, and includes an assessment of the observed and expected accident rates at one particular key location. Accordingly, we consider that sufficient analysis has been undertaken and presented to show that the proposed plan change will not adversely affect road safety within the immediate area.

We note that this level of detail is greater than was sought for the TPZ where the existing roading network was considered to be outside of the scope of the study.

2. Section 6.2.1 – Three Parks Zone (PC16): Justification for the 20% traffic volume reduction factor

The TPZ TIA includes an independent calculation of the expected traffic generation of the zone using rates from Table 6.1 from Transfund 209 (Trips and Parking Relating to Land Use Volume 1) but this is noted to be 10% higher than the traffic volumes which were forecast by the Wanaka Transportation Model. No reason is given for this discrepancy but in our view, this is because the calculation of traffic generation using Transfund 209 relates to the total traffic generation of individual sites within the zone with no allowance made for trips that are made wholly internal to the zone and which therefore do not appear on the external roading networks. Conversely, by its nature, the Wanaka Transportation Model will have taken internal movements into account and the reported traffic generation figure is that which the model expects will appear on the external network.

The percentage of internal movements within a site can vary on a case-by-case basis. However in our view a 10% difference is extremely conservative for a large site such as the TPZ and especially as there is significant potential for internal trips due to the synergy between the different land uses. The most recent example of a comparable land use is at Frankton Flats (PC19) where the Council has supported a reduction of 20% to take account of internal trips. We consider it is therefore appropriate to adopt the same value in this case also.

3. Section 6.2.3 – Future Year Traffic Generation: Further details on why some traffic generation has been reduced but not others

By way of background, the TPZ TIA indicates that the future external traffic generation of the area would be about 22,900 vehicle movements per day (vpd), as forecast from the Wanaka Transportation Model. We converted this to an estimate of the morning and evening peak hour traffic generation using observed peak hour factors from SH84 (Table 3 of our report). The external traffic generation of the BMUZ is contained within the PC32 TIA.

One particular issue with the TPZ and BMUG is that the two plan changes were advanced separately and do not necessarily take account of each other despite connections between the zones seeming to be envisaged in the relevant structure plans. Accordingly, we applied a reduction factor of 20% to the BMUZ external traffic generation because based on our review, there had been no account taken within the BMUZ of travel to the TPZ.

When we reviewed the TPZ analysis however, the generalized nature of the reporting meant that while we could see that there had been a reduction for internal trips, we could not identify whether this reduction was for trips wholly within the TPZ or whether a proportion took account of travel to BMUZ. We therefore decided to adopt a cautious approach and assume that there had been a reduction for travel to BMUZ, and we therefore did not make any further reduction.

4. Section 6.2.4 – Proposed Plan Change Area: Further details on the reduction factor

As noted earlier, QLDC has supported a reduction factor of 20% being applied to the "at the gate" traffic generation rates in their estimates of the total external traffic for the large mixed used development proposed under PC19.

5. Section 6.3 – Traffic Distribution

Since the TAR was issued, we have collected traffic survey data in the Queenstown area that indicates that the factor of 3.7 that we previously used (which was taken from ITE references and used to estimate the evening peak retail component of the TPZ traffic generation) is too high. Our survey data suggests that retail-related traffic generation in the evening peak hour is likely to be 2.0 to 2.5 times the traffic generation during the morning commuter peak period of 8:00am to 9:00am. On this basis, the retail traffic generation in the evening peak would be expected to be in the range 1,100-1,600 vehicles per hour (vph).

The evening peak hour traffic generation of the TPZ was estimated on the basis of the SH84 peak hour factors, although we noted that the observed factor of 9.6% was below the range of 10% to 15% that would normally be anticipated. However, if a peak hour factor of 11% was adopted, the evening peak hour external traffic generation of the TPZ would be about 2,500vph with the retail component accounting for about 1,300vph and this would be consistent with the Queenstown survey data.

An updated version of Table 8 of our report is shown below with the reduced retail traffic generation. This demonstrates that this has no effect on the expected directional movement pattern compared with that which was reported in the TAR.

Zone	Activity	Vehicle movements	In / Out	Inbound	Outbound
Three Parks	Residential	760	65% / 35%	494	266
	Mixed-Use	90	30% / 70%	27	63
	Retail	1,300	50% / 50%	650	650
	Business	350	15% / 85%	53	297
Proposed Plan Change	Residential	440	65% / 35%	286	154
	Business	60	15% / 85%	9	51
	Total	3,630		1,519	1,481
				51%	49%

Table 1: Directional Movement Pattern – Evening Peak Hour

Please note that the internal trip reduction factor has not been applied to this calculation because it is the percentage figures that are the critical aspect rather than the absolute values of vehicle movements.

6. Section 7.1.2 – SH84: Level of service

The matters raised in this part of the peer review relate to the external roading network and are therefore beyond the scope of this response. We note however that the calculations of Level of Service are complex and require the use of spreadsheet, and therefore cannot easily be replicated within a written report.

7. Section 7.1.3 – State Highway 84 / TPZ Main Road: Traffic modeling

The matters raised within this part of the peer review relate to the external roading network and are therefore beyond the scope of this response.

8. Section 7.1.4 – Ballantyne Road: Traffic modelling

The matters raised within this part of the peer review relate to the external roading network and are therefore beyond the scope of this response.

9. Section 7.1.5 – Riverbank Road: Use of the road by development traffic

The matters raised within this part of the peer review relate to the external roading network and are therefore beyond the scope of this response.

10. Section 7.2 – Walking and Cycling: Identification of corridors

It is envisaged that principles of new urbanism will be applied within the plan change area such that low vehicle speeds will be encouraged. The plan change area will be developed predominantly for residential use and the total daily peak hour traffic generation is expected to be 4,400-5,000vpd based on a traffic generation rate of 8-10vpd per dwelling. This traffic will be distributed across the internal road network and daily traffic volumes on individual

roads are generally expected to be below 2,000vpd. Because of the low volume of traffic, there would be no need to provide specific cycle facilities on these roads.

The proposed internal road network includes one 'through' route that connects Ballantyne Road with the TPZ spine road. With the higher traffic volumes expected on this road, it is envisaged that a road cross-section would be adopted that included cycle lanes.

We understand that in addition to footpaths on both sides of all roads, pedestrian links will be provided through larger blocks to improve the pedestrian network connectivity. We also understand that a walking / cycling trail will be constructed along the southern boundary of the golf course, which will provide a dedicated route for those wishing to walk or cycle between Ballantyne Road and south/west areas of Wanaka to the Mt Iron Reserve.

We note that the pedestrian, cycle and public transport connections with the wider transport network will be designed to integrate with the corresponding network for the TPZ. We understand that the latter is not currently available.

11. Section 8.3 – Regional Land Transport Strategy: Updated version avaialble

The Otago Regional Land Transport Strategy 2011-2041 sets the direction for Otago's land transport system for the next thirty years and replaces the 2005 strategy. The new strategy takes account of changes in the way the Government prioritises its transport investment to focus on supporting national economic growth and productivity.

The goal of the strategy is a "*safe transport system that provides connections between communities, leading to regional prosperity, the creation of wealth and employment, social inclusion and the minimisation of adverse environmental effects.*"

Two transport outcomes have been identified as important for reaching this goal.

- *Sustainable, demographically appropriate transport infrastructure and services that serves and links resilient communities.*
- *The ability of individuals, families, households and businesses to undertake necessary travel and carriage of freight in safe, healthy, convenient and affordable ways, with travel constrained only the choices people make (i.e. the realities of residential and business locations).*

The strategy defines the essential requirements for a sustainable transport system as:

- *be affordable to operate, maintain and use over the long term;*
- *persist in the face of external shocks and natural hazards;*
- *deliver the level and quality of service expected, safety included, to enable travel/freight, and*
- *keep social and environmental impacts within acceptable levels.*

In order to improve accessibility, the strategy aims to ensure adequate access to goods and services can be maintained at all times while addressing the issues of:

- *rising maintenance and operation costs and an expanding transport network, and*
- *a likely shortage of affordable transport fuels from time to time.*

The specific policy goals to address these issues in urban areas are:

- *Supporting the movement of people and freight in urban areas;*
- *Choice of travel modes, with easy connections between modes in urban areas;*
- *Acceptable, predictable travel times for routine journeys, including commuting in urban areas;*
- *Urban community and economic well-being;*
- *Social participation and inclusion in urban areas.*

Progress against the policy goals will be monitored using a series of indicators for specific outputs.

The residential development of the plan change area (and adjacent TPZ) will contribute to the growth of the central Wanaka area and it is envisaged that the population density will become sufficient to make public transport services sustainable. The proximity of the Plan Change area to the existing developed areas of Wanaka and also the retail and other facilities provided within the TPZ will ensure that other sustainable transport modes (walking and cycling) are viable for existing community facilities, schools and recreational activities.

We consider therefore that the development of the North Three Parks plan change area will contribute to achieving the outcomes of the strategy.

12. Other Matters

We agree that further information will be required in due course concerning the performance of internal intersections, and that the careful consideration will be required to ensure cohesion between the TPZ and North Three Parks. We also agree that these matters will be required in a subsequent stage of the analysis.

I trust that the above is of assistance but please do not hesitate to contact me if you require anything further.

Yours faithfully
Traffic Design Group Ltd

Andy Carr
Senior Associate