

12 December 2014

Orchard Road Holdings Ltd
PO Box 321
Wanaka, 9343

Attention: Allan Dippie

Dear Allan,

Plan Change 46 Ballantyne Road Intersection Assessment

The purpose of this letter is to provide an assessment for the appropriate type of access intersection for the proposed Plan Change 46 – Ballantyne Road Industrial and Residential Extension.

1 Background

Plan Change 46 will include approximately 100 residential lots and a number of industrial lots. The industrial lots will be served by the existing Enterprise Drive. The residential lots will be served by a new access from Ballantyne Road. This assessment considers the alternative intersection forms that could be used for the new Ballantyne Road access and determine which is the most appropriate for this level of development.

2 Intersection Form

There are two intersection forms that are applicable within the current speed environment these are; T-intersection or Roundabout. The design of these intersections is guided by the current Austroads documents Guide to Road Design Parts 4A: Unsignalised and Signalised Intersections (2010) and 4B: Roundabouts (2011). Traffic signals are not appropriate within this edge of town environment.

2.1 T-intersection

Based on current Ballantyne Road traffic flows (approximately 500vph peak) a T-intersection would be the appropriate intersection type. This intersection would require a marked right turn bay and basic left turn widening¹. The benefit of a T-intersection is that there will be minimal effects on the operational efficiency of Ballantyne Road as through traffic will not be delayed. Operational delay would be limited to traffic turning into and out of the development. The T-intersection will be capable of accommodating traffic resulting from the Plan Change with current Ballantyne Road traffic.

I have also considered the future traffic flow increase on Ballantyne Road as a result of development on adjacent zoned land created through Plan Changes 16, 32 and 36. This will require the T-intersection to be upgraded to include a short left turn lane.

¹ Based on a desk top assessment using the turning treatment warrants from Austroads Guide to Road Design Part 4A: Unsignalised and Signalised Intersections

2.2 Roundabout

Roundabouts require generally flat land and this will be difficult to achieve given the slope between the new Ballantyne Road access and the nearby Riverbank Road Intersection. The maximum gradient for the roundabout should not exceed 2% and the approach gradient should not exceed 3% uphill grade. It is likely that construction of a roundabout will require significant earthworks to achieve compliant gradients.

A roundabout will slow traffic on all approaches and therefore will have an effect on the operational efficiency of Ballantyne Road. It is likely that a roundabout intersection will introduce a greater overall delay onto the road network.

3 Summary

A T-Intersection with a marked right turn bay and basic left turn widening will cater for projected traffic flows as a result of Plan Change 46. To cater for future traffic flow from full development of adjacent zoned land the intersection will also require a short left turn lane.

A T-intersection is the preferred intersection type for the following reason. The operational difference between a T-intersection and a roundabout is the effect on vehicle delay. The T-intersection will not delay Ballantyne Road users. The operational delay of a T-intersection is on the minor road, Plan Change 46 approach and the right turn from Ballantyne Road. A roundabout will delay all users. This includes operational delay to users of Ballantyne Road and Plan Change 46. It is likely that the roundabout will generate a greater amount of overall delay.

A T-intersection will cater for current and future traffic flow on Ballantyne Road. This intersection form will minimise any effect on the operational efficiency of Ballantyne Road.

A concept design for this access intersection is attached. This concept shows the layout of a marked right turn bay and a marked left turn lane. This layout will be appropriate for Plan Change 46 traffic and future traffic on Ballantyne Road including development of adjacent zoned land.

Should you require any further information please contact me.

Yours sincerely,

A handwritten signature in blue ink, appearing to read "Jason Bartlett", written over a large, light blue oval scribble.

Jason Bartlett

CEng MICE, G.IPENZ
Traffic Engineer



Lot 3
DP 17123

Lot 1
DP 306149

Design speed 70kmph

Lot 7
DP 452439

Lot 9
DP 452439

Lot 99
DP 445766

Lot 8
DP 452439

Road 3

Legend

- existing road
- existing fenceline
- proposed footpath
- proposed road - painted white line
- proposed road - painted yellow line
- proposed road - edge of seal
- proposed boundaries
- existing boundaries / abutting parcels
- power pole

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Client & Location:
Orchard Road Holdings
Ballantyne Ridge, Wanaka

Purpose & Drawing Title:
Proposed Intersection Layout
Ballantyne Rd

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Drawn by:	DHP				
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