Ohiro Properties Limited

Ohiro Road Private Plan Change Request
Traffic Assessment

June 2004

Quality Assurance Statement	
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Contents

1. Introduction 1
2. Location in the Road Network 1
3. Local Road Environment 1
4. Traffic Volumes and Speed Environment 2
5. Crash History 2
6. Potential Development and Trip Generation 2
7. Impacts on Ohiro Road 3
8. Subdivision Access 3
9. Summary 4

1. Introduction

The following traffic assessment has been undertaken for Ohiro Properties in order to assess the potential effects of re-zoning an area of land adjacent to Ohiro Road in Brooklyn. The proposal is to re-zone the land, through a Private Plan Change, from Rural to Outer Residential, as defined by the Wellington City Council's District Plan.

The area involved is approximately 15.1ha and stretches to the south from current residential subdivision towards the Happy Valley Landfill area. The block of land is located on the side of a steep hill and is bounded on the upper and lower sides of the property by residential zones.

Should the land be developed in the future it is likely that access to the site will be partly provided through the Brooklyn Properties Ltd current residential subdivision and partly from two other intersections along Ohiro Road.

The following report addresses the traffic engineering and road safety issues associated with accessing the land affected by the re-zoning. Also, it gauges how intensively the land can be developed and what impact this will have on the adjoining road network, in particular Ohiro Road. The report does not address noise or amenity effects of increased traffic associated with any future development.

2. Location in the Road Network

The site is located within the Wellington Road network and proposed access will be from Ohiro Road, which links the suburb of Brooklyn and the Wellington CBD with the southern coast, namely Owhiro Bay.

The eastern and western extremities of the site include Ohiro Road and Mitchell Street respectively, while the northern boundary is opposite Borlase Street and the southern boundary some 300m south of Livingstone Street.

Ohiro Road is a Collector Road in the Wellington Road Hierarchy (as defined in the District Plan) and is a major access route to and from Wellington's Happy Valley Landfill.

3. Local Road Environment

The speed limit on Ohiro Road (adjacent to the site) is 50km/h and the current AADT or Annual Average Daily Traffic volume, is 7,000 vehicles per day (vpd). Furthermore, the carriageway varies in width from roughly 8 to 10m along the frontage of the site with on-street parking in places. There is a footpath on the eastern side of the road, and a grass verge adjacent to a drainage ditch on the western side.

4. Traffic Volumes and Speed Environment

As mentioned above, the AADT on Ohiro Road is approximately 7,000vpd with a peak hour flow of approximately 700vph, as detailed in the Traffic Assessment Report[1] for Ohiro Properties' current residential subdivision. Also, the traffic assessment shows that the 85th percentile speed (or design speed) on Ohiro Road along the frontage of the current subdivision is roughly 55km/h. This speed is generally typical of a collector road such as Ohiro Road. However, the 85th percentile speed is likely to be higher along the frontage of the area under consideration as vehicles travel south toward the Happy Valley Landfill. This is due to less intensive residential development adjacent to Ohiro Road and a speed limit 70km/h beyond the southern boundary of the site.

5. Crash History

A review of the LTSA's Crash Analysis System (CAS) indicates that along Ohiro Road adjacent to the frontage of site there have been 11 crashes over the five-year period between 1998 and 2002. This includes two injury crashes and nine non-injury crashes.

The equation in Section A6.5.4 of Transfund's PEM[2] suggests that the typical crash rate for a two-lane, two-way road, is roughly 0.55 injury crashes per year. Comparing this to the existing rate of 0.4 injury crashes per year on Ohiro Road, implies that there are currently no significant crash problems on Ohiro Road.

6. Potential Development and Trip Generation

The purpose of this section is to give Council an indication of potential future development that might occur on the site once it has been re-zoned and how this development might impact on the adjacent road network.

An upper estimate of subdivision potential for the site for the purposes of a "maximum-traffic generation" evaluation is based on the site accommodating up to 500 residential lots. As detailed in the traffic assessment for the subdivision currently taking place on the adjacent land, Traffic Design Group stated that trip generation rates for medium and low density housing are typically around 6.8 to 10.4 trips per day per dwelling. Given the location's proximity to a local centre (Brooklyn township) and the city and the availability of public transport, it is reasonable to assume traffic generation rates at the lower end of the range. Therefore, if we assume a trip generation rate of 6.8 trips per day per dwelling, trip generation for a 500 lot subdivision would be 3,400vpd.

In terms of total trip generation for the site, including the residential subdivision which is currently underway (~500vpd), this equals approximately 3,900vpd.

[1] Brooklyn Holdings Residential Subdivision – Traffic Assessment Report (Traffic Design Group, September 2003)
[2] Transfund's Project Evaluation Manual – PFM2

7. Impacts on Ohiro Road

As mentioned previously, the AADT on Ohiro Road is roughly 7,000vpd. The increased traffic associated with the current and proposed subdivisions, would increase the overall AADT to 10,900vpd. This is a significant increase in daily traffic flow along Ohiro Road. However, it is not unusual for a two-lane, two-way road to carry daily traffic volumes well in excess of 10,900vpd. For example, the Mt Victoria Tunnel, which forms part of State Highway One, currently carries around 37,500vpd. While the road classifications of Ohiro Road and the Mt Victoria Tunnel are vastly different, this is simply an indication of the capacity of a two-lane, two-way road.

With regard to Ohiro Road, its classification as a collector route and how this compares with the AADTs of other collector routes in Wellington City, we have quickly interrogated the WCC's traffic counting database to see if there are any other collector routes carrying similar volumes of traffic.

The database indicates that Helston Road in Johnsonville carries around 13,500vpd. This is evidence that collector roads in Wellington City are suitable for carrying volumes in excess of 10,900vpd and that Ohiro Road is therefore appropriately classified to carry this volume of traffic.

The greatest impact on Ohiro Road will be associated with the provision of safe and efficient access to and from the subdivision. This will occur at the intersections into the subdivision and where properties are accessed directly off Ohiro Road.

The current subdivision incorporates a right turn bay to facilitate the flow of vehicles to and from the site. Similar intersection controls will be required further to the south to accommodate the traffic associated with the 500 potential lots. This is discussed in the next section.

Furthermore, there will be some downstream impacts associated with the increased traffic from the subdivision. These impacts are likely to have most effect on the signalised intersection of Ohiro Road, Cleveland Street and Todman Street in Brooklyn Village. These impacts are likely to be in the form of increased queuing and delays at the intersection. This may be something that can easily be accommodated through changes in signal phasing. However, physical changes may be required to improve intersection capacity. Either way, this is something that can be adequately addressed during the consent process for any proposed development.

8. Subdivision Access

It has been assumed that access to the subdivision will be provided at three separate locations (including the proposed access for the current subdivision at 282 Ohiro Road), with each of the individual lots being accessed off internal right of ways. Roughly speaking, this means that approximately 1300 vehicles will utilise each of the three intersections on a daily basis or 130 vehicles during the peak period.

With the peak hour flow on Ohiro Road in the order of 700vph, a right turning bay can easily accommodate this level of turning traffic with an average delay to turning traffic in the order of two to three seconds, which is more than acceptable.

In terms of suitable locations for these intersections, it is likely that they will be evenly spaced along Ohiro Road. Furthermore, as Ohiro Road is reasonably straight, it will be relatively easy to identify suitable locations, which meet the requirements of safe intersection sight distance.

Moreover, as opposed to accessing the individual lots from internal right of ways, it may be possible for some of the lots adjacent to Ohiro Road to have direct access onto Ohiro Road itself. This is currently in keeping with vehicle access for most existing residential properties along Ohiro Road.

Therefore, should Council agree to this approach then there would be little impact on Ohiro Road other than the increased likelihood for vehicle interaction which is acknowledged as being acceptable in an urban environment. In fact, increased residential development directly adjacent to Ohiro Road will help to reinforce the current 50km/h speed restriction through increased "side friction", which could potentially increase overall road user safety.

9. Summary

In summary, the potential impacts on the road network associated with re-zoning the land adjacent to Ohiro Road in Brooklyn from Rural to Outer residential will not significantly compromise existing safety for road user.

The level of potential development is consistent with other urban areas in Wellington city and Ohiro Road as a collector road within the roading hierarchy is suitable to carry the levels of traffic associated with the subdivision.

For these reasons, we consider that there are no traffic engineering or road safety issues that prevent Council from agreeing to the private plan change.