24 July 2018

Mark Read
Palmerston North City Council
Private Bag 11034
The Square
Palmerston North

Copy via email: mark.read@pncc.govt.nz

Dear Mark

Palmerston North City Council – RACE Development
Transportation Assessment

Further to your request, I am pleased to provide below a transportation assessment for the proposed plan change involving the rezoning of RACE owned land in the vicinity of the Awapuni Racecourse from Race Training Zone to Residential Zone. The assessment that follows includes a review of the existing local transportation characteristics and a summary of the potential traffic effects associated with the development of the site for residential purposes under the proposed Residential zoning.

In summary the findings of the assessment show that with some mitigation measures in place, the proposed rezoning would allow for the site to be developed for residential purposes in a manner which is consistent with the District Plan traffic and transportation related objectives and policies. With regard to transportation provisions the following recommendations are made with regard to the development of the site for residential purposes:

- provision for the future development of the following infrastructure:
  - pedestrian and cyclist connection across the Mangaone Stream at the southern side of State Highway 56 to facilitate access to existing paths along both sides of SH56; and
  - pedestrian and cyclist connection across the Mangaone Stream towards the southern end of Te Wanaka Road to provide access to the Mangaone Stream path and the footpath and road network in the Grand Oaks Drive area and through to Maxwells Line.
- reducing the speed limit on SH56 between Te Wanaka Road and the Mangaone Stream to no more than 80km/h as part of this initial stage of development and to provide a transition between the 100km/h speed zone and the 50km/h speed zone. This initial speed limit reduction and any further reductions will need to be determined using the NZTA Speed Management Guide. Given the likely extension of the residential environment to the west along SH56 it is possible that there will be a number of stages to the speed reductions;
- reducing the speed limit on Te Wanaka Road from 70km/h to 50km/h; and
- the upgrade of both the Te Wanaka Road and Maxwells Line intersections with SH56 Pioneer Highway to include a sufficiently wide painted median to allow vehicles to comfortably make the right turn out in two stages.
1. Background

The wider road network is shown in Figure 1 and the area more local to the site is shown in Figure 2. As shown, the site is bound by SH56 Pioneer Highway to the north, the Mangaone Stream to the east and Te Wanaka Road to the south and west. SH56 becomes Pioneer Highway immediately to the west of the Maxwells Line intersection. It is anticipated that the site could accommodate up to 220 dwellings with all vehicle access being to Te Wanaka Road. The site is currently rural in nature with a number of dwellings and paddocks accommodating horses. The site forms part of the City West Growth Area as included in the Council’s Residential Growth Strategy.

![Figure 1: Local Road Network](image1)

![Figure 2: Extent of Site](image2)
2. Existing Traffic Environment

2.1 Road Geometry

The cross-sections of Te Wanaka Road and SH56 are shown in Photos 1 to 4. From west to east Te Wanaka Road comprises:

- 4m wide footpath;
- 8.3m wide carriageway;
- 2.8m wide swale; and
- a segregated horse walking lane.

The existing local traffic characteristics are summarised in Table 1.

As shown in Table 1, the carriageway widths for the various Local Roads vary from 8.3m on Te Wanaka Road to 14.8m at the eastern end of Racecourse Road. It is expected that as set out in the table, that on a typical day (without a race meet or event at the Racecourse) each of the Local Roads will carry 2,000 vehicles per day or less. The speed limit on Te Wanaka Road is 70km/h. The speed limit on SH56 is 100km/h and 50km/h to the west and east of the Mangaone Stream respectively. There are good sightlines available at both the Te Wanaka Road and Maxwells Line intersections with SH56 Pioneer Highway.
<table>
<thead>
<tr>
<th>Road Name</th>
<th>Status in PNCC District Plan Road Hierarchy</th>
<th>Carriageway Width (m)</th>
<th>Ave Weekday Traffic Volume (vpd)</th>
<th>Ave Weekday Peak Hour Traffic Volume (vph)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Grand Oaks Dr</td>
<td>Local Road</td>
<td>8.9</td>
<td>330&lt;sup&gt;1&lt;/sup&gt;</td>
<td>33-50&lt;sup&gt;1&lt;/sup&gt;</td>
</tr>
<tr>
<td>Racecourse Rd (Aintree Cres – Maxwells Line)</td>
<td>Local Road</td>
<td>14.8</td>
<td>1,670&lt;sup&gt;2&lt;/sup&gt;</td>
<td>160&lt;sup&gt;2&lt;/sup&gt;</td>
</tr>
<tr>
<td>Maxwells Line (south of Rugby St)</td>
<td>Minor Arterial Road</td>
<td>13.6</td>
<td>5,200</td>
<td>480</td>
</tr>
<tr>
<td>Te Wanaka Rd</td>
<td>Local Road</td>
<td>8.3</td>
<td>250&lt;sup&gt;3&lt;/sup&gt;</td>
<td>42&lt;sup&gt;4&lt;/sup&gt;</td>
</tr>
<tr>
<td>SH56 (west of Maxwells Line)</td>
<td>Major Arterial Road</td>
<td>7.0 (excluding shoulders)</td>
<td>9,773&lt;sup&gt;5&lt;/sup&gt;</td>
<td>960&lt;sup&gt;5&lt;/sup&gt;</td>
</tr>
</tbody>
</table>

**Table 1: Existing Local Traffic Characteristics**

Notes:
1. Estimate for residential component based on providing access to 41 households with 8 vehicle movements per day per household.
2. From Racecourse Road count in February 2018.
3. Data provided by Council.
4. From intersection count in April 2018.
5. AADT from NZTA counts.

Both the Council’s provisions for Local Roads and Collector Roads included in the Engineering Standards for Land Development and the Street Design manual along with those included in the New Zealand Standard 4404:2010 Land Development and Subdivision Infrastructure are summarised and compared in Table 2.

As shown in Table 2, the Council’s Street Design Manual includes a minimum carriageway width of 9.5m for new Local Roads. While Te Wanaka Road and Grand Oaks Drive have carriageway widths that are slightly narrower than the Council’s requirements for new Local Roads, the carriageway widths are more generous than those included in NZS4404: 2010. On the basis of the NZS4404:2010 provisions, the Local Roads in the vicinity of the site, being Te Wanaka Road, Grand Oaks Drive and Racecourse Road, have generous cross-sections and are operating well within their available traffic carrying capacity.
### PNCC Engineering Standards

<table>
<thead>
<tr>
<th>Local Road</th>
<th>Collector Rd</th>
<th>PNCC Street Design Manual</th>
<th>NZS4404: 2010</th>
</tr>
</thead>
<tbody>
<tr>
<td>Typical Daily Traffic Volumes (vpd)</td>
<td>0-3,000</td>
<td>3,000-10,000</td>
<td>0-3,000</td>
</tr>
<tr>
<td>Min. Reserve Road Width (m)</td>
<td>17.2</td>
<td>21.2</td>
<td>14.5</td>
</tr>
<tr>
<td>Footpaths (m)</td>
<td>2 * 1.6</td>
<td>2 * 2.25</td>
<td>2 * 2.5-3.0</td>
</tr>
<tr>
<td>Grass Berms (m)</td>
<td>2 * 1.9</td>
<td>2 * 1.5</td>
<td>2 * 1.2</td>
</tr>
<tr>
<td>Cycle Lanes (m)</td>
<td>Shared with traffic</td>
<td>2 * 1.5</td>
<td>Shared with traffic</td>
</tr>
<tr>
<td>Traffic Lanes (m)</td>
<td>2 * 3.0</td>
<td>2 * 3.0</td>
<td>2 * 2.75-3.25</td>
</tr>
<tr>
<td>Parking Lanes (m)</td>
<td>2 * 2.1</td>
<td>2 * 2.1</td>
<td>2 * 2.0</td>
</tr>
<tr>
<td>Min. Carriageway Width (m)</td>
<td>10.2</td>
<td>13.2</td>
<td>9.5 including parking bays</td>
</tr>
</tbody>
</table>

**Table 2: Comparison of Local and National Roading Provisions**

#### 2.2 Traffic Flows

NZTA traffic count data shows the traffic flows on SH56 at the Mangaone Stream increasing from 8,700vpd in 2009 to 9,770vpd in 2017, an increase of on average 1.5% growth per year.

A Council count from February 2018 shows Racecourse Road immediately to the west of Maxwells Line carrying 1,670 vehicles per day on a weekday with no significant traffic activity at the Racecourse. With an estimated 208 houses accessed via Racecourse Road, the existing daily trip generation rate is 8.0 vehicle movements per household. The hourly data from the same count shows existing weekday morning, weekday evening and peak hour Saturday trip generation rates of 0.8, 0.8 and 0.7 vehicle movements per household per hour respectively.

As part of this assessment the traffic flows at the intersections of Te Wanaka Road and Maxwells Line with SH56 Pioneer Highway were counted and also at the intersection of Racecourse Road and Maxwells Line. The existing layout of each of these intersections is shown in Figures 3, 4 and 5.
Figure 3: Te Wanaka Road/ SH56

Figure 4: Maxwells Line/ Pioneer Highway

Figure 5: Maxwells Line/ Racecourse Road
The surveys were undertaken in April 2018 outside of the school holiday period. The results are shown in Tables 3, 4 and 5.

<table>
<thead>
<tr>
<th>Traffic Movement</th>
<th>Weekday 7.30-8.30am</th>
<th>Weekday 4.30-5.30pm</th>
<th>Sat 12.00-1.00pm</th>
</tr>
</thead>
<tbody>
<tr>
<td>Te Wanaka Rd</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Left</td>
<td>7</td>
<td>7</td>
<td>1</td>
</tr>
<tr>
<td>Right</td>
<td>9</td>
<td>14</td>
<td>2</td>
</tr>
<tr>
<td>SH56 Pioneer H’way (W)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Right</td>
<td>3</td>
<td>4</td>
<td>2</td>
</tr>
<tr>
<td>Through</td>
<td>580</td>
<td>389</td>
<td>353</td>
</tr>
<tr>
<td>SH56 Pioneer H’way (E)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Through</td>
<td>284</td>
<td>583</td>
<td>402</td>
</tr>
<tr>
<td>Left</td>
<td>5</td>
<td>17</td>
<td>4</td>
</tr>
<tr>
<td>Total</td>
<td>888</td>
<td>1,014</td>
<td>764</td>
</tr>
</tbody>
</table>

Table 3: Te Wanaka Road/ SH56 Intersection (vph)

<table>
<thead>
<tr>
<th>Traffic Movement</th>
<th>Weekday 7.30-8.30am</th>
<th>Weekday 4.30-5.30pm</th>
</tr>
</thead>
<tbody>
<tr>
<td>Maxwells Line</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Left</td>
<td>93</td>
<td>115</td>
</tr>
<tr>
<td>Right</td>
<td>164</td>
<td>133</td>
</tr>
<tr>
<td>SH56 Pioneer H’way (W)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Right</td>
<td>118</td>
<td>113</td>
</tr>
<tr>
<td>Through</td>
<td>459</td>
<td>304</td>
</tr>
<tr>
<td>SH56 Pioneer H’way (E)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Through</td>
<td>206</td>
<td>494</td>
</tr>
<tr>
<td>Left</td>
<td>125</td>
<td>228</td>
</tr>
<tr>
<td>Total</td>
<td>1,165</td>
<td>1,387</td>
</tr>
</tbody>
</table>

Table 4: Maxwells Line/ Pioneer Highway Intersection (vph)

<table>
<thead>
<tr>
<th>Traffic Movement</th>
<th>Weekday 7.30-8.30am</th>
<th>Weekday 4.30-5.30pm</th>
</tr>
</thead>
<tbody>
<tr>
<td>Racecourse Rd</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Left</td>
<td>79</td>
<td>40</td>
</tr>
<tr>
<td>Right</td>
<td>41</td>
<td>19</td>
</tr>
<tr>
<td>Maxwells Line (N)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Right</td>
<td>47</td>
<td>113</td>
</tr>
<tr>
<td>Through</td>
<td>219</td>
<td>226</td>
</tr>
<tr>
<td>Maxwells Line (S)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Through</td>
<td>178</td>
<td>210</td>
</tr>
<tr>
<td>Left</td>
<td>17</td>
<td>59</td>
</tr>
<tr>
<td>Total</td>
<td>581</td>
<td>667</td>
</tr>
</tbody>
</table>

Table 5: Racecourse Road/ Maxwells Line Intersection (vph)
The household trip generation rates for the Racecourse Road catchment derived from the intersection counts are 0.9 and 1.1 vehicle movements per household during the weekday morning and weekday evening peak hours respectively. These are slightly higher than the trip generation rates derived from the tube count data and most likely include some activity at the Racecourse on the day of the intersection survey or reflect some seasonal variation in traffic activity.

The existing performance of each of the SH56 Pioneer Highway intersections with each of Te Wanaka Road and Maxwells Line were modelled using the SIDRA intersection analysis software. The intersections were modelled with the existing speed limits on each of the approaches. The results of this analysis are summarised in Tables 6 and 7. The intersection between Maxwells Line and Racecourse Road was not modelled given that the flows through the intersection are considerably lower than those at the SH56 Pioneer Highway intersections and the additional traffic activity associated with the proposed Plan Change is expected to be low.

<table>
<thead>
<tr>
<th>Time Period</th>
<th>Te Wanaka Rd</th>
<th>SH56 (W)</th>
<th>SH56 (E)</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>L</td>
<td>R</td>
<td>T</td>
<td>R</td>
</tr>
<tr>
<td><strong>Weekday AM</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Demand Flow (vph)</td>
<td>8</td>
<td>13</td>
<td>669</td>
<td>3</td>
</tr>
<tr>
<td>Ave. Delay (s)</td>
<td>12</td>
<td>21</td>
<td>0</td>
<td>13</td>
</tr>
<tr>
<td>Level of Service</td>
<td>B</td>
<td>C</td>
<td>A</td>
<td>B</td>
</tr>
<tr>
<td>95%ile Queue (veh)</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td><strong>Weekday PM</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Demand Flow (vph)</td>
<td>8</td>
<td>16</td>
<td>439</td>
<td>5</td>
</tr>
<tr>
<td>Ave. Delay (s)</td>
<td>13</td>
<td>20</td>
<td>0</td>
<td>14</td>
</tr>
<tr>
<td>Level of Service</td>
<td>B</td>
<td>C</td>
<td>A</td>
<td>B</td>
</tr>
<tr>
<td>95%ile Queue (veh)</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td><strong>Saturday Midday</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Demand Flow (vph)</td>
<td>1</td>
<td>2</td>
<td>374</td>
<td>2</td>
</tr>
<tr>
<td>Ave. Delay (s)</td>
<td>10</td>
<td>13</td>
<td>0</td>
<td>9</td>
</tr>
<tr>
<td>Level of Service</td>
<td>B</td>
<td>B</td>
<td>A</td>
<td>A</td>
</tr>
<tr>
<td>95%ile Queue (veh)</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>

Table 6: Te Wanaka Road/ SH56 Intersection – Existing Performance

As shown, the Te Wanaka Road intersection is busiest during the weekday AM and PM peak periods with the critical turn being the right turn out onto SH56 which experiences delays of around 20s during both peaks. This turn has an associated level of service of C. Vehicles making this turn need to give way to both the eastbound and westbound traffic flows on SH56.
The Levels of Service included in the intersection performance results are based on the average delay per vehicle at a sign controlled intersection as follows:

<table>
<thead>
<tr>
<th>Level of Service (LOS)</th>
<th>Average delay per vehicle (s)</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>$d \leq 10$</td>
</tr>
<tr>
<td>B</td>
<td>$10 &lt; d &lt; 15$</td>
</tr>
<tr>
<td>C</td>
<td>$15 &lt; d &lt; 25$</td>
</tr>
<tr>
<td>D</td>
<td>$25 &lt; d &lt; 35$</td>
</tr>
<tr>
<td>E</td>
<td>$35 &lt; d &lt; 50$</td>
</tr>
<tr>
<td>F</td>
<td>$50 &lt; d$</td>
</tr>
</tbody>
</table>

Levels of service of E and F are undesirable and can lead to drivers accepting unsafe gaps in the traffic flow with an associated risk of crashes. Longer delays are typically considered acceptable at roundabouts and traffic signals given that the through traffic flows are more controlled with improved turning opportunities for vehicles on all approaches.

<table>
<thead>
<tr>
<th>Time Period</th>
<th>Maxwells Line</th>
<th>Pioneer Highway (W)</th>
<th>Pioneer Highway (E)</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>L</td>
<td>R</td>
<td>T</td>
<td>R</td>
</tr>
<tr>
<td>Weekday AM</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Demand Flow (vph)</td>
<td>106</td>
<td>187</td>
<td>525</td>
<td>135</td>
</tr>
<tr>
<td>Ave. Delay (s)</td>
<td>6</td>
<td>22</td>
<td>0</td>
<td>6</td>
</tr>
<tr>
<td>Level of Service</td>
<td>A</td>
<td>C</td>
<td>A</td>
<td>A</td>
</tr>
<tr>
<td>95%ile Queue (veh)</td>
<td>0</td>
<td>3</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Weekday PM</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Demand Flow (vph)</td>
<td>131</td>
<td>152</td>
<td>347</td>
<td>129</td>
</tr>
<tr>
<td>Ave. Delay (s)</td>
<td>7</td>
<td>30</td>
<td>0</td>
<td>10</td>
</tr>
<tr>
<td>Level of Service</td>
<td>A</td>
<td>D</td>
<td>A</td>
<td>A</td>
</tr>
<tr>
<td>95%ile Queue (veh)</td>
<td>1</td>
<td>3</td>
<td>0</td>
<td>1</td>
</tr>
</tbody>
</table>

Table 7: Maxwells Line/ Pioneer Highway Intersection – Existing Performance

The Maxwells Line models were calibrated using vehicle queuing data collected during the intersection traffic surveys. As shown, the Maxwells Line intersection is busiest during the weekday PM peak period. Again, the critical turn is the right turn out onto Pioneer Highway which experiences average delays of around 22s and 30s during the AM and PM peak respectively. This turn has an associated level of service of D during the weekday evening traffic peak. While there is a turning bay, it is narrow and tapers immediately to the east of the intersection resulting in most drivers making this turn choosing to wait for a gap in both the eastbound and westbound traffic flows on Pioneer Highway.

2.3 Walking and Cycling Links

Figure 6 shows an extract from the Council’s walkway and cycleway map. As shown, paths in the vicinity of the site include:

- shared path along the northern side of SH56 extending to Longburn to the west and along Pioneer Highway towards the City centre;
- shared path along the eastern side of the Mangaone Stream extending from north of SH56 to Totara Road in the south. The path goes under SH56 at the Mangaone Stream and this involves steps; and
- Maxwells Line forming part of the on-road cycle network.

There is also a walkway parallel to but setback behind trees from SH56 Pioneer Highway between the Mangaone Stream path and Maxwells Line. As shown it is also proposed to form shared path between the Mangaone Stream path and Racecourse Road.

![Figure 6: Cycling and Shared Path Network (Extract from Council's Active and Public Transport Plan)](image)

There is a private bridge across the Mangaone Stream at the southern end of Te Wanaka Road. The bridge connects through the Grand Oaks Drive. Public pedestrian and cyclist access is restricted to after 10.30am and no access on race days. While this allows for some recreational use it does not allow for use for commuter or school trip purposes.

Average daily Council cycle counts on local paths are summarised as follows:

**Mangaone Stream Path (South of Pioneer Highway)**
- March 2017: 29 cyclists per day
- November 2017: 35 cyclists per day

**Pioneer Highway – Amberley Avenue to Cavendish Crescent Shared Path**
- March 2017: 71 cyclists per day
- November 2017: 91 cyclists per day
2.4 Public Transport

The nearest bus stops are on Maxwells Line to the north of the intersection with Racecourse Road. These bus stops are a 1km walk from the southern end of Te Wanaka Road assuming that there is future pedestrian access across the Mangaone Stream.

2.5 Road Safety

A search of the NZTA crash database for Te Wanaka Road and SH56 Pioneer Highway from Shirriffs Road to Botanical Road shows that there have been the following reported crashes during the five year period from 2013 to 2017 inclusive:

<table>
<thead>
<tr>
<th>Location</th>
<th>Non-injury</th>
<th>Minor Injury</th>
<th>Serious Injury</th>
<th>Fatal</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Te Wanaka Rd Mid-block</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td>1</td>
</tr>
<tr>
<td>Te Wanaka Rd/ SH56 Intersection</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>0</td>
</tr>
<tr>
<td>Shirriffs Rd/ SH56 Intersection</td>
<td>7</td>
<td>1</td>
<td></td>
<td></td>
<td>8</td>
</tr>
<tr>
<td>SH56: Shirriffs Rd to Te Wanaka Rd</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td>1</td>
</tr>
<tr>
<td>SH56: Te Wanaka Rd to Maxwells Line</td>
<td>5</td>
<td>1</td>
<td>2</td>
<td></td>
<td>8</td>
</tr>
<tr>
<td>Maxwells Line/ Pioneer Highway Intersection</td>
<td>6</td>
<td>1</td>
<td></td>
<td></td>
<td>7</td>
</tr>
<tr>
<td>Pioneer Highway: Maxwells Line to Botanical Rd</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Side road intersections</td>
<td>7</td>
<td>1</td>
<td>1</td>
<td></td>
<td>9</td>
</tr>
<tr>
<td>Mid-block</td>
<td>10</td>
<td>1</td>
<td>0</td>
<td></td>
<td>11</td>
</tr>
<tr>
<td>Botanical Rd/ Pioneer Highway Intersection</td>
<td>19</td>
<td>13</td>
<td>1</td>
<td></td>
<td>33</td>
</tr>
</tbody>
</table>

Table 8: Crash Summary 2013-2017 Inclusive

To date in 2018 there have been no reported fatal or serious injury crashes within this part of the road network. More details are provided below on all the Te Wanaka Road and Maxwells Line/ Pioneer Highway intersection reported crashes included in Table 8, and all the injury crashes at the other locations:

Te Wanaka Road

- a non-injury crash involving an eastbound vehicle hitting an obstacle in the road and then hitting a fence. The crash factors included obstruction on roadway and attention diverted by cell phone;
Maxwells Line/ Pioneer Highway Intersection
- a minor injury crash involving a westbound motorcycle on Pioneer Highway being hit by a car turning right onto Pioneer Highway. The crash factors include car failed to give way and visibility limited;
- five non-injury crashes involving vehicles turning right onto Pioneer Highway being hit by westbound vehicles on Pioneer Highway;
- a non-injury crash involving a northbound vehicle on Maxwells Line hitting a vehicle turning right from SH56 Pioneer Highway;

Other Injury Crashes
- a minor injury crash at the Shirriffs Road/ SH56 intersection involving a southbound vehicle on Longburn Rongotea Road losing control and hitting multiple objects. The crash factors include alcohol test above limit or test refused;
- a serious injury crash on SH56, 600m west of Maxwells Line involving a westbound car hitting the rear end of a car that had suddenly braked to turn into a frontage property;
- a minor injury crash on SH56, 70m east of the Mangaone Stream involving a westbound vehicle hitting the rear end of a vehicle that had stopped or slowed for an obstruction;
- a serious injury crash on SH56, 150m west of Maxwells Line involving an eastbound vehicle hitting the rear end of a vehicle that had stopped or slowed for a queue. The crash factors include inappropriate speed, attention diverted and dazzling sun;
- a minor injury crash at the intersection of Monrad Street and Pioneer Highway involving a southbound motorcycle on Monrad Street losing control. The crash factors include new driver/ under instruction;
- a serious crash on Pioneer Highway, 20m north of Cardiff Street involving a northbound vehicle on Pioneer Highway hitting a 6 year old skateboarder crossing the road. The crash factors include unsupervised child;
- a serious injury crash at the intersection of Nottingham Avenue and Pioneer Highway involving a westbound car on Pioneer Highway hitting a vehicle turning right. The crash factors include alcohol test above limit or refused and speed for the through vehicle and failure to give way for the turning vehicle;
- five minor and one serious injury crash at the intersection of Pioneer Highway and Botanical Road involving failure to give way;
- four minor injury crashes at the intersection of Pioneer Highway and Botanical Road involving failure to stop on a steady red light;
- two minor injury crashes at the intersection of Pioneer Highway and Botanical Road involving loss of control turning right. One crash involved alcohol in the crash factors and fatigue in the other;
- a minor injury crash at the intersection of Pioneer Highway and Botanical Road involving a car hitting a cyclist; and
- a minor injury crash at the intersection of Pioneer Highway and Botanical Road involving a car hitting a moped. The moped either did not signal or signalled incorrectly.

Patterns emerging from the crash records include:
- vehicles turning right out of Maxwells Line being hit by westbound vehicles on Pioneer Highway;
- rear end collisions on SH56 between Te Wanaka Road and Maxwells Line; and
- failure to give way and failure to stop on steady red light at the Botanical Road intersection with Pioneer Highway.

Council might wish to consider investigating improvements to the Maxwells Line intersection with Pioneer Highway such that vehicles turning right out from Maxwells Line can wait in the median area before trying to merge with the eastbound traffic flows on Pioneer Highway. This would simplify the task for
drivers who would then only have to give way to westbound traffic on SH56 and vehicles turning right into Maxwells Line from Pioneer Highway.

The section of SH56 between Te Wanaka Road and Maxwells Line includes the speed limit change from 50km/h to 100km/h at the Mangaone Stream. It is not altogether surprising that there are rear end collisions in this locality where drivers are transitioning between contrasting driving environments. The likely future reduction of the speed limit to the west of the Mangaone Stream should help with addressing this issue.

With some 33 reported crashes at the Botanical Road intersection with Pioneer Highway during the recent five year period, the Council have identified the intersection as a high risk intersection and it has been programmed for investigation. While traffic from the Plan Change site will only form a small part of the overall traffic through this intersection, any safety improvements are likely to benefit all users.

3. District Plan Transportation Requirements

The proposed plan change involves the rezoning of the site from Race Training Zone to Residential Zone. Objectives and policies included in the District Plan which have an influence on transportation matters within this site include:

City View Objectives

1. Planning for residential, industrial, commercial and rural-residential growth sustains a compact, orderly and connected urban form which avoids the adverse environmental effects of uncontained urban expansion into the rural zone.
2. The provision of infrastructure, particularly within identified growth areas, shall be efficient, timely, environmentally sensitive and economically sustainable.
3. The integrated and efficient provision of, and access to, infrastructure, network utilities and local services is facilitated for all residents.
23. Infrastructure operates in a safe and efficient manner, and the effects of activities which could impact on the safe and efficient operation of this infrastructure are avoided, remedied or mitigated.
24. All forms of transport, including public transport, walking, cycling and private vehicles are adequately provided for to assist with sustainable energy use and a healthy lifestyle.
25. Infrastructure and physical resources of regional or national importance are recognised and provided for by enabling their establishment, operation, maintenance, upgrading and protection from the effects of other activities.

Section 7 – Subdivision

Objective 2

To ensure that subdivision is carried out in a manner which recognises and gives due regard to the natural and physical characteristics of the land and its future use and development, and avoids, remedies or mitigates any adverse effects on the environment.

Policies

2.2 To ensure that all new lots have safe and adequate vehicle access from the roading network by providing that:

1. Every lot is to have access from a formed existing road, or a new road to be formed, to enable vehicles to enter the site with the dimensions of access sufficient to accommodate the level of vehicle usage anticipated. The access should be designed to
enable vehicles to turn within the lot and to leave it in a forward direction.

2. The construction is to be to a standard and of materials to support the anticipated traffic, require minimum maintenance and to control and dispose of stormwater runoff.

3. Any allotment with frontage to a Major or Minor Arterial road which has no alternative means of access to an existing public road in the local road network, shall have access arrangements approved by Council, in terms of an Access Management Structure Plan.

2.3 To ensure safe, convenient and efficient movement of people, vehicles and goods in a high quality environment with minimum adverse effects by providing that:

1. The layout of the transport network shall, as appropriate for their position in the roading hierarchy, ensure that people, vehicles and goods can move safely, efficiently and effectively, minimise any adverse effect on the environment, make provision for network utility systems and make provision for amenity values. The layout of the transport network shall:
   - provide adequate vehicular access to each lot;
   - link to, and provide for, and be compatible with the existing and future transport networks, taking into account orderly and integrated patterns of development and adjoining developments;
   - connect to all adjoining roads, providing for choice of routes where practicable;
   - identify significant destinations and provide for safe and convenient access to these by all modes;
   - encourage multi-modal street links, providing pedestrian links; and
   - provide adequate access for emergency vehicles.

2. The development provides for a high quality public realm considering:
   - the potential for the street to be a place of recreational walking and cycling;
   - the safety and visibility of pedestrians; and

4. The structure of a road shall:
   - have a design life of at least 25 years based on Equivalent Design Axle, or equivalent design methods;
   - be constructed from materials suitable for the intended use;
   - maintain adequate surface smoothness; and
   - be protected from the adverse effects of surface and ground water.

6. Urban roads are to be well lit by specifically designed street lighting, are to be constructed to such standards and in such materials as will result in minimum maintenance having regard to the anticipated levels and types of traffic.

Section 10 – Residential Zone

Objective 1

To enable the sustainable use and development of the Residential Zone to provide for the City’s current and future housing needs.

Policies

1.3 To promote the efficient use of the urban infrastructure and other physical resources.

1.4 To ensure network infrastructure and services are available to support residential development and intensification.
**Objective 2**

To secure and enhance the amenity and character of the Residential Zone as a safe, attractive, social and healthy environment in which to live.

**Policies**

2.1 To ensure that the design of housing development is complementary to neighbourhood and street character by;

- ....
- Restricting the placement of accessory buildings and garages that dominate the streetscape.

**Section 20 – Transportation**

**Objective 1**

To maintain and enhance the safe and efficient functioning of the roading network.

**Policies**

1.1 To establish and maintain a road hierarchy.

1.2 To identify the location and route of Major Arterial and Minor Arterial roads in all areas of development.

1.3 To ensure all roads have function and design characteristics consistent with the road hierarchy.

1.4 To have regard to the particular safety needs of cyclists and pedestrians.

**Objective 2**

To protect the roading network, as identified in the roading hierarchy from the potential adverse effects of all land use activities.

**Policies**

2.1 To ensure safe and efficient vehicle access is provided to and from activities.

2.2 To ensure safe and efficient loading facilities are provided to service activities.

2.3 To ensure safe and efficient parking and manoeuvring space is provided for all activities.

2.4 To manage and control vehicle access crossing points onto Major Arterial and Minor Arterial roads.

**Objective 3**

To avoid, remedy or mitigate the effects of roads and vehicles on the amenity values of the City.
Policies

3.1 To restrict the through movement of traffic where the movement has adverse visual, noise and safety effects on adjoining areas.

3.2 To avoid, remedy or mitigate the impacts of roads and park areas on visual amenity values of the community by the provision of landscaping.

Objective 4

To maintain and enhance the use of public transport, walking and cycling as alternative modes to the private motor vehicle.

Policies

4.1 To support and encourage the use of public transport, walking and cycling as an integral part of the transportation system with special provisions made for them as appropriate.

Section 21 – Race Training Zone

Objective 1

To encourage and promote the long term use and development of the land in the vicinity of Te Wanaka Road for race training facilities.

Policies

1.5 To maintain the safe and efficient operation of the roading and state highway network with regard to movements of vehicles and horses within the zone.

1.6 To recognise the specialised requirements for access to the Awapuni Racecourse on race days and the potential for conflict between high speed traffic, other vehicles and horses on the State Highway.

1.7 To avoid, remedy or mitigate any adverse effects on the roading and State Highway network arising from activities operating within the zone.

Proposed Plan Change 22 – Section 20 – Transportation

Objective 1

The City’s land transport networks are maintained and developed to ensure that people and goods move safely and efficiently through and within the City.

Policies

1.1 Identify and apply the roading hierarchy to ensure the function of each road in the City is recognised and protected in the management of land use, development and the subdivision of land.

1.2 All roads in the City have function and design characteristics consistent with their place in the roading hierarchy.
1.3 Maintain and upgrade the existing roads in the City and provide for new roads to meet the current and future needs of the City.

1.4 The road network stormwater control system shall protect the road, road users and adjoining land from the adverse effects of water from roads and minimise any adverse effect on the environment.

1.5 Require all new public roads, private roads, accessways and privateways to be designed and constructed to meet performance standards relating to the safety and efficiency of vehicle movement, and to ensure the safe use of the road transport network for all users, particularly in respect of:

   a) Road width and alignment which should be sufficient for two vehicle lanes except where traffic volumes are insufficient;
   b) The formation and surface sealing of all roads, accessways and privateways to standards appropriate to the volume of traffic expected to be carried;
   c) Provision for necessary network utility facilities within roads; and
   d) Safe design and construction of roads, road access points and intersections, including alignment, gradient, vehicle parking, manoeuvring and turning requirements.

1.6 Encourage the development of safe and accessible pedestrian paths and cycleways, as well as convenient and accessible cycle parking, to support the opportunity for people to use active and non-vehicular modes of transport throughout the City.

1.7 To support and encourage the provision of public transport and its use throughout the City as an integral part of the transportation system.

1.8 Convenient, safe and accessible car parking, loading and manoeuvring facilities are available for residents, staff, visitors and customers for all activities without creating congestion or conflicts with moving vehicles, pedestrians or cyclists on adjacent roads.

**Objective 2**

The land transport network is safe, convenient and efficient while avoiding, remedying or mitigating adverse effects in a way that maintains the health and safety of people and communities, and the amenity values and character of the City’s environment.

**Policies**

2.1 Restrict the through movement of traffic where the movement has adverse visual, noise and safety effects on the adjoining areas by using the road hierarchy to direct higher volume and heavy traffic movements on identified arterial routes and discouraging this traffic from other areas, such as residential areas.

2.2 Avoid, remedy or mitigate the impact of roads and parking areas on visual amenity values of the community by requiring the provision of landscaping.

2.4 Avoid adverse effects on amenity and character by ensuring that new roads are well designed and visually complement the character of the surrounding area.
Objective 3

The safety and efficiency of the land transport network is protected from the adverse effects of land use, development and subdivision activities.

Policies

3.1 Avoid, remedy or mitigate the adverse effects of increased traffic or changes in traffic type, which would compromise the safe and efficient operation of any road, or the safe and convenient movement of pedestrians and cyclists on roads.

3.2 Require vehicle crossing places and vehicle entrances from public roads to be located, constructed, and maintained to standards appropriate to the expected traffic volume, pedestrian movement and speed environment of each road.

3.3 Ensure that buildings and activities do not compromise the necessary clear sight lines for trains and road vehicles at level rail crossings, or of vehicles at road intersections.

3.4 Ensure adequate on-site parking and manoeuvring space is provided for each type of activity in a safe and visually attractive manner.

3.5 Ensure that buildings and activities make provision for adequate and safe on-site loading.

3.6 Control the location, design and extent of advertising signs located adjacent to roads to ensure that they do not interfere with the safe and efficient use of roads and pedestrian facilities.

Key transportation matters that arise from these various transport-related District Plan objectives and policies which apply to this proposed residential site can be summarised as follows:

(i) existing and new roading network needs to operate safely and efficiently;
(ii) provision for public transport, walking and cycling as well as private vehicles;
(iii) particular consideration to be given to avoiding adverse effects on SH56 Pioneer Highway which is a Major Arterial Road in the District Plan road hierarchy and part of the State Highway network;
(iv) individual lot sizes should be sufficient to allow for:
   a. vehicles to be able to turn within the lot and leave in a forward direction;
   b. avoid garages dominating the streetscape;
   c. ensure buildings will not compromise clear sight lines of vehicle at road intersections; and
   d. adequate on-site parking and manoeuvring space.
(v) lots with frontage to SH56 should have vehicle access to an alternative non-arterial road;
(vi) the internal road network needs to be compatible with existing and future transport networks, taking into account development patterns and adjoining developments;
(vii) connect to all adjoining roads to maximise route choice, where practicable;
(viii) provide for pedestrians and cyclists both within the streets and via links to the wider network;
(ix) have specific regard to cyclist and pedestrian safety;
(x) restrict the through movement of traffic where the movement has adverse visual, noise and safety effects on adjoining areas;
(xi) use of landscaping to avoid, remedy or mitigate any adverse visual effects of roads; and
(xii) provision for ongoing safe movement of horses and traffic associated with the Awapuni Racecourse.
4. Traffic Effects – Existing Zoning and Activity

The site is currently rural in nature with a number of dwellings and paddocks accommodating horses. The intersection traffic surveys show weekday peak hour traffic flows of 24vph and 42vph on Te Wanaka Road during the morning and evening peaks respectively and 9vph during the Saturday midday peak. These traffic flows include traffic associated with the proposed residential site, the Racecourse and the rural-residential properties along the western side of Te Wanaka Road. On non-race days there is very little existing traffic activity on Te Wanaka Road. Data provided by Council indicates daily traffic activity of around 250vpd on Te Wanaka Road. Given the rural nature of the properties there will be very limited pedestrian and cyclist activity. Horses are walked to and from the Racecourse along the secure lane and also moved onto and off the properties by horse float or truck. On race days there is additional traffic activity with horses arriving and departing by horse floats and trucks and members accessing the racecourse via Te Wanaka Road. This race day traffic is generated by the racecourse itself rather than the activities on the existing Plan Change site.

Given that there is no public access from Te Wanaka Road through to Grand Oaks Drive, the key traffic effects associated with the existing use of the site are traffic flows on Te Wanaka Road and at the intersection with SH56. As described above the existing traffic flows on Te Wanaka Road are light and are safely and efficiently accommodated within the existing cross-section of Te Wanaka Road and at the intersection with SH56.

5. Traffic Effects – Residential Development with Proposed Zoning

It is understood that the site has the potential to accommodate up to 220 dwellings. Based on the assessed trip generation rates for the nearby Racecourse Road residential catchment, it is anticipated that the site could generate the following traffic activity:

- 1,760 vehicle movements per day;
- 176 vehicle movements per hour during the weekday traffic peaks; and
- 154 vehicle movements per hour during the Saturday midday peak.

The key potential off-site traffic effects associated with the proposed plan change and associated residential development are:

- safe connection to Te Wanaka Road;
- additional traffic activity on Te Wanaka Road both in terms of safety and capacity effects;
- additional traffic at the Te Wanaka Road intersection with SH56 and the ongoing safe and efficient performance of the intersection;
- additional traffic activity on SH56 Pioneer Highway including through the nearby intersection with Maxwells Line;
- introduction of pedestrian and cyclist movements with new desire lines and the safe connection with the wider network of paths;
- extension of the demand for public transport access to beyond the existing physical limit of the City.

Each of these potential traffic effects are discussed in turn below.

5.1 Te Wanaka Road

The existing speed limit on Te Wanaka Road is 70km/h, it is recommended that a speed limit of 50km/h would be more appropriate for the future residential environment in line with other residential streets in the City.
Given the straight and flat alignment of Te Wanaka Road along with the flexibility along the site boundary with regard to the road reserve width, safe intersection connections can be readily achieved. With the existing 100km/h speed limit on SH56, the Operative District Plan and NZTA Policy Planning Manual include a minimum separation distance of 50m and 60m respectively between an access on Te Wanaka Road and the SH56 intersection. It is recommended that a separation distance of at least 60m is provided between any new access road off Te Wanaka Road and the SH56 intersection. By way of comparison a sample of separation distances of local road intersections with Pioneer Highway intersections are as follows:

- Maxwells Line/ Laurel Place 107m
- Amberley Avenue/ Dalfield Place 67m
- Cavendish Crescent/ Drake Street 84m
- Monrad Street/ Murphy Court 50m
- Nottingham Avenue/ Appleby Place 78m
- Botanical Road/ Church Street 106m

Given the length of the Te Wanaka Road site frontage an intersection separation distance of at least 60m from SH56 can be readily achieved.

With regard to capacity the Council’s Engineering Standards for Land Developments include a road reserve width for new residential streets of 17.2m for Local Roads and 21.2m for Collector Roads. With the potential for Te Wanaka Road to become a Collector Road as the City West development continues, it is recommended that a road reserve width of at least 21.2m be allowed for. This recommended provision is also well matched to the road width of 20.5 to 23.5m for residential collector roads as included in the Council’s Street Design Manual. Given that the site fronts the full length of the eastern side of Te Wanaka Road, the inclusion of a 21.2m road reserve width can be readily achieved. The Engineering Standards include the following cross-section for a Collector Road with a 21.2m road reserve which can be expected to accommodate 3,000 to 10,000vpd:

- a 2.5m wide footpath on each side;
- a 1.5m wide grass berm on each side;
- 1.5m wide cycling lanes in each direction;
- 3.0m wide traffic lanes in each direction;
- 2.1m wide parking lanes on each side.

While the cross-section of Te Wanaka Road is being future proofed for a possible future collector function, its function as a result of the Proposed Plan Change would remain as a local road.

Given the straight and flat alignment of Te Wanaka Road along with the ability to provide an appropriate cross-section, accommodate access and intersection separation distances from SH56 and good sight lines at any new intersections, a safe roading configuration is considered readily achievable.

5.2 SH56 Pioneer Highway

The following assumptions have been made in forecasting the additional traffic flows and the associated trip distribution with the residential development of the proposed site:

- as a result of discussions with Council a 2025 future year has been selected for the full development of the RACE site;
- the forecast traffic activity for the RACE site has been added on to the existing traffic flows on Te Wanaka Road given that the existing site generates so little traffic activity;
- a 1.5% annual traffic growth rate has been applied to vehicle flows on SH56, which is the average annual growth that has occurred on this section of SH56 over the last eight years;
- 176 vehicle movements per hour during the weekday traffic peaks associated with the 220 dwellings;
- the existing speed limits of 70km/h on Te Wanaka Road and 100km/h on SH56 to the west of the Mangaone Stream have been used in the intersection modelling. With the likely future reduction in speed limits on these roads this is a conservative assumption with the delay associated with vehicles slowing to negotiate turns at intersections (geometric delay) reducing with reduced approach speeds. The delay associated with waiting for a gap in opposing traffic flows can be expected to be similar regardless of the speed limit;
- one third of trips will result in turns to and from Maxwells Line based on the observed turning patterns at the intersection of Racecourse Road and Maxwells Line;
- based on the above assumption and existing traffic patterns it is assumed that around 25% of trips will be to and from the Longburn direction and 75% to and from the Maxwells Line direction; and
- the split between inward and outward trips is based on the balance in flows on Racecourse Road. As with the trip generation rates, given the size of the residential catchment, some 208 dwellings, and the proximity to the RACE site, the trip patterns of the existing residential traffic using Racecourse Road is considered appropriate for forecasting the trip patterns for the RACE site.

The forecast weekday traffic flows through each of the intersections are shown in Tables 9 and 10.

<table>
<thead>
<tr>
<th>Traffic Movement</th>
<th>Weekday 7.30-8.30am</th>
<th>Weekday 4.30-5.30pm</th>
</tr>
</thead>
<tbody>
<tr>
<td>Te Wanaka Rd</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Left</td>
<td>36</td>
<td>18</td>
</tr>
<tr>
<td>Right</td>
<td>96</td>
<td>49</td>
</tr>
<tr>
<td>SH56 (W)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Right</td>
<td>18</td>
<td>36</td>
</tr>
<tr>
<td>Through</td>
<td>641</td>
<td>430</td>
</tr>
<tr>
<td>SH56 (E)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Through</td>
<td>314</td>
<td>644</td>
</tr>
<tr>
<td>Left</td>
<td>50</td>
<td>115</td>
</tr>
<tr>
<td>Total</td>
<td>1,155</td>
<td>1,292</td>
</tr>
</tbody>
</table>

**Table 9: Te Wanaka Road/ SH56 2025 Forecast Traffic Flows (vph)**

<table>
<thead>
<tr>
<th>Traffic Movement</th>
<th>Weekday 7.30-8.30am</th>
<th>Weekday 4.30-5.30pm</th>
</tr>
</thead>
<tbody>
<tr>
<td>Maxwells Line</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Left</td>
<td>118</td>
<td>159</td>
</tr>
<tr>
<td>Right</td>
<td>181</td>
<td>147</td>
</tr>
<tr>
<td>Pioneer H’way (W)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Right</td>
<td>159</td>
<td>136</td>
</tr>
<tr>
<td>Through</td>
<td>565</td>
<td>360</td>
</tr>
<tr>
<td>Pioneer H’way (E)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Through</td>
<td>258</td>
<td>611</td>
</tr>
<tr>
<td>Left</td>
<td>138</td>
<td>252</td>
</tr>
<tr>
<td>Total</td>
<td>1,419</td>
<td>1,665</td>
</tr>
</tbody>
</table>

**Table 10: Maxwells Line/ Pioneer Highway 2025 Forecast Traffic Flows (vph)**
Given that the right turn onto SH56 Pioneer Highway from Maxwells Line is already at a level of service D, it has been assumed that the intersection will include as a minimum intervention a sufficiently wide median to allow vehicles to comfortably make the right turn out in two stages. The future layout for the intersection between Te Wanaka Road and SH56 has been assumed to be similar to the existing layout for the Maxwells Line intersection with an expectation that most vehicles turning right onto SH56 will give way to both the westbound and eastbound traffic flows on SH56. The modelled forecast performance of the intersections is shown in Tables 11 and 12.

### Table 11: Te Wanaka Road/SH56 Intersection – 2025 Forecast Performance

<table>
<thead>
<tr>
<th>Time Period</th>
<th>Te Wanaka Rd</th>
<th>SH56 (W)</th>
<th>SH56 (E)</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>L</td>
<td>R</td>
<td>T</td>
<td>R</td>
</tr>
<tr>
<td>Weekday AM</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Demand Flow (vph)</td>
<td>42</td>
<td>111</td>
<td>739</td>
<td>21</td>
</tr>
<tr>
<td>Ave. Delay (s)</td>
<td>15</td>
<td>29</td>
<td>0</td>
<td>11</td>
</tr>
<tr>
<td>Level of Service</td>
<td>C</td>
<td>D</td>
<td>A</td>
<td>B</td>
</tr>
<tr>
<td>95%ile Queue (veh)</td>
<td>2</td>
<td>2</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Weekday PM</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Demand Flow (vph)</td>
<td>20</td>
<td>55</td>
<td>485</td>
<td>41</td>
</tr>
<tr>
<td>Ave. Delay (s)</td>
<td>16</td>
<td>31</td>
<td>2</td>
<td>15</td>
</tr>
<tr>
<td>Level of Service</td>
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<td>D</td>
<td>A</td>
<td>C</td>
</tr>
<tr>
<td>95%ile Queue (veh)</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
</tr>
</tbody>
</table>

### Table 12: Maxwells Line/ Pioneer Highway Intersection – 2025 Forecast Performance

<table>
<thead>
<tr>
<th>Time Period</th>
<th>Maxwells Line</th>
<th>Pioneer Highway (W)</th>
<th>Pioneer Highway (E)</th>
<th>Total</th>
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<tbody>
<tr>
<td></td>
<td>L</td>
<td>R</td>
<td>T</td>
<td>R</td>
</tr>
<tr>
<td>Weekday AM</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Demand Flow (vph)</td>
<td>135</td>
<td>207</td>
<td>646</td>
<td>182</td>
</tr>
<tr>
<td>Ave. Delay (s)</td>
<td>6</td>
<td>10</td>
<td>0</td>
<td>7</td>
</tr>
<tr>
<td>Level of Service</td>
<td>A</td>
<td>B</td>
<td>A</td>
<td>A</td>
</tr>
<tr>
<td>95%ile Queue (veh)</td>
<td>1</td>
<td>2</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Weekday PM</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Demand Flow (vph)</td>
<td>182</td>
<td>168</td>
<td>411</td>
<td>155</td>
</tr>
<tr>
<td>Ave. Delay (s)</td>
<td>9</td>
<td>26</td>
<td>0</td>
<td>14</td>
</tr>
<tr>
<td>Level of Service</td>
<td>A</td>
<td>D</td>
<td>A</td>
<td>B</td>
</tr>
<tr>
<td>95%ile Queue (veh)</td>
<td>1</td>
<td>3</td>
<td>0</td>
<td>1</td>
</tr>
</tbody>
</table>

As at 2025 and existing speeds, average delays for vehicles turning right out of Te Wanaka Road are forecast to be close to 30 seconds during each of the weekday traffic peaks with an associated level of service of D. Average delays for vehicles turning right out of Maxwells Line are forecast to be 10 seconds and 26 seconds during the weekday morning and afternoon peak respectively. It should be noted that
the delays for traffic turning right out of Maxwells Line do not include the delay associated with merging with the eastbound traffic flows on SH56 Pioneer Highway.

The intersections were then tested to see how much additional traffic can be accommodated before the intersections might reasonably be needed to be further upgraded. A percentage growth rate was applied to all traffic flows on all approaches for both intersections. The trigger for upgrading the intersection was assumed to be when the right turn onto SH56 Pioneer Highway crosses the Level of Service threshold from D to E, which is an average delay of more than 35s, during the weekday PM peak period which is the critical time period. On this basis, the Te Wanaka Road intersection can accommodate 5% more traffic during each of the weekday traffic peaks before it would reach Level of Service E for the right turn out. The Maxwells Line intersection can accommodate 6% more traffic during the weekday evening peak before it would reach Level of Service E for the right turn out.

Accordingly, it is considered likely that further intersection upgrades at both the Te Wanaka Road and Maxwells Line intersections with SH56 Pioneer Highway will be needed to support any further residential development in the City West area beyond the proposed RACE site which relies on access to SH56.

Based on the analysis of the Te Wanaka Road and Maxwells Line intersections which show existing levels of service of C and D respectively for traffic turning right onto Pioneer Highway along with a number of crashes involving right turning vehicles at the Maxwells Line intersection, it is reasonable to assume that there will be some existing and future pressures with regard to right turns onto Pioneer Highway from frontage properties and side streets to the east of Maxwells Line. At the moment there are turning bays at the intersections of Pioneer Highway with Amberley Avenue, Monrad Street and Cardiff Street. There are no turning bays at the intersections with Cavendish Crescent, Lewis Place and Nottingham Avenue. It is recommended that Council consider a staged approach with regard to ensuring ongoing safe and efficient access to Pioneer Highway from side roads and frontage properties. The staging might include:

- stage 1, improvements to the SH56 Pioneer Highway intersections with Te Wanaka Road and Maxwells Line as part of the development of the RACE site;
- stage 2, investigate timing for the provision of right turn bays at the Cavendish Crescent, Lewis Place and Nottingham Avenue intersections with Pioneer Highway as the City West development progresses beyond the RACE site; and
- stage 3, investigate timing for the provision of a full flush median along Pioneer Highway from Maxwells Line to Botanical Road to facilitate safe and efficient turning from frontage properties as the City West development progresses beyond the RACE site

The planned introduction of traffic signals at the Amberley Avenue intersection will result in the platooning of traffic flows with improved opportunities for turning to and from nearby properties and side roads. The control of the intersection by traffic signals will result in breaks in the traffic flow with vehicles being grouped together and then larger gaps compared with the existing steady traffic flows. The creation of larger and regular gaps in the traffic flow will improve access opportunities for nearby frontage properties and adjacent side roads.

It is also recommended that a review is undertaken of the speed limit along SH56, in particular between Te Wanaka Road and the Mangaone Stream. As the residential character of the City extends towards the west it would be appropriate for the speed limit to be reduced. The indication from the NZTA Speed Management Framework is that the speed limit on SH56 should be reduced from 100km/h to 80km/h between Mangaone Stream and Longburn with the existing adjacent land use activities, local access and roading arrangement. The reduction in the speed limit to a maximum of 80km/h is considered desirable and would provide a safer transition to and from the urban 50km/h speed limit that starts at the Mangaone Stream.
A speed limit of 50km/h is indicated for Te Wanaka Road. It should be noted that these indicative speed limits are based on a high level assessment which would require further analysis and assessment in the event that speed limit changes are sought by either Council or NZTA.

The Speed Management Framework does not include recommendations for speed limits of 70km/h in the urban area. It is understood that the basis for this is that 10km/h speed increments are too small to allow for roads with the different speed limits to be easily self-explaining with regard to the different speed limits. With the future extension of residential development to the west along SH56 it is therefore reasonable to expect that there will come a point when a further reduction in the speed limit to 60km/h will be justified and appropriate. It is however considered that the most realistic scenario is that the reduction in the speed limit from 80km/h to 60km/h would be triggered once the RACE site is developed and not prior to the development.

5.3 Public Transport and Active Modes

While the existing public transport network does not extend to this part of the City, as the development of City West continues there will come a point where there is sufficient demand for public transport services to include these new residential developments. Te Wanaka Road as a future Collector Road can be expected to accommodate buses as needed. If a bus service ran along Te Wanaka Road in the future, all dwellings within the site would be within around a 450m walk of the bus route.

As included earlier, there are a number of walkways, cycleways and shared paths within the vicinity of the site as follows:

- shared path along the northern side of SH56 extending to Longburn to the west and along Pioneer Highway towards the City centre;
- shared path along the eastern side of the Mangaone Stream extending from north of SH56 to Totara Road in the south. The path goes under SH56 and this involves steps;
- walkway parallel to but setback from SH56 between the Mangaone Stream path and Maxwells Line;
- walkway providing a link between the Mangaone Stream path and Racecourse Road; and
- Maxwells Line forms part of the on-road cycle network.

In order to access these existing facilities it is recommended that the following infrastructure is developed:

- pedestrian and cyclist connections from the internal RACE site to both the northern and southern frontages of the site with the Mangaone Stream corridor;
- pedestrian and cyclist connection across the Mangaone Stream at SH56 to facilitate access to existing paths along both sides of SH56. While access to the shared path on the northern side of SH56 requires using steps and going under the bridge it is not considered safe to have a surface crossing until such time as the speed limit is reduced to 50km/h to the west of the Stream; and
- pedestrian and cyclist connection across the Mangaone Stream towards the southern end of Te Wanaka Road to provide access to the Mangaone Stream path and the footpath and road network in the Grand Oaks Drive area and through to Maxwells Line. This connection provides an alternative route to SH56 and a more direct route for pedestrians and cyclists to locations to the south of Pioneer Highway.

It is also recommended that either the existing walkway between Maxwells Line and the Mangaone Stream is opened up such that there is passive surveillance from SH56 or that a footpath is constructed along the southern side of SH56 from Maxwells Line to and across the Mangaone Stream.

With the combination of the existing and recommended infrastructure the site will have good connections to the City’s pedestrian and cycle routes whether for recreational or commuter purposes.
6. Other Considerations

The scope for this transportation assessment also included that particular consideration to be given to the following:

- the impact of further development of City West on the transport network;
- identifying when the tee priority intersection at Te Wanaka Road and SH56 might need to be upgraded to an alternate intersection type; and
- assessment of three scenarios for a public bridge link between Te Wanaka Road and Grand Oaks Drive as follows:
  - no link;
  - pedestrian and cycle link only; and
  - full road connection.

The first two points have already been addressed as part of the assessment. A potential link between Te Wanaka Road and Grand Oaks Drive is discussed next.

The existing bridge is owned by the Racecourse and is not open for use by the general public. It is used to move horses onto and off the Racecourse either by foot or vehicle for training or racing purposes and is also used for member vehicle access on race days.

If no public access is provided across the Mangaone Stream at the southern end of Te Wanaka Road there is no opportunity to connect with the existing walkways, cycleways and the local street network in this area. The lack of provision of such a link would be contrary to a number of the District Plan objectives and policies which seek to encourage walking and cycling.

With regard to the inclusion of a bridge that provides public vehicle access between Te Wanaka Road and Grand Oaks Drive the following factors need to be considered;

- District Plan Subdivision Policy 2.3 includes that ‘the layout of the transport network shall:
  - link to, and provide for, and be compatible with the existing and future transport networks…
  - connect to all adjoining roads, providing for a choice of routes where practicable;
  - provide adequate access for emergency vehicles.’
- District Plan Transportation Policy 3.1 includes ‘to restrict the through movement of traffic where the movement has adverse visual, noise and safety effects on adjoining areas’; and
- District Plan Race Training Policy 1.5 includes ‘to maintain the safe and efficient operation of the roading and state highway network with regard to movements of vehicles and horses within the zone.’

As such there is a strong policy basis for a public road link to be formed across the Mangaone Stream connecting Te Wanaka Road with Grand Oaks Drive but any such link would need to:

- have restricted capacity and be designed to accommodate local traffic movements but not risk being seen as an alternative route to using Pioneer Highway and Maxwells Line for traffic from outside the area; and
- connect in such a way as not to put horses at risk that continue access and use the private bridge.

The traffic counts at the intersection of Racecourse Road with Maxwells Line indicate that around one third of the traffic turns to and from Maxwells Line to the south. As such it is estimated that with 220 dwellings on the proposed residential site there could be a demand for around 60 vehicle movements.
per hour across the Stream during the weekday peak hours and around 50 vehicle movements per hour during the Saturday midday period.

The provision of a public road link across the Mangaone Stream between Grand Oaks Drive and Te Wanaka Road would also allow for access from the Grand Oaks Drive and Racecourse Road residential areas to SH56 to the west via Te Wanaka Road. Based on the local traffic counts it is estimated that some 25% of traffic travelling between the Racecourse Road residential catchment and Maxwells Line might reroute to Te Wanaka Road. This would amount to up to 40 vehicle movements per hour during the busiest hours of traffic activity.

It is not considered likely that traffic on Maxwells Line would divert onto the Racecourse Road – Te Wanaka Road route given the additional travel time associated with:

- a slightly longer travel distance of 1.8km via Te Wanaka Road compared to 1.7km via Maxwells Line combined with;
- slower travel speeds on the Racecourse Road – Te Wanaka Road route due to the narrower road widths and more winding alignment. Even with reduced speed limits on SH56 to the west of the Mangaone Stream this would remain the case.

On this basis up to some 100 vehicle movements per hour could be expected on a new bridge connecting Te Wanaka Road and Grand Oaks Drive. This level of additional traffic activity is equivalent to around one or two extra vehicle movement per minute and would not be expected to have a significant adverse effect on the safety, amenity or capacity of Grand Oaks Drive.

Consideration would also need to be given to potential future traffic loadings on a public bridge connection as the development of City West continues to the west of Te Wanaka Road.

7. Summary and Conclusion

The findings of this transportation assessment can be summarised as follows:

- there is currently very little traffic activity associated with the site;
- the Local Roads in the vicinity of the site, being Te Wanaka Road, Grand Oaks Drive and Racecourse Road are operating well within their available traffic carrying capacities;
- tube counts on Racecourse Road have enabled local residential trip generation rates to be determined with 8 vehicle movements per day per household and 0.8 vehicle movements per household during each of the weekday peak hours;
- connection from the site to the existing local walkways, cycleways and footpaths relies on new crossings of the Mangaone Stream. It is recommended that the following infrastructure is developed:
  o pedestrian and cyclist connection across the Mangaone Stream at SH56 to facilitate access to existing paths along both sides of SH56; and
  o pedestrian and cyclist connection across the Mangaone Stream towards the southern end of Te Wanaka Road to provide access to the Mangaone Stream path and the footpath and road network in the Grand Oaks Drive area and through to Maxwells Line.
- it is recommended that either the existing walkway between Maxwells Line and the Mangaone Stream is opened up such that there is passive surveillance from SH56 or that a footpath is constructed along the southern side of SH56 from Maxwells Line to and across the Mangaone Stream;
- there is no ready access to public transport from the site but as the City expands into the City West area it is reasonable to assume that in time there will be sufficient demand for public transport to warrant the extension of the existing bus network;
- patterns emerging from the crash records include:
In response to these crash patterns it is recommended that Council may wish to consider investigating:

- widening of the median/turning bay at the Maxwells Line intersection with Pioneer Highway such that drivers turning right onto Pioneer Highway can cross the eastbound and westbound traffic flows in separate movements;
- initial reduction of the speed limit on SH56 between Te Wanaka Road and the Mangaone Stream to a maximum of 80km/h with a longer term expectation of a 60km/h speed limit once the RACE site is developed; and
- safety improvements for the Botanical Road intersection with Pioneer Highway.

- the District Plan objectives and policies provide clear guidance with regard to providing a safe and efficient road network, particular consideration of public transport, cycling and walking, provision of connections to existing transport routes and the functional traffic requirements for individual residential lots. The safe interaction with the activities at the Awapuni Racecourse is also emphasised;
- the existing right turn out of Te Wanaka Road operates with a Level of Service of C during the weekday peak hours. The existing right turn out of Maxwells Line operates with a Level of Service of D during the weekday evening peak;
- it is recommended that the speed limit on Te Wanaka Road be reduced from 70km/h to 50km/h as part of the upgrading of the road;
- given the straight and flat alignment of Te Wanaka Road along with the ability to provide an appropriate cross-section, accommodate access and intersection separation distances from SH56 and good sight lines at any new intersections, a safe roading configuration is considered readily achievable;
- given that the right turn onto SH56 Pioneer Highway is the critical turn at both intersections, it has been assumed that both intersections will be upgraded to include a sufficiently wide median to allow vehicles to comfortably make the right turn out in two stages. The existing delays for traffic turning right out of Maxwells Line onto Pioneer Highway at peak times along with the crash record suggest that this treatment will provide safety and efficiency benefits to both existing and future road users. With the development of the RACE site the right turning traffic volumes out of Te Wanaka Road are forecast to increase from around 14vph to around 96vph during the busiest hours of traffic activity. This compares to existing right turns out of Maxwells Line of 164vph and 133vph during the existing weekday morning and evening peaks respectively. The provision of a turning bay with a sufficiently wide median to allow vehicles to comfortably make the right turn out in two stages will minimise the delays for right turning traffic and also reduce the risk of introducing a crash pattern similar to the existing one at the Maxwells Line intersection with Pioneer Highway;
- beyond 2025 and with the proposed site fully developed, the analysis indicates that the Te Wanaka Road intersection can accommodate a further 5% traffic growth and the Maxwells Line intersection a further 6% traffic growth before the tight turns out at the intersections would be at a Level of Service E. Suitable intersection treatments would need to be investigated at the time of the upgrade;
- it is recommended that Council consider a staged approach with regard to ensuring ongoing safe and efficient access to Pioneer Highway from side roads and frontage properties. The staging might include:
  - stage 1, improvements to the SH56 Pioneer Highway intersections with Te Wanaka Road and Maxwells Line as part of the development of the RACE site;
- stage 2, investigate timing for the provision of right turn bays at the Cavendish Crescent, 
  Lewis Place and Nottingham Avenue intersections with Pioneer Highway as the City 
  West development progresses beyond the RACE site; and 
- stage 3, investigate timing for the provision of a full flush median along Pioneer Highway 
  from Maxwells Line to Botanical Road to facilitate safe and efficient turning from frontage 
  properties as the City West development progresses beyond the RACE site.

- any public road link between Te Wanaka Road and Grand Oaks Road would need to:
  - have restricted capacity and be designed to accommodate local traffic movements but 
    not risk being seen as an alternative route to using Pioneer Highway and Maxwells Line 
    for traffic from outside the area; and 
  - connect in such a way as not to put horses at risk that continue to access and use the 
    private bridge. The development of the RACE site for residential purposes will remove 
    the demand for horses to be walked along the eastern side of Te Wanaka Road to and 
    from the Racecourse. It may be necessary to introduce a secure horse path along the 
    western side of Te Wanaka Road to allow for ongoing access to the Racecourse via the 
    private bridge; 
- it is estimated that the proposed residential zoning along with the provision of a public road link 
  between Te Wanaka Road and Grand Oaks Drive could result in around 100 additional vehicle 
  movements per hour on Grand Oaks Drive during the weekday peaks.

Of the recommendations included above the following should usefully be included within the Structure 
Plan for the proposed Plan Change:

- provision for the future development of the following infrastructure:
  - pedestrian and cyclist connection across the Mangaone Stream at SH56 to facilitate 
    access to existing paths along both sides of SH56; and 
  - pedestrian and cyclist connection across the Mangaone Stream towards the southern 
    end of Te Wanaka Road to provide access to the Mangaone Stream path and the 
    footpath and road network in the Grand Oaks Drive area and through to Maxwells Line. 
- initial reduction of the speed limit on SH56 between Te Wanaka Road and the Mangaone Stream 
  to a maximum of 80km/h with a longer term expectation of a 60km/h speed limit once the RACE 
  site is developed; 
- reducing the speed limit on Te Wanaka Road from 70km/h to 50km/h; and 
- the upgrade of both the Te Wanaka Road and Maxwells Line intersections with SH56 Pioneer 
  Highway to include a sufficiently wide median to allow vehicles to comfortably make the right turn 
  out in two stages. Given that works will be needed at the Te Wanaka Road intersection with 
  SH56 to accommodate increased volumes of turning traffic associated with the development of 
  the RACE site it is recommended that provision is made for a staged right turn out onto SH56 
  from the start. This is considered particularly important given the uncertainty around the timing 
  and level of any speed limit reductions on this section of SH56.

While the inclusion of a public road link between Te Wanaka Road and Grand Oaks Drive would provide 
route choice and would be well aligned with some of the District Plan objectives and policies, the 
inclusion of the link is not considered essential at this stage. From a safety perspective it is considered 
that such a link might be more appropriately included at such time as the western frontage of Te Wanaka 
Road is also developed with more intense residential and the need to move horses on foot along this 
section of Te Wanaka Road is reduced or removed.

With the identified mitigation measures in place it is considered that the site can be rezoned to 
Residential Zone and developed for residential purposes with the development meeting the 
transportation related objectives and policies of the District Plan.
Please do not hesitate to be in touch should you require clarification of any of the above.

Yours faithfully

[Signature]

Harriet Fraser
PALMERSTON NORTH CITY COUNCIL – KIKIWHENUA RESIDENTIAL AREA

Transport Assessment Addendum

Mark Read
Mark.read@pncc.govt.nz
13 September 2018
Background
The Transport Assessment for the Kikiwhenua Residential Area, undertaken by Harriett Fraser, considered the effects of the Kikiwhenua Residential Area. It made recommendations for interventions based on the effects of this development. The Transport Assessment gave limited consideration to broader land use and infrastructure planning and the potential developments of other adjacent sites.

The Transport Assessment considered a speed limit of 80km/h was appropriate on SH56 Pioneer Highway at the initial stage of development. It suggested that given the likely extension of the residential environment to the west along SH56 Pioneer Highway, there may be further future speed reductions. It considered only the infrastructure changes recommended in the Transport Assessment when recommending the speed limit.

Broader planning for the development of City West is ongoing. Further consideration is being given to what speed may be appropriate on SH56 Pioneer Highway given anticipated land use and required infrastructure changes. This addendum to the Transport Assessment considers what speed limit may be appropriate given these broader changes.

As was recommended within the Transport Assessment, any speed limit change shown be determined using the Transport Agency’s Speed Management Guide.

Speed Management Guide
The Transport Agency introduced the latest Speed Management Guide (Guide) in November 2016. One of objectives of the Guide is to ensure a consistent sector-wide approach is adopted to manage speeds so they are appropriate for road function, design, safety, use and the surrounding environment (land use). It sets clear guidelines for how certain roads should function within the hierarchy and what the appropriate speeds are for these roads.

Safe and Appropriate Speed
The Guide proposes Safe and Appropriate Speeds based on a roads function, safety performance and infrastructure risk rating. It is also dependent on whether the road is considered an Urban or Rural Road.

The Guide recognises that defining Urban and Rural is not always clear cut, particularly in high growth areas undergoing changes in function and use (including land use). This is considered to be the situation SH56 Pioneer Highway will be in as City West develops.

The Proposed Safe and Appropriate Speeds classification method from the Guide for both Urban and Rural roads is shown in Figures 1 & 2 respectively.
**Figure 1: Proposed Safe and Appropriate Speeds - Urban Roads**

<table>
<thead>
<tr>
<th>Function / Feature</th>
<th>Road safety metric</th>
<th>Infrastructure Risk Rating</th>
<th>Safe and Appropriate Speed (km/h)</th>
</tr>
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<tbody>
<tr>
<td>• ONRC is Class 1 or 2</td>
<td>• Personal Risk ≤ Low-Medium;</td>
<td>• ‘Low’ or ‘Low-Medium’</td>
<td>• 80</td>
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<td>• Identified as a Freight Priority Route in a</td>
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<td>• Network Operating Framework</td>
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<tr>
<td>• Limited Access Road controls</td>
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</tr>
<tr>
<td>• Median Divided</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• ONRC is Class 1 or 2</td>
<td>• Personal Risk ≤ Medium;</td>
<td>• ‘Low’ or ‘Low-Medium’</td>
<td>• 60</td>
</tr>
<tr>
<td>• Non-commercial adjacent land use</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• ONRC is Class 1 or 2</td>
<td>No road safety metric used in the</td>
<td>• Any IRR</td>
<td>• 50</td>
</tr>
<tr>
<td>• Non-commercial adjacent land use</td>
<td>assessment</td>
<td></td>
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<tr>
<td>• ONRC is Primary Collector</td>
<td>• Personal Risk ≤ Medium-High</td>
<td>• Low to Medium</td>
<td>• 50</td>
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<tr>
<td>• Residential adjacent land use</td>
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</tr>
<tr>
<td>• Any ONRC</td>
<td>• Personal Risk ≤ Medium-High</td>
<td>• ‘Low’ to ‘Medium’</td>
<td>• 50</td>
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<tr>
<td>• Non-commercial and non-residential adjacent land use</td>
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<td>• Residential neighbourhoods</td>
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<tr>
<td>• Any ONRC</td>
<td>No road safety metric used in the</td>
<td>• ‘High’</td>
<td>• 30</td>
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<tr>
<td>• CBDs or town centres with high place function and</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>• concentration of active road users</td>
<td></td>
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<td>• Parks</td>
<td>No road safety metric used in the</td>
<td>• Any rating</td>
<td>• 20</td>
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<td>• Shared spaces with high</td>
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<td>• place function and concentration of active</td>
<td></td>
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<td>• road users</td>
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<td></td>
</tr>
<tr>
<td>• Car parks</td>
<td></td>
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</tr>
</tbody>
</table>
The section of SH56 Pioneer Highway between the Palmerston North urban boundary and Te Wanaka Road currently fits the following criteria:

- ONRC: Class 2 (Arterial Road);
- Personal Risk: Low;
- Infrastructure Risk Rating: 1.36 (Low in Urban; Medium in Rural);

### Proposed Infrastructure

Palmerston North City Council (Council) have undertaken long term infrastructure planning for the City West development. This includes the need for upgrades to the transport infrastructure. One of those upgrades is the SH56 Pioneer Highway / Te Wanaka Road intersection. The timing and budget allocated for this infrastructure is based on the anticipated growth of City West.
Council’s long-term infrastructure planning considered not only the Kikiwhenua Residential Area, but also other potential City West developments. It is planned that a crossroads will be formed at the Te Wanaka Road intersection to act as one of the main accesses to the northern portion of City West from SH56 Pioneer Highway. An uncontrolled cross intersection at this location would not offer the expected road safety level of service. A further upgrade would be necessitated.

Within Council’s long-term infrastructure plan, a major upgrade of the SH56 Pioneer Highway / Te Wanaka Road intersection has been programmed for the 2020/21 financial year. The final form of the intersection is to be determined during a preliminary design phase. It is expected that the two most appropriate intersection types are traffic signals or roundabout.

This proposed infrastructure is different to what was proposed in the Transport Assessment. The Transport Assessment did not consider the effects of the wider City West developments. Only the effects of the Kikiwhenua Residential Areas. Therefore, it proposed a lessor upgrade at the SH56 Pioneer Highway / Te Wanaka Road intersection that was appropriate for the Kikiwhenua Residential Area.

Summary & Conclusion
The Safe and Appropriate Speed as assessed by the Guide for the section of SH56 Pioneer Highway between the current Palmerston North urban boundary and Te Wanaka Road is dependent on whether the environment is considered Urban or Rural. Whether the road is considered Urban or Rural, should largely be based on the road environment.

The major upgrade of the SH56 Pioneer Highway / Te Wanaka Road intersection will be seen to effectively move the Palmerston North urban boundary from where it is currently to west of this intersection. This along with development adjacent to SH56 Pioneer Highway within the Kikiwhenua Residential Area will create an urban environment. The Safe and Appropriate Speed in this environment according to the Guide is 60km/h.

If development of residential properties did not occur adjacent to SH56 Pioneer Highway or the intersection remained as it is or underwent a minor upgrade, the road environment would likely remain rural. The Safe and Appropriate Speed in this environment according to the Guide is 80km/h.

The major upgrade of the SH56 Pioneer Highway / Te Wanaka Road intersection is planned to be construction in the 2020/21 financial year. This along with residential development adjacent to SH56 Pioneer Highway would be expected to create an urban environment.

Recommendation
Consider the Safe and Appropriate Speed Limit on SH56 Pioneer Highway to be dependent on how development occurs adjacent the road. If an urban road environment is created, the speed limit should be 60km/h. If the road environment remains rural, the speed limit should be 80km/h.