

BEFORE THE HEARINGS PANEL

IN THE MATTER of the Resource Management Act 1991

AND

IN THE MATTER of proposed Plan Change G: Aokautere Urban
Growth to the Palmerston North City Council
District Plan

**SUPPLEMENTARY STATEMENT OF HARRIET FRASER ON BEHALF OF PALMERSTON NORTH
CITY COUNCIL**

TRANSPORT

Dated: 11 March 2024

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SUPPLEMENTARY STATEMENT OF HARRIET FRASER

A. INTRODUCTION

- [1] My full name is Harriet Barbara Fraser.
- [2] I prepared a s 42A report dated 15 September 2023 (**s 42A Report**) and reply evidence dated 28 November 2023 (**Reply**) on Transport matters for PCG.
- [3] My experience and qualifications are set out in my s 42A Report.
- [4] I repeat the confirmation given in my s 42A Report that I have read and will comply with the Code of Conduct for Expert Witnesses in the Environment Court Practice Note 2023, and that my supplementary report has been prepared in compliance with that Code.

B. SCOPE

- [5] My supplementary statement responds to the following matters raised by the Hearing Panel as part of the hearing in the week of 4 December 2023. Specifically:
- (a) Traffic effects associated with a retirement village land use activity if a land use consent was sought in advance of a subdivision consent;
 - (b) Traffic effects associated with medium density residential development in the plan change area if a land use consent was sought in advance of a subdivision consent;
 - (c) Clarification of the intersection capacity level of service (**LOS**) definitions;
 - (d) Delivery of early works by Waka Kotahi;
 - (e) Rooding connections proposed by submitter 45 – Palmerston North Industrial & Residential Developments Ltd (PNIRD). These connections have been described as the ‘Terrace Link’ from the extension of Valley Views to the proposed residential zoned area, and the ‘Gully 9’ connection to the southern promontory of the land;
 - (f) Fixed or flexible nature of rooding elements in the Structure Plan; and

(g) Refinement of wording in Table 7A.1 regarding transport network upgrades.

[6] Other matters raised by some submitters during the hearing included:

(a) Adverse traffic effects on Turitea Road;

(b) The safety of the Cashmere Drive intersection with SH57 Aokautere Drive;

(c) The Summerhill Drive intersection with Ruapehu Drive and Mountain View Drive; and

(d) Possible adverse effects associated with the removal of raingardens from some of the road cross-sections.

C. RETIREMENT VILLAGE

[7] Retirement villages have lower traffic generation rates per unit than standard residential development, and the busiest period of traffic activity associated with retirement villages is typically during the weekday inter-peak periods and not coincident with the traffic peaks on the local road network.

[8] Table 7.4 of NZ Transport Agency Research Report 453 (2011) includes the following trip generation rates:

(a) Dwelling (outer residential) - 0.9 vehicle movements per unit during peak hour.

(b) Retirement home – 0.4 vehicle movements per bed during peak hour.

(c) Retirement units – 0.3 vehicle movements per unit during peak hour.

[9] The trip generation for retirement units during the local network traffic peak is around one third of that associated with dwellings.

[10] More recent data presented by Summerset as part of a private plan change request in Masterton and based on survey data collected in 2018 from Summerset Wigram supports this assumption of lower traffic activity associated with retirement villages. As part of the plan change request two development options were considered for the same site, one involving 254 residential lots and the other a retirement village including

215 independent units, 119 care suites along with 99 standard residential lots on the balance of the site. The forecast trip generation was as follows:

Time period	Residential only (254 lots)	Retirement Village plus 99 Residential lots
AM peak	181vph	101vph
Midday peak	154vph	157vph
PM peak	198vph	162vph

- [11] As such, I am of the view that the effects of traffic activity associated with a retirement village, can reasonably be expected to be lower than those of standard residential development of an equivalent site. On this basis, and depending on the scale of the activity, a land use application for a retirement village may not require an intersection upgrades transport assessment. Such an assessment would be required at the subdivision stage, but in the event a subdivision consent has not been sought, I understand Ms Copplestone has drafted the assessment criteria for this activity such that an assessment of the effects on these intersections would form part of the assessment of the land use application, and provide scope to request a transport assessment, depending on the circumstances of the application.

D. MEDIUM DENSITY RESIDENTIAL

- [12] Dwellings within a medium density residential development (i.e. 25dph or more) can be expected to have a similar or slightly lower trip generation rate¹ than suburban low density residential units (15-16 dph) during the weekday traffic peaks. However, when combined with the higher number of dwellings per hectare associated with medium density development, the overall traffic generation for an equivalent site will be higher for medium density residential development than for standard suburban residential development.
- [13] Accordingly, the effects of traffic activity associated with medium density residential development, can be expected to be higher than those of standard residential

¹ Medium density housing tends to have fewer on-site parking spaces and lower vehicle ownership as a result of smaller houses with fewer occupants, resulting in slightly lesser traffic activity than standard residential dwellings.

development of an equivalent site. Therefore, I am of the opinion that in relation to the intersection upgrades transport assessment requirement within the provisions, an application for medium density housing development, without a subdivision consent, should trigger the need for an intersection upgrades transport assessment.

E. INTERSECTION LEVEL OF SERVICE

[14] The intersection capacity Level Of Service explanatory note for Tables 7A.1 and 7A.2 should be a reference to Table 7.2 of the Austroads Guide to Traffic Management Part 3 Transport Study and Analysis Methods (2020), as per the extract below.

Table 7.2: LOS criteria for two-way stop-controlled intersections

LOS	Average control delay (s/veh)
A	0–10
B	> 10–15
C	> 15–25
D	> 25–35
E	> 35–50
F	> 50

Source: Exhibit 20-2 in HCM 2016 (TRB 2016a).

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F. DELIVERY OF EARLY WORKS BY WAKA KOTAHI

[15] Since the hearing in December 2023, Waka Kotahi are currently undertaking the following maintenance and safety improvements on State Highway 57 Aokautere Drive between Johnstone Drive and Old West Road:

- (a) Replacing the existing intersection right-turn bays with new turning bays and a central painted median strip;
- (b) Relocation of the existing pedestrian refuge, close to the Summerhill Shopping Centre, to align with the new central painted median barrier;
- (c) Marking of a cycle lane on the shoulder to formalise current cyclist behaviour; and
- (d) Resealing and line-marking.

[16] These maintenance and safety works can be expected to improve safety for all road users along this section of SH57 Aokautere Drive in the short term. Further and significant safety benefits will come from a future speed limit reduction on this section of SH57 Aokautere Drive. As per paragraph 16, Attachment 1 of my Reply, a speed limit reduction on this section of SH57 is to also be included by Waka Kotahi in the 2024-2027 review period. While there can be no certainty around a future speed limit reduction, Waka Kotahi is including it in the earliest review period and given the existing severance concerns, along with the very small associated travel time increases, I consider it reasonable to assume that there will be a speed limit reduction to either 60 or 50km/h within the next three years.

G. PNIRD ROADING CONNECTIONS

[17] PNIRD have requested two changes to the Structure Plan road network, one involving a different alignment up the terrace from Valley Views to the Pacific Drive plateau 'Terrace Link Road' and the other being access to PNIRD land across the end of Gully 9, avoiding the need to cross the Waters' Block.

Terrace Link Road

[18] The requested change for the **Terrace Link Road** is shown in Resonant Drawings 212018 Sheets 1 to 5. The extract below shows the alignment sought by PNIRD.

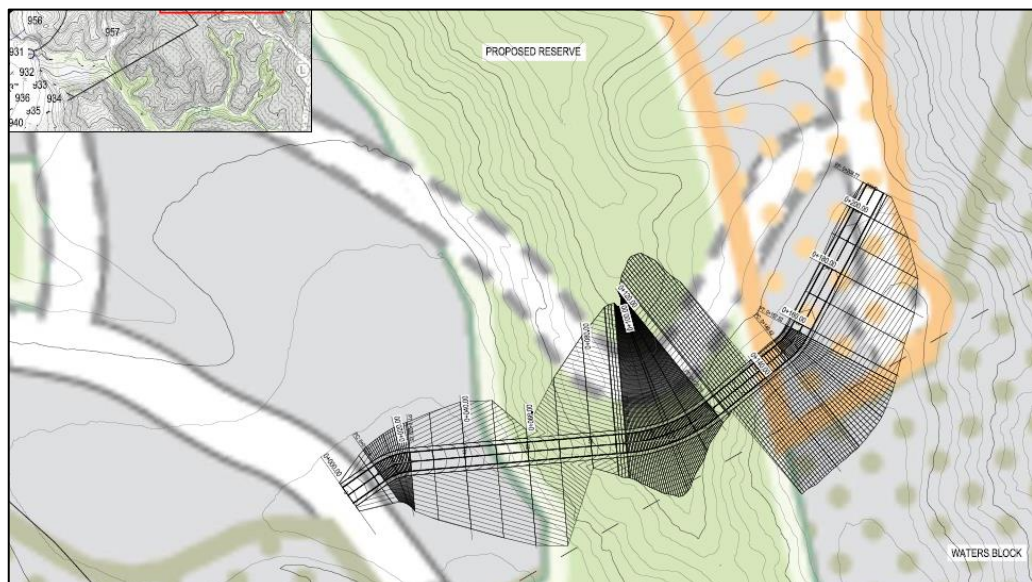


- [19] The proposed alignment achieves a road connection between Valley Views and the plateau. It connects with the proposed local road network in a different location on the plateau. This will require some consequential changes to the road hierarchy. The Terrace Link Road will be a Peri-Urban Road. The east-west connection across the plateau from the Terrace Link Road to the extension to Pacific Drive will need to be a Connector Road.
- [20] The Structure Plan includes a break in the Peri-Urban route between Valley Views and the plateau which will provide for active modes only until the Valley Views intersection with Turitea Road is upgraded. This break should be shown to the north of the likely access location to Lot 912 on the Resonant drawings.
- [21] The long-section shows a gradient of 1 in 80 on the lower section transitioning to a gradient of 1 in 8.2. In my opinion a gradient of up to 1 in 8 in response to minimising earthworks is satisfactory. I note that sections of the road included in the Structure Plan to date are likely to have had a similar grade. During detailed design careful consideration will need to be given to grade transitions, forward sightlines along the road and available sight lines at the intersection at the top of the link.

- [22] The cross-sections show the road having a formed width of around 6m. No provision is shown for a footpath but there is space on the downward side of the road for a footpath to be constructed.
- [23] Subject to the necessary design refinement regarding grade transitions, forward sight lines and the provision of a footpath, as described in paragraphs 21 and 22 above, that can be expected through the resource consent process, I support the requested amendment to the alignment for the Terrace Link Road.
- [24] The drawing information provided by Resonant on behalf of PNIRD also included a new roading link from the extension of Valley Views to Turitea Road. In order to minimise the length of Turitea Road that is exposed to additional traffic activity from rural-residential development (for the reasons discussed at H below), I recommend that traffic from this development accesses Turitea Road via the existing section of Valley Views and the intersection with Turitea Road. As such, I do not support the requested new link onto Turitea Road.

Gully 9

- [25] The requested change for the road crossing of **Gully 9** is shown in Resonant Drawings 212018 Sheets 1 to 3. The extract below shows the alignment sought by PNIRD.



- [26] The proposed alignment achieves a road connection across Gully 9 within the PNIRD land holding, albeit with some associated earthworks within the adjacent Waters Block.

The link appears shorter than the road in the Structure Plan and crosses the gully further to the south. Apart from the removal of the link shown on the Structure Plan, there are no consequential road alignment or road hierarchy changes that would be triggered.

- [27] The long-section shows gradients of 1 in 8 or flatter with gentle transitions. Again, in my opinion a gradient of up to 1 in 8 in response to minimising earthworks is satisfactory, with sections of the road proposed in the Structure Plan likely to have had a similar grade. During detailed design, careful consideration will need to be given to the horizontal curves, which at Chainage 150.00 in particular, look a little angular.
- [28] The cross-sections show the road having a formed width of around 6m with provision for 1m wide shoulders along each side. For a low volume, no-exit, local rural road, I consider that pedestrians can be safely accommodated on the shoulders without requiring a separate footpath.
- [29] Subject to the necessary design refinement described in paragraph 27 above, that can be expected through the resource consent process, I support the requested amendment to the alignment for the Gully 9 crossing.

H. TURITEA ROAD

- [30] Some submitters in their presentations to the Hearing Panel raised concerns regarding adverse traffic effects on Turitea Road. Table 3 in my s 42A Report discusses mitigation at the Turitea Road intersection with Valley Views. In that same report, in the first item in Table 4, page 35, I also provided a response to concerns about adverse traffic effects on Turitea Road.
- [31] With regard to any roading improvements on Turitea Road, Council have been undertaking further investigations. I understand the current position is as follows:
- (a) The design for the real time warning signage at the intersection of Turitea Road and Valley Views has been completed but installation has been delayed to the 2024/25 financial year. This item is included in the Draft LTP 2024;

- (b) Work is underway to develop a concept design for a longer term upgrade to the Turitea Road/ Valley Views intersection. This item is included in the Draft LTP 2024;
- (c) The length of Turitea Road between the two bridges will be resealed and marked this financial year; and
- (d) There are plans to replace the first bridge on Turitea Road within the next eight years. This item is not included in the Draft LTP 2024.

[32] As noted in my s 42A Report, the road connection onto Turitea Road is located to provide access to a limited number of rural-residential properties within the PCG area and to provide an emergency link for the wider PCG area. The forecast additional day-to-day activity associated with the plan change (once fully developed), with up to 42vph at the busiest times, does not trigger the need for two-laning of the bridges and widening of the road. In times of emergency and additional traffic loadings, temporary traffic management including reduced speed limits if needed, can be expected to be used, depending on the circumstances.

[33] The addition of up to 42vph during the weekday traffic peaks, and smaller increases during the recreational peaks, on the section of Turitea Road from the proposed new road connection from the Waters Block to Valley Views is not expected to result in a significant change in amenity or safety from existing levels for recreational users of the road.

I. CASHMERE DRIVE/ SH57 AOKAUTERE DRIVE INTERSECTION

[34] Mr Gardner (Submitter #102) addressed the Hearing Panel on road safety concerns at the intersection of Cashmere Drive and SH57 Aokautere Drive. The Safe System Audit identified some existing safety concerns at the intersection and the Council shared these findings with Waka Kotahi. The width of the SH57 road corridor and the roadside environment along the southern side, present challenges with regard to providing for turning vehicles and also cyclists travelling along this section of SH57. These issues exist presently, without PCG. In my view, safety benefits will be achieved at the intersection with a speed limit reduction and vegetation clearance to improve sight lines.

J. SUMMERHILL DRIVE/ RUAPEHU DRIVE/ MOUNTAIN VIEW ROAD INTERSECTION

[35] Mr Wilson (Submitter #105) supports the signalisation of the Summerhill Drive/ Ruapehu Drive/ Mountain View Road intersection. He suggested a number of options for improving the efficiency of the signalised intersection by connecting Mountain View Road to either Williams Terrace or Heathcote Place. At this stage Council have been considering designs which involve Mountain View Road connecting with Summerhill Drive as it does at present. While the signals will introduce delay for through traffic on Summerhill Drive, an improvement in safety for vulnerable users and turning vehicles is of paramount importance.

K. RAINGARDENS

[36] In response to the submission from Mr Teo-Sherrell (Submitter #43), I recommended some changes to the proposed road cross-sections.² These recommendations included the removal of the raingarden/ swale on the gully edge for Urban Connector E Roads to allow for additional width in the carriageway for buffered on-road cycle lanes. A question was raised during the hearing as to potential adverse effects from the removal of the rain garden along the gully side of Urban Connector E Roads.

[37] There have been further discussions with Ms Baugham regarding the need for raingardens or alternative stormwater treatment methods on Urban Connector E Roads, and other roads more generally. To allow for flexibility, depending on the stormwater management requirements of the different sections of roads, the road cross-sections have been modified to allow for the possibility of raingardens being needed along both sides of any new sections of Urban Connector Road. A swale notation has also been added to the berm label on the Peri-Urban Road cross-section. These changes have been reflected in the updated Structure Plan drawings appended to Ms Copplestone's Supplementary Statement.

L. FIXED V FLEXIBLE ROADING ELEMENTS

[38] I have been involved in discussions with Ms Copplestone and Mr Burns regarding the 'fixed' and 'flexible' roading elements included in the Structure Plan. I note that it is

² Statement of Reply Evidence of Harriet Fraser dated 28 November 2023 – Transportation at [18].

proposed to remove any reference to 'flexible' or 'indicative' elements of the Structure Plan that have not been identified as fixed. I am comfortable and support this change regarding the roading elements of the Structure Plan.

M. TRANSPORT NETWORK UPGRADES TABLE 7A.1

[39] I have been asked by Ms Copplestone to consider whether there are any performance standards that could provide a measurable outcome for the intersection upgrades, including where an alternative treatment is proposed from that specified by the performance standard. I am not familiar with such outcomes being included for upgrades triggered by District Plan provisions. The relevant Road Controlling Authority, that is Waka Kotahi and/or Council, will need to approve any designs and will consider the forecast performance and safety of the intersection.

[40] It is difficult to put a quantitative measure for the forecast safety outcome and in terms of capacity, the average delay per vehicle is likely to increase as a result of the upgrade. The upgrades will have the main effect of improving the safety and efficiency for turning traffic and addressing this will result in inevitable increases in delay for the busier through traffic flows. If a capacity outcome is considered necessary, I would suggest that with an upgraded intersection, any turning movement should have a forecast level of service of D or better.

11 March 2024

Harriet Fraser