

Before Palmerston North City Council

Under the Resource Management Act 1991

In the matter of a proposed plan change to rezone
land at 611 Rangitikei Line to establish
the Whiskey Creek Residential Area

STATEMENT OF EVIDENCE OF HARRIET BARBARA FRASER

IN SUPPORT OF FLYGERS INVESTMENT GROUP LIMITED

TRANSPORTATION

18 MAY 2022

Counsel Acting

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INTRODUCTION

1. My full name is Harriet Barbara Fraser. I am a sole practitioner traffic engineer and transportation planner based in Upper Hutt.

Qualifications and Experience

2. I hold the qualification of Chartered Professional Engineer and Chartered Member of Engineering NZ. I hold a Bachelor of Civil Engineering degree from Imperial College, University of London and a Master's degree of Science in Transportation Planning and Engineering awarded with distinction by the University of Leeds.
3. My background of experience includes over 28 years consultancy experience in traffic and transportation matters, initially in the UK and Hong Kong. From August 1998 to August 2012, I worked as a Transportation Planner in Lower Hutt in the firm of Traffic Design Group Limited (now Stantec) practicing as a transportation planning and traffic engineering specialist throughout New Zealand. Since September 2012 I have been working as a sole practitioner in the field of transportation planning and traffic engineering.
4. Over recent years I have assisted Palmerston North City Council (Council) with the following:
 - (a) Section 42A reporting for the Notice of Requirement for the KiwiRail Regional Freight Hub;
 - (b) Section 42A reporting for the Notice of Requirement for the Abby Road link in Aokautere;
 - (c) Section 42A reporting for the Notice of Requirement to construct, operate, use, maintain and improve approximately 11.5km of new State highway connection between Ashhurst and Woodville;
 - (d) several Plan Changes during the District Plan review; and
 - (e) Section 42A reporting on transportation matters associated with the He Ara Kotahi pedestrian and cycle bridge over the Manawatu River.

5. I am currently providing transportation planning and traffic engineering advice to Council with regard to the preparation of plan changes for the Aokautere and Kakatangiata areas of the City.
6. I have also provided transportation assessments for applicants seeking resource consents and private plan changes from Council. As such, I have a good working knowledge of both the transportation elements of the District Plan and the traffic characteristics of Palmerston North and its environs.
7. I am a certified Hearing Commissioner, having completed the MfE Making Good Decisions training and have also been appointed as a Development Contribution Commissioner.

Involvement in Proposed Plan Change

8. I have been engaged by the Applicant to provide expert traffic engineering and transportation planning advice on the proposed plan change to rezone land at 611 Rangitikei Line to establish the Whiskey Creek Residential Area.
9. As part of preparing this statement of evidence, I have read the following reports and documents:
 - (a) the reporting and drawings that form the application;
 - (b) the submissions;
 - (c) the further information request prepared by Stantec regarding transportation matters; and
 - (d) the Section 42A Report and appendices.

Code of Conduct

10. I have read the Code of Conduct for expert witnesses in the Environment Court Practice Note 2014 and I have complied with it when preparing this evidence. Other than when I state that I am relying on the advice of another person, this evidence is within my area of expertise. I have not omitted to consider material facts known to me that might alter or detract from the opinions that I express.

Scope of Evidence

11. In this statement I:
 - (a) provide a summary of the transport matters included in the Transportation Assessment dated 7 April 2021 and the further information response dated 21 April 2022;
 - (b) include an update of any changes that have been made to the transportation elements of the proposed plan change;
 - (c) respond to transportation matters raised by submitters; and
 - (d) respond to transportation matters raised in the s42A reports.

EXECUTIVE SUMMARY

12. The proposed Plan Change and associated Structure Plan facilitate the rezoning of land for residential purposes and include the following transport elements:
 - (a) a primary road connection to Benmore Avenue with the introduction of a roundabout with Benmore Avenue and Meadowbrook Drive;
 - (b) a secondary road connection to SH3 Rangitikei Line via a left in and left out only arrangement;
 - (c) an internal local roading network and intended cross-section arrangement;
 - (d) a shared path connection through the site from Benmore Avenue through the proposed Reserve and around to the Mangaone Stream shared path; and
 - (e) pedestrian footpaths throughout the site.
13. Key considerations of the transportation aspects of the proposed Plan Change are:
 - (a) whether the additional traffic activity associated with the proposed rezoning can be safely and efficiently accommodated within the local and wider road network;

- (b) whether the proposed Plan Change is consistent with the transportation related objectives and policies of the District Plan; and
- (c) whether the roading and transport elements of the proposed Structure Plan are aligned with the outcomes sought by the transportation rules and standards included in the District Plan.
14. The assessment of traffic effects has shown that the additional traffic can be accommodated within the immediate and wider road network with small changes to vehicle delay and traffic congestion which are unlikely to be discernible from existing day to day fluctuations in traffic activity. The grid layout of the Palmerston North road network results in drivers having options with regard to route choice.
15. The alignment of the transportation elements of the proposed Structure Plan with the District Plan City View, Subdivision, Residential and Land Transport objectives and policies that are relevant to transportation matters are described in Section 4 of the Transportation Assessment. I have concluded that the proposed Plan Change and the residential activity that it would facilitate are well aligned with the transport related objectives and policies of the District Plan.
16. The proposed road cross-sections included in the Structure Plan were developed largely based on NZS4404:2010 Land Development and Subdivision Infrastructure, ahead of the Council's Engineering Standards for Land Development becoming operative in August 2021. I consider that the proposed cross-sections will deliver outcomes that are consistent with both the national and local standards as described in paragraphs 33 and 34 of this evidence.
17. As the development moves through the planning stages there will be opportunities to ensure that the detail of the internal road layouts and the connections with the existing external roads deliver safe outcomes for all road users. It is my expectation that as a minimum the proposed roundabout and the connection onto SH3 Rangitikei Line would be subject to both Detailed Design and Post-Construction Road Safety Audits as the proposal progresses.

BACKGROUND

18. The proposed Plan Change is for the block of land that lies on the northwest edge of the city immediately to the north of the Mangaone Stream. The site has a 160m long road frontage onto Rangitikei Line and a potential road connection to Benmore Avenue as the result of a property acquisition. The site is zoned Rural and is currently used for agricultural purposes.
19. I undertook the following tasks as part of the data collection exercise:
 - (a) site visits (2017, 2020 and 2021) to the local roading network including Benmore Avenue, Meadowbrook Drive, Rangitikei Line, Flyers Line and Bennett Street;
 - (b) weekday traffic surveys of the Benmore Avenue/ Meadowbrook Drive intersection during each of the morning and afternoon traffic peaks in 2017; and
 - (c) weekday traffic surveys of traffic exiting Bennett Street at the intersection with SH3 Rangitikei Street.

EXISTING TRAFFIC ENVIRONMENT

20. The existing traffic environment is described in Section 2 of my Transportation Assessment dated 7 April 2021 and can be summarised as follows:
 - (a) SH3 Rangitikei Line is a Major Arterial in the District Plan road hierarchy. Along the site frontage the speed limit is 100km/h. There is a single traffic lane in each direction with sealed shoulders. Traffic count data from 2016 shows traffic volumes of 11,417 vehicle movements per day with 5% being heavy goods vehicles;
 - (b) Benmore Avenue is a Collector Road in the District Plan road hierarchy and has a 50km/h speed limit. There is a single traffic lane in each direction within a kerb-to-kerb width of around 11.2m. Traffic counts provided by Council indicate daily traffic flows of around 3,300 vehicle movements per day;
 - (c) Observed weekday peak trip generation rates for Meadowbrook Drive of 0.7 and 0.9 vehicle movements per hour per household during the morning and evening peaks respectively;

- (d) there is an existing shared path along the Mangaone Stream and on-street cycle lanes on Rangitikei Street to the south of Bennett Street and on John F Kennedy Drive; and
 - (e) the nearest existing bus stop to the site is on Benmore Avenue around 160m from the site.
21. I have undertaken an updated and extended search of the Waka Kotahi NZTA crash database for the most recent five years for the area shown in Figure 1.
 22. As shown, there have been 15 reported crashes during this period at or close to the intersection of Rangitikei Line (SH3) and Flyers Line. Of these two were serious injury, seven minor injury and six non-injury. The small amount (30 vehicle movements per hour or less) of additional traffic through this intersection as a result of the proposed Plan Change is not expected to have a discernible effect on the safety performance of this intersection.
 23. The three non-injury and one minor injury crashes mid-block on SH3 included one head-on crash, one rear end crash, one loss of control crash as a result of fatigue and a crash involving a vehicle turning right out of a driveway and failing to give way.
 24. One minor injury and one non-injury crash were reported close to the Meadowbrook Drive intersection with Benmore Avenue. Of these crashes, the non-injury crash involved a westbound car on Benmore Avenue hitting a parked car. The minor injury crash involved a westbound car on Benmore Avenue losing control and hitting a tree.
 25. As included at point 10 of my response to the further information request, there have been 27 reported crashes on Bennett Street between Benmore Avenue and SH3 Rangitikei Street (including at these intersections). Of these five resulted in minor injury and the balance were non-injury crashes. Of the 27 crashes, nine included factors such as intentional collision, racing, alcohol test above limit or test refused, alcohol suspected or did not stop at steady red light. Of the remaining 18 crashes, only seven occurred during the weekday traffic peaks (7.30-9.30am, 4.00-6.00pm). Given the crash factors involved, the relatively small number of crashes during the traffic peaks, and that no serious or fatal crashes were included, there does not appear to be

any underlying traffic safety concerns that are likely to be exacerbated by the additional traffic associated with the proposed rezoning.

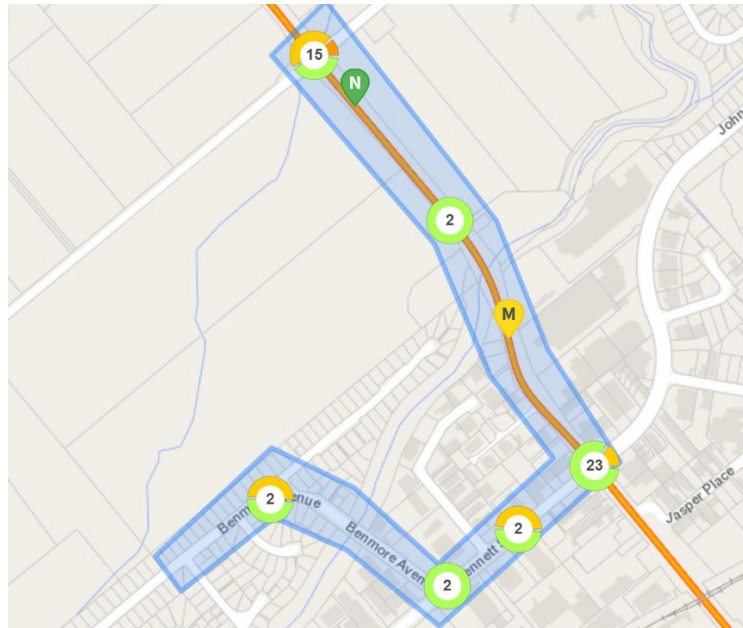


Figure 1: Extract from Waka Kotahi NZTA Crash Database (2017-2022)

PROPOSED PLAN CHANGE

26. The transportation elements of the proposed Structure Plan are described in Section 3 of the Transportation Assessment and include:
 - (a) a primary road connection to Benmore Avenue with a four-arm roundabout created with Meadowbrook Drive;
 - (b) a secondary road connection to SH3 Rangitikei Line with a left in/ left out only arrangement;
 - (c) an extensive shared path network within the site which connects with the existing shared path along the edge of the Mangaone Stream at one end and with the footpath network on Benmore Avenue at the other end; and
 - (d) an indicative internal road layout that provides route choice options within the subdivision.

27. The Structure Plan includes 168 residential lots along with a commercial centre which has been assumed to be able to accommodate 1,000 to 1,200m² of retail/ commercial space on the ground floor, with some 13 to 16 apartments above. Updated forecast traffic generations, trip distributions

and analysis of intersection performance was included in points 8, 9 and 11 to 14 of my response to the further information request and can be summarised as follows:

- (a) assumed peak hour trip generation rates of 1.0 vehicle movement per house household compared with the observed rates of 0.7 and 0.9 for Meadowbrook Drive during the weekday morning and evening peak hours respectively;
 - (b) assumed weekday evening peak hour trip generation rate of 12 trips per 100m² GFA for the retail/ commercial activities within the Commercial Centre;
 - (c) the proposed roundabout with Benmore Avenue is forecast to perform with a level of service of A (average delay of less than 10 seconds per vehicle) in 2032, during both the weekday morning and evening peak hours, including allowance for 2% per annum traffic growth on Benmore Avenue;
 - (d) traffic flows on Benmore Avenue respond to traffic flows and associated congestion on parallel routes such as Tremaine Avenue. Given the grid layout of the roads in Palmerston North and the two connection points from the site, future residents of the proposed plan change area will have options for responding to day-to-day traffic conditions, as occurs for nearby existing residents at present;
 - (e) forecast increases in traffic on Rangitikei Line (SH3 north of the bridge) associated with the plan change area are no more than 30vph. Even with allowance for some through traffic to travel along Road 1 to access Rangitikei Line to head north, the percentage change in traffic flows on Rangitikei Line will be small and unlikely to be discernible from day-to-day fluctuations in traffic activity; and
 - (f) given the existing traffic volumes through the SH3 intersection with Bennett Street, the signal cycle time and the lane configuration at the intersection, the additional traffic will not be discernible from day-to-day traffic fluctuations through the intersection.
28. The proposed road layout and cross-sections are described in Section 3 of the Transportation Assessment with updates included in points 1-7 and 15 of

my response to the further information request. The proposed provisions can be summarised as follows:

- (a) road and path cross-sections as per the Urban Design and Landscape Report with the following modifications:
 - i. inclusion of a shared path along the western side of Road 1 between Road 2 and Benmore Avenue; and
 - ii. all footpaths to have a width of at least 1.8m.
- (b) an expectation that traffic calming treatments will be used to deliver target operating vehicle speeds within the future subdivision but that this is most appropriately addressed at the resource consent stage;
- (c) an expectation that some road widening on corners may be needed to provide for truck and emergency vehicle swept paths but that this is most appropriately addressed at the resource consent stage;
- (d) the preferred arrangement for the intersection of Benmore Avenue, Meadowbrook Drive and Road 1 is a roundabout, most likely including raised treatments (either on the approaches or the whole intersection) but alternative arrangements of either a signalised intersection or a crossroad layout may be possible; and
- (e) an expectation that the detailed design and construction of the intersection of Benmore Avenue, Meadowbrook Drive and Road 1, will be subject to road safety audits.

DISTRICT PLAN TRANSPORTATION REQUIREMENTS

- 29. The alignment of the transportation elements of the proposed Structure Plan with the District Plan City View, Subdivision, Residential and Land Transport objectives and policies that are relevant to transportation matters are described in Section 4 of the Transportation Assessment. I have concluded that the proposed Plan Change and the residential activity that it would facilitate are well aligned with the transport related objectives and policies of the District Plan.

SUBMISSIONS

30. I have summarised the transport topics included in the submissions and provided comments on each topic in Table 1.

Transport Topic in Submissions	Submission Points	Comment
1. Increased traffic congestion on Rangitikei Line, Milson Line, Gillespies Line and Flyers Line.	S1/4, S2/3, S20/17, S22/4	Most traffic is expected to travel to and from the direction of the City via Rangitikei Street, John F Kennedy Drive and Gillespies Line (towards the City). Increased traffic on these rural roads is expected to be minimal.
2. Increased traffic congestion towards the City, including across the Rangitikei and Milson Line overbridges.	S2/3	<p>The intersection analysis has shown that the proposed roundabout will perform with a good level of service. At the Bennett Street/ Rangitikei Street signals there will be one or two additional vehicles per lane per cycle of the signals, on the Bennett Street approach during the weekday morning peak. This level of additional traffic activity will not be discernible from day-to-day fluctuations in the traffic and will be balanced by the recommended removal of the kerbside parking in this location.</p> <p>Any changes to traffic flows across the Rangitikei Line and Milson Line overbridges will not be discernible from existing day-to-day fluctuations in traffic activity.</p>
<p>3. Transport effects associated with the proposed Benmore Avenue/ Meadowbrook Drive roundabout:</p> <p style="padding-left: 40px;">a. Safety of the intersection for pedestrians including school children</p>	S5/2, S7/3, S11/3, S13/1, S15/7, S15/8, S19/2, S20/10, S20/11, S22/3, S26/2 and S26/3	<p>3a. It is intended that raised platforms will be used to slow vehicle speeds through the roundabout. This will provide for safer interactions between road users compared with the existing 50+km/h speeds. The Detailed Design and Post Construction Road Safety Audits that can be expected to be requirements of resource consent will consider the road safety for all users of the roundabout.</p> <p>3b. The intersection analysis shows the roundabout performing with a good level of</p>

Transport Topic in Submissions	Submission Points	Comment
<ul style="list-style-type: none"> b. Congestion and traffic queues associated with the roundabout c. Ability to accommodate buses and trucks d. Needs to be slow speed and cyclist friendly 		<p>service with queues of no more than three vehicles on any one approach at peak times.</p> <p>3c. I agree that the roundabout will need to accommodate large trucks and buses. The concept design allows for this and this will be confirmed through the detailed design process.</p> <p>3d. I agree that the roundabout will need to be slow speed and to safely accommodate cyclists. The inclusion of raised platforms will help ensure slow vehicle speeds and the single lane approaches will enable cyclists to claim the lane if needed to make through or right turns. The safety for cyclists moving through the roundabout will be a consideration of the road safety audits.</p>
<p>4. Effects on Bennett Street, Benmore Avenue and their intersections.</p>	<p>S5/2, S12/5 and S26/3</p>	<p>The analysis shows that the proposed roundabout is expected to perform well and that any additional vehicle queuing at the signalised intersection of Bennett Street and Rangitikei Street will not be discernible from day-to-day fluctuations in the traffic and will be balanced by the recommended removal of the kerbside parking in this location.</p>
<p>5. Alignment of the road design with Council standards.</p>	<p>S8/1</p>	<p>The road cross-sections in Council's Engineering Standards for Land Development are a guide for road design. Further discussion on this topic is included in the next section of my evidence.</p>
<p>6. Vehicle access to properties near proposed roundabout.</p>	<p>S13/1, S15/7 and S26/2</p>	<p>The concept design for the roundabout includes provision for vehicle access to nearby properties. The detail of these arrangements will be further developed through detailed design. I note that the reduction in vehicle speeds associated with</p>

Transport Topic in Submissions	Submission Points	Comment
		the introduction of the roundabout will provide safety benefits for vehicles turning to and from frontage properties.
7. Car lights shining into houses.	S13/1 and S15/9	This can be addressed through the resource consent and engineering approval phases. It may be that planting or fencing is needed mitigate any identified effect.
8. Noise of truck deliveries to proposed Commercial Centre.	S13/2	This can be addressed through the resource consent process with restrictions applying to delivery hours if needed.
9. Accuracy of traffic forecasts in the Transportation Assessment.	S15/6 and S20/18	The trip generation rates per household used in the analysis are slightly higher than those observed for the Meadowbrook Drive properties. As part of the further information response, I gave further consideration to the traffic activity associated with the Commercial Centre as well as ongoing traffic growth on Benmore Avenue.
10. Design of left in/ left out onto SH3: <ul style="list-style-type: none"> a. Prevent right turns b. Maximise separation to the Mangaone Stream bridge c. Needs approval from Waka Kotahi. 	S17/1	I agree that with these requests from Waka Kotahi NZTA.
11. Removal of on-street parking spaces on Bennett Street approach to SH3 Rangitikei Street.	S17/4	I understand that Council agrees with the recommended removal of these parking spaces. The process for this sits outside this process for a requested plan change.
12. Active mode networks:	S17/7, S17/8,	12a. The bus stops on Benmore Avenue are around 130m to the west of the intersection with Meadowbrook Drive.

Transport Topic in Submissions	Submission Points	Comment
<p>a. Access to Benmore Avenue bus stop</p> <p>b. Extension of the shared path to the shared path on SH3</p> <p>c. Walking and cycling links to the development</p> <p>d. Provide cycle lane along Benmore Avenue to Cloverlea School.</p>	<p>S17/9, S18/5 and S19/1</p>	<p>12b. Cyclists will be able to access the Mangaone Stream shared path from the internal network of shared paths. Cyclists wishing to access the cycle lanes on Rangitikei Street (SH3) to/from the City will be able to do so via Benmore Avenue and Bennett Street.</p> <p>12c. Pedestrians and cyclists will be able to access the development area either via paths from the proposed roundabout or via the Mangaone Stream shared path.</p> <p>12d. I agree that the provision of cycle lanes along Benmore Avenue would benefit future residents of the proposed development area, I do not consider that either the scale of the development or the change in traffic levels associated with it trigger the need for cycle facilities along Benmore Avenue. The proposed roundabout will usefully slow vehicle speeds along this section of Benmore Avenue.</p>

Table 1: Commentary on Transport Topics in Submissions

SECTION 42A REPORT

31. The Section 42A Report includes the following suggested amendment to Policy 2.8:

Streets and linkages

- To provide safe vehicle access is provided to Benmore Avenue/ Meadowbrook Drive intersection and a left in/ left out access to Rangitikei Line.
- All streets shall interconnect with no cul-de-sacs.
- The cycle and pedestrian links shown on the Structure Plan are provided.

- Street design and planting shall be in accordance with the Council Engineering standards for appropriate road hierarchy. ~~adopt the structure plan street cross-sections Local and Local Collector Roads.~~

32. I agree with the suggested amendment to the first bullet point. This provides increased certainty around the safe performance of a future intersection connecting with Benmore Avenue and Meadowbrook Drive.

33. With regard to the final bullet point, I note that the Engineering Standards for Land Development (Standards) became effective on 1 August 2021, after the request for a Private Plan Change was lodged. In Section 3.3.1 of the Standards it sets out that:

'Table 3.1 of this Standard provides a guide for minimum criteria that is to be used in defining road classifications for proposed development.'

34. As such, the cross-section dimensions included in Table 3.1 of the Standards are a guide not a requirement. I consider that the bespoke cross-sections included in the application and amended in line with my recommendations in paragraph 28(a) of this evidence, are appropriate for the following reasons:

- (a) the Standards include provision for Local Roads carrying 0-3,000vpd and Collector Roads carrying 3,000-10,000vpd. The whole of the Whiskey Creek Residential Area can be expected to generate no more than around 2,000vpd, so while Road 1 is described as a Local Collector it will have the traffic carrying function of a Local Road;
- (b) the Standards do not allow for the particular characteristics of the section of Road 1 along the Reserve where width for a berm and footpath are not needed within the Road Reserve;
- (c) the proposed legal road widths of 15.2m for Local Roads and 16.2m (away from the Reserve) for the Local Collector are similar to the 15.5m included in the Standards; and
- (d) the proposed cross-sections align well with the provisions of NZS4404:2010 Land Development and Subdivision Infrastructure which include a legal width of 15m and a carriageway width of 5.5-5.7m for a local road carrying up to 2,000vpd.

35. I recommend that the final bullet point is reworded as follows which will ensure that the overall road reserve widths are aligned with the Engineering Standards but that some flexibility is retained with regard to the detail of the cross-sections:
- The Local and Local Collector Roads have a minimum legal road reserve width of 15.5m in accordance with the Council's Engineering Standards.
36. Paragraph 3.66 of the Section 42A Report refers to feedback from Waka Kotahi that access from SH3 Rangitikei Line for earthworks purposes would not be supported by the Agency. This is a matter that can be addressed via conditions on any future resource consents. There will be options for access to the site for earthworks purposes either from Flyers Line or from Benmore Avenue, subject to the timing of the construction of the road connection and roundabout.

CONCLUSION

37. As included in Section 5 of the Transportation Assessment, I remain of the view that primary access to the site can be safely and efficiently accommodated to/from Benmore Avenue via a new roundabout arrangement with Meadowbrook Drive. A secondary access to SH3 Rangitikei Line usefully provides an alternative access point to the road network and provided that through the later detailed design process, the internal roading is designed to avoid through traffic, will be lightly trafficked.
38. In conclusion, 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.

Harriet Fraser

18 May 2022