

OIR: 2425/1052

3 September 2024

[REDACTED]
[REDACTED]

Tēnā koe [REDACTED],

Request for Information under the Local Government Official Information and Meetings Act 1987 (the Act) (the LGOIMA)

Thank you for your email of **6 August 2024** requesting the following information:

To whom it may concern, I wish to raise an OIA request regarding: Otaihanga/Mansell Development and the Traffic flow study.

1. When was this traffic study carried out?

The application included a Transportation Assessment dated 25 June 2024 that was submitted with the resource consent application (RM240100) and that was received by Council on 27 June 2024.

2. Could I please see a copy of the study and also how it was determined that a new roundabout was required for this development but the access in to and out of the Otaihanga/Ratanui intersection has not been addressed.

A copy of the Transportation Assessment is attached. The assessment provides details on the proposed roundabout and why the developer has determined that a roundabout is the most appropriate form of intersection.

3. Who is funding the new roundabout for the development?

The developer will fund the new roundabout.

4. Have the local pre schools/primary schools/colleges been advised? And, what planning has been done to cater for the additional numbers of pupils over the next few years and has any thought been given to this?

The Ministry of Education's network team monitors the growth in an area and make decisions on school zoning and rolls accordingly.

Please note that any information provided in response to your request may be published on the Council website, with your personal details removed.

5. I am also concerned about the flow of stormwater from the wetland area beside Otaihanga Road and what happens during heavy rain events - where does the overflow run to?

The Land Development Minimum Requirements (LDMR) requires stormwater reserves to be designed to cater for the necessary rain events up to the 1 in 100 year event. This requirement will be assessed when the relevant council team considers the application we've received.

6. Is there a sketch drawing as to what the development will look like from Otaihanga Road - the only house plan on the Cuttriss report is a floor plan of a single level 3 bedroom home - what are the multi level homes going to look like from the road?

The application is for subdivision, associated earthworks and vegetation modification. No consent has been sought for the construction of dwellings, which would need to comply with the Operative District Plans relevant bulk and location standards as well as associated rules. On that basis I must decline this part of your request under section 17(g) of the LGOIMA as the information requested is not held by the local authority and the person dealing with the request has no grounds for believing that the information is either -

- (i) held by another local authority or a department or Minister of the Crown or organisation; or
- (ii) connected more closely with the functions of another local authority, or a department or Minister of the Crown or organisation

You have the right to request the Ombudsman to review this decision. Complaints can be sent by email to info@ombudsman.parliament.nz, or by post to The Ombudsman, PO Box 10152, Wellington 6143.

If you have any further questions, you are welcome to contact Eloise Carstens Manager Resource Consents and Compliance: Eloise.carstens@kapiticoast.govt.nz

Ngā mihi,



James Jefferson

Group Manager Regulatory and Environment
Kaiwhakahaere Rōpū Ture me te Taiao



Appendix H

Transportation Assessment

**Prepared by Harriet Fraser Traffic Engineering &
Transportation Planning**

Harriet Fraser Traffic Engineering & Transportation Planning

PO Box 40170
Upper Hutt
5140

E [REDACTED] M [REDACTED]

25 June 2024

Nick Taylor
Cuttriss Consultants Ltd

Via email: [REDACTED]

Dear Nick

117-155 Otaihanga Road, Paraparaumu – Proposed Residential Subdivision Transportation Assessment

Further to your request, I am pleased to provide below a transportation assessment for the proposed residential subdivision at 117-155 Otaihanga Road in Paraparaumu.

The assessment includes a review of the local traffic environment, the internal traffic arrangement and compliance with the Kapiti Coast District Plan (District Plan) transportation provisions. In summary, the findings of the review show that the proposed subdivision and its associated traffic can be appropriately, safely and efficiently accommodated within the local road network.

1. Planning Context

Cuttriss Consultants Ltd (Cuttriss), on behalf of the Mansell family, have been engaged to prepare resource consent applications for the Otaihanga Estates subdivision at 131, 139, 147 and 155 Otaihanga Road and 48 and 58 Tieko Street, Otaihanga, Paraparaumu. Harriet Fraser Traffic Engineering and Transportation Planning has been engaged to undertake an assessment of Transportation.

The proposal includes the subdivision of the 18-hectare western portion of the Mansell Family Farm, which was severed from the eastern portion by the construction of the Kāpiti Expressway. A detailed project description is provided in Section 2 of the Assessment of Environmental Effects (AEE) accompanying the resource consent applications.

In summary, the proposed subdivision will create a total of 158 lots, with 143 of these lots being freehold residential allotments (Lots 1-143). Additional allotments include two larger freehold lots containing the larger wetlands (Lots 214 and 215), four lots to be vested as legal road (Lots 200-204), one lot to be vested as a recreation reserve (Lot 213), two shared paths to be vested as local purpose reserves (Lots 205 and 210), two lots for stormwater detention to be vested as local purpose reserves (Lots 211 and 216), three jointly owned access lots (Lots 161-163), and one access lot to be held with No. 68 Tieko Street (Lot 150).

The proposed subdivision of this area involves associated earthworks, construction of roads, installation of services, removal of indigenous vegetation, wetland planting and re-planting of indigenous vegetation for offsetting purposes.

It is noted that whilst the District Plan permits up to three dwellings on each residential allotment as a permitted activity, it is proposed to restrict the number of dwellings on lots 31-116, 141-143 & 214 & 215

to one dwelling per lot. The development therefore has the potential to yield some 253 dwellings. Three lots are accessed via Tieko Street, two lots are accessed directly from Otaihanga Road with all other lots accessed from a new intersection with Otaihanga Road.

There is an existing residential dwelling on the site which is currently accessed from Otaihanga Road via a driveway immediately to the west of the Expressway overbridge. The plans show this existing access is to be closed. The existing vehicle access adjacent to 115 Otaihanga Road is intended to provide vehicle access to a public parking area which will be vested in Council. There will be no vehicle access into the wider subdivision from this access.

A shared cycle and pedestrian path is included through the site connecting Tieko Street with the existing Otaihanga Road shared path at each end of the site frontage with Otaihanga Road.

I prepared the transportation assessment that accompanied the existing resource consent for the site and also presented evidence in support of the Mansell submission on Proposed Plan Change 2.

2. Site Location and Context

The site is located on the northern side of Otaihanga Road, immediately to the west of the Expressway as shown approximately in Figure 1.



Figure 1: Site Location

The site has the following transportation characteristics:

- a) Is within a five-minute drive of Paraparaumu train station, less than a 15 minute cycle ride from central Paraparaumu and within easy cycling distance of Paraparaumu College;
- b) Otaihanga Road is a Local Community Connector in the road hierarchy and has a 60km/h speed limit. There is a centreline and edgelines marked along Otaihanga Road;

- c) There is an existing unsealed shared path running along the Otaihanga Road site frontage, this connects with the cycle path along the Expressway to the east and continues along Ratanui Road to the west;
- d) Council traffic counts from February 2019 show Otaihanga Road carrying 4,853 vehicle movements per day with two-way peak hour flows of 470vph on weekdays between 5pm and 6pm. The surveyed 85th percentile vehicle speeds were within the 60km/h speed limit. A traffic count on Thursday 6 June 2024 during the weekday evening peak had a two-way flow of 572vph. Based on the traffic flow profile of the 2019 count, daily traffic activity on Otaihanga Road is estimated at 5,900 vehicle movements per day. This is similar to the traffic volumes on Otaihanga Road prior to the opening of the Kapiti Expressway of 5,860 vehicle movements per day;
- e) Council traffic counts from November 2023 show Ratanui Road close to Mazengarb Road carrying 6,262 vehicle movements per day with two-way peak hour flows of 678vph on weekdays between 3pm and 4pm. The surveyed 85th percentile vehicle speeds were in the range of 59 to 64km/h;
- f) The site can also be accessed via a right of way from Tieko Street. Tieko Street is around 270m long and has a generally straight alignment with a curve towards the left at the end. The road rises slightly from Otaihanga Road along its length. There is no kerb and channel. The road has a sealed width of around 5.6m at each end with the width typically varying between 4.5 and 5.0m along its length with around a 50m length with a width of less than 4.5m;
- g) Peak hour traffic counts on weekdays and during the Saturday midday period on Tieko Street showed overall peak movements of 29vph during the midday peak on Saturday. This is equivalent to on average one vehicle movement every two minutes;
- h) In addition to the consent held by the Mansell family for 47 lots, I note that the surrounding existing environment also includes, a number vacant and consented but unimplemented resource consents in the vicinity. Resource consent RM 170306 has now been implemented which provides for five additional dwellings to access Tieko Street and improvements to the Tieko Street right of way which have yet to be completed;
- i) Traffic movements at the intersection of Tieko Street and Otaihanga Road were counted in May 2018 and showed total peak hour traffic movements of 175vph through the intersection. Based on the observed traffic flows and allowing for a further nine dwellings (already consented or on undeveloped sites) base peak hour traffic volumes of 32vph, 26vph and 40vph during the weekday morning, weekday afternoon and Saturday midday peaks respectively have been assumed; and
- j) A search of the Waka Kotahi crash database for the five-year period from 2019 to May 2024, for the area shown in Figure 2, showed nine reported crashes. One of the crashes shown occurred on the Expressway. Of the eight remaining crashes, none occurred on Tieko Street or at its intersection with Otaihanga Road, and six were single-vehicle incidents. Two crashes involved serious injury, with both involving single vehicles. The crash factors for one included an alcohol test above the limit or refusal and attempted suicide, and for the other involved a driver who was unfamiliar with the vehicle/ towing. The other crashes resulted in minor or no injury.

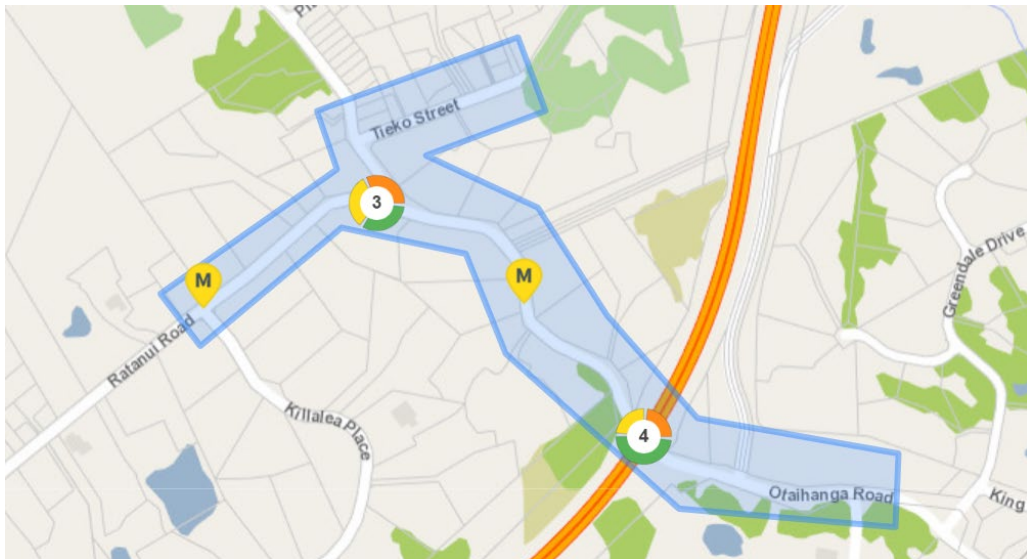


Figure 2: Reported Crashes for Five Years to May 2024

Otaihanga Road and Ratanui Road are classified as Local Community Connectors in the road hierarchy included in the District Plan with the characteristics of:

- providing main access routes through suburbs
- connecting local centres
- traffic movement mainly locally generated
- significant walkways/ cycleways between local centres, schools and employment areas
- may be some routes with relatively high traffic volumes
- expect moderate speed.

Photos 1 and 2 show views along Otaihanga Road from the site frontage in the vicinity of the proposed intersection. In this location, there are both centreline and edge-line markings. A sight line of around 150m was measured towards the east (Expressway) and 105m towards the west. The sightline towards the west is limited by vegetation within the roadside paddock. As shown there is a shared path along the northern side of Otaihanga Road in this location. The existing driveway in this location provides access to a single dwelling within the site.



Photos 1 and 2: Looking East and West along Otaihanga Road from the Proposed Intersection

Photos 3 and 4 show views along Otaihanga Road further to the west in the vicinity of the existing main access to the site. A sight line of 125m was measured towards the left on exiting from 5m back from the

edgeline, this increased closer to the edgeline. A sight line of 92m was measured towards the right on exiting from 5m back from the edgeline, this was measured in front of the power pole located within the road reserve on the opposite side of the road. The sight line increased to around 96m at a distance of 3.5m from the edgeline and looking between the power pole and the fence.



Photos 3 and 4: Looking South and North along Otaihanga Road from the Existing Access

As shown in the photos the shared pedestrian and cyclist path also crosses this access.

RM 170306 provides for a further five additional dwellings to access Tieko Street off the right of way at the end of the street. Conditions 9 to 15 of the consent address access matters and can be summarised as follows:

- ROW to be sealed and constructed in accordance with KCDC RD-0016. This includes a minimum sealed width of 3m plus 0.5m shoulders on each side where 4 or more lots are served;
- the connection between the ROW and the end of Tieko Street within the road reserve to be sealed;
- passing bays to be no more than 100m and closer where needed for visibility to the next passing opportunity;
- driveways cannot be used as passing places;
- passing bays to be 5.5m wide for a length of no less than 15m;
- provision to be included at the end of the ROW at Tieko Street for 18 rubbish bins (3 per lot);
- a turning head to be provided, this is further to the north on the ROW beyond the proposed access to the site for this application; and
- both Detailed Design and Post Construction Road Safety Audits required.

In summary, the location of the site results in good transport connectivity for all travel modes. Otaihanga Road and Ratanui Road provide direct links into the wider road network via their connections into Old SH1 and Mazengarb Road. As residential and population densities increase, the route along Ratanui Road and Otaihanga Road will become increasingly viable as a bus route providing regular services to Paraparaumu Town Centre and the train station. As with the existing resource consent, there is the potential for any development of the site to deliver internal pedestrian and cycle paths to connect into existing shared paths along Otaihanga Road (and into the Expressway shared path) and Ratanui Road. The site is within cycling distance of Paraparaumu Town Centre, the train station and Paraparaumu College.

3. Proposed Development

As shown within the detail of the Cuttriss Drawings 22208 SCH4, the proposal includes the subdivision of 18ha (western) portion of the Mansell Farm into 145 residential lots which have a potential yield of 253 dwellings. Three lots rely on vehicle access to Tieko Street, two lots have direct vehicle access to Otaihanga Road with all other lots being accessed from the new internal road. There is an existing residential dwelling on the site which is currently accessed from Otaihanga Road via a driveway immediately to the west of the Expressway overbridge. The plans show this existing access is to be closed with the existing house having access to the new road. Particular characteristics of the proposed layout and access arrangements include:

- a new roundabout intersection onto the northern side of Otaihanga Road to the west of the Expressway bridge;
- the new road (Road 200) provides access to 137 residential lots. This road includes:
 - o a legal width of at least 20m reducing to at least 15m to the north of Road 203;
 - o a carriageway width of 6.0m with a 2.5m wide shared path along the western side between Otaihanga Road and Road 203;
 - o a 1.8m wide footpath along the eastern side with no footpath along the western side to the north of Road 203;
 - o a maximum grade of 4% or 1 in 25; and
 - o a standard residential turning head.
- Road 201 provides vehicle access to 23 residential lots (Lots 4-12, 13-21, 24-28). This road includes:
 - o a legal width of at least 12m;
 - o a carriageway width of 6.0m with a 1.8m wide footpath along the western side. The footpath connects through to the shared path along the Otaihanga Road;
 - o a maximum grade of 1.7% or 1 in 58; and
 - o an area is included at the end of the road for vehicle turning, including for an 8m rigid truck and some on-street parking.
- Road 202 provides direct vehicle access to up to 18 lots and will potentially be used by traffic accessing around 11 of the lots on Road 203. This road includes:
 - o a legal width of at least 15m;
 - o a carriageway width of 6.0m with a 2.5m wide shared path along the southern side from Road 200 through to the Tieko Street right of way;
 - o a 1.8m wide footpath along the northern side;
 - o a maximum grade of 8% or 1 in 12.5; and
 - o a standard residential turning head.
- Road 203 provides direct vehicle access to up to 18 lots. This road includes:
 - o a legal width of at least 15m;
 - o a carriageway width of 6.0m with a 1.8m wide footpath along the eastern side; and
 - o a maximum grade of 0.5% or 1 in 200.
- the existing formed access to the site adjacent to 115 Otaihanga Road will provide access to a reserve which will be vested in Council. The existing sight lines are 125m towards the left and 92m towards the right on exiting. Vehicle access to seven public parking spaces is included. No vehicle access into the wider subdivision is provided from this access;
- three lots will have vehicle access to the right of way off the end of Tieko Street. RM 170306 provides for the sealing of the right of way over a width of at least 3m plus 0.5m shoulders on each side and widening to 5.5m at passing places. This proposal includes the sealing of the existing right of way up the entrance to Lot 141 and the formation of two passing bays (see Sheet 26 of Cuttriss Drawing 22208 SCH4);
- there is provision for pedestrians and cyclists to continue through the site from Tieko Street and onto the shared path along Otaihanga Road which in turn connects with the shared paths along the Expressway alignment;

- the internal roads are expected to have 50km/h speed limits but with lower operating speeds as a result of the various traffic calming features and chicane effect created by kerbside parking;
- an 8m rigid truck including general fire appliances and rubbish collection vehicles will be able to travel along the roads and turn within the turning heads;
- the 50m District Plan access sight distance requirement within a 50km/h speed environment can be met for all internal lot frontages and the rights of way with the following exceptions:
 - o Lots 1, 2, 3, 19, 27, 65, 93, 94 and 121 cannot achieve 50m in both directions but can accommodate at least 40m;
 - o Lots 11, 20, 28, 64 and 78 have sight lines in one or both directions of 30-40m. These lots are located on side roads close to intersections or bends where vehicle speeds can be expected to be 40km/h or less; and
 - o Lot 12 can only achieve 20m sight lines from the rear or side frontages onto Road 201. It is recommended that this lot has vehicle access onto the inside of the bend on Road 201.
- for the vehicle accesses directly onto Otaihanga Road the District Plan requirement is for sight lines of at least 60m given that the speed limit is 60km/h. Lots 22, 23 and the proposed carpark access have sight lines of more than 60m in each direction; and
- Lots 141, 142 and 143 have vehicle access via the RoW at the end of Tieko Street. It is recommended that there are fencing and planting restrictions that enable sight distances of at least 30m in each direction to be achieved from 2.5m back from the sealed edge of the RoW.

Table 1 summarises the available sight lines at both the new intersection with Otaihanga Road and the proposed internal intersections. The key design parameter with regard to the design of a safe intersection is the available sight lines. The Austroads Guides to Road Design are generally considered to provide best practice guidance in this regard.

The ASD of 50m on the Road 200 north approach to the intersection with Road 201 and the 45m ASD on the Road 201 approach are considered satisfactory given that the vehicle speeds will be less than 50km/h given the curve and raised treatment on the north approach and the curve on the Road 201 approach. For the same reasons the available SISD and MGSD are considered appropriate given the anticipated vehicle operating speed environment.

The 85m SISD to the north along Road 200 from Road 203 is considered satisfactory given that approaching vehicles will be slowing on the approach to the raised treatment and the curve in the road.

The 60m SISD at the Road 202/203 intersection is considered adequate given that approaching vehicles from the west are within 20m of the cul de sac head and will be travelling at reduced speeds, and approaching vehicles from the east will be travelling at reduced speeds having just turned into Road 203.

The key changes from the consented traffic arrangements are that the proposed residential subdivision includes a greater number of lots and therefore more traffic activity, only three lots have access to Tieko Street, two lots and a small public carpark have direct access to Otaihanga Road and a roundabout rather than a tee-intersection is included for the main access into the site from Otaihanga Road.

Sight Line	Austrroads Guidance with 60km/h Design Speed, 2s Reaction Time	New Otaihanga Intersection	Austrroads Guidance with 50km/h Design Speed, 2s Reaction Time	Road 200/ Road 201 Intersection	Road 200/ Road 202 Intersection	Road 200/ Road 203 Intersection	Road 202/ Road 203 Intersection
Stopping Sight Distance (SSD) (must be provided for all approaches and turns)	73m Otaihanga Road 55m side road	>55m on new road approach >73m on Otaihanga Rd approaches	55m	>55m Road 200 south approach 50m Road 200 north approach 45m Road 201 approach	>55m on all approaches	>55m on all approaches	>55m on all approaches
Approach Sight Distance (ASD) (to be provided on the new road approach to the intersection)	73m Otaihanga Road 55m side road	>55m on new road approach >73m on Otaihanga Rd approaches	55m	As above for SSD	As above for SSD	As above for SSD	As above for SSD
Safe Intersection Sight Distance (SISD) (to be provided in each direction from side road and for right turn in from main road)			97m	>97m towards south 60m towards north	>97m in both directions	>97m towards south 85m towards north	To adjacent intersection to east 60m towards west
Minimum Gap Sight Distance (MGSD)			Left out, 5s gap= 69m Right out, 5s gap= 69m Right in, 4s gap= 55m	>69m for left out 60m to north for right out >55m for right in	>69m for left and right out >55m for right in	>69m for left and right out >55m for right in	60m for left and right out >55m for right in

Table 1: Sight Distances at Intersections

4. Traffic Generation

The subdivision includes 145 residential lots which have the potential to yield up to an estimated 253 dwellings. The site can be expected to generate a total of some 1,144 to 2,530 vehicle movements per day with some 170 to 300 vehicle movements per hour in the busiest hours.

The Council traffic counts show a directional split in travel of 54% eastbound and 46% westbound in the morning peak and 49% eastbound and 51% westbound in the afternoon peak. As such, and assuming 70% departing traffic in the morning and 60% arriving traffic in the evening peak the turning patterns shown in Table 2 can be expected during the weekday peaks at the proposed new intersection.

	IN		OUT		Total
	Left	Right	Left	Right	
New Otaihangā Road intersection					
AM Peak Hour	49	41	113	97	300
PM Peak Hour	88	92	59	61	300

Table 2: Forecast Vehicle Turning Movements(vph)

The performance of the proposed new intersection is assessed next.

5. Intersection Performance

The new intersection has been analysed using the SIDRA intersection analysis tool. The observed traffic flows on Otaihangā Road have been increased by 20% being equivalent to 2% traffic growth per annum over a ten-year period. The intersection has been analysed with a roundabout and tee intersection layout for both the weekday AM and PM peaks. The roundabout and tee intersection concept designs are shown in Figures 3 and 4. The results are shown in Tables 3 to 6.

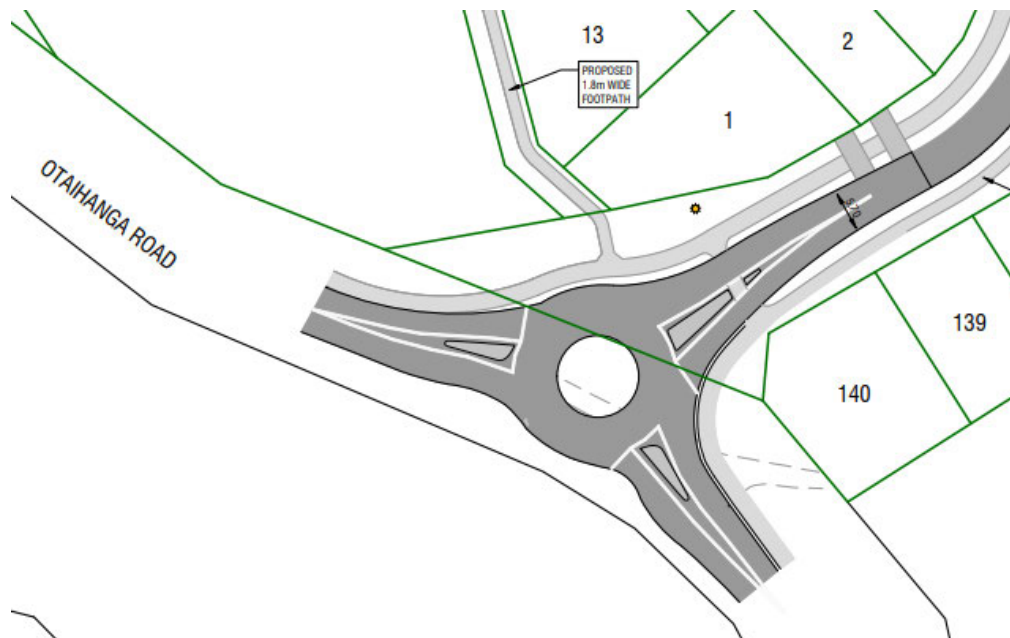


Figure 3: Roundabout Concept Design

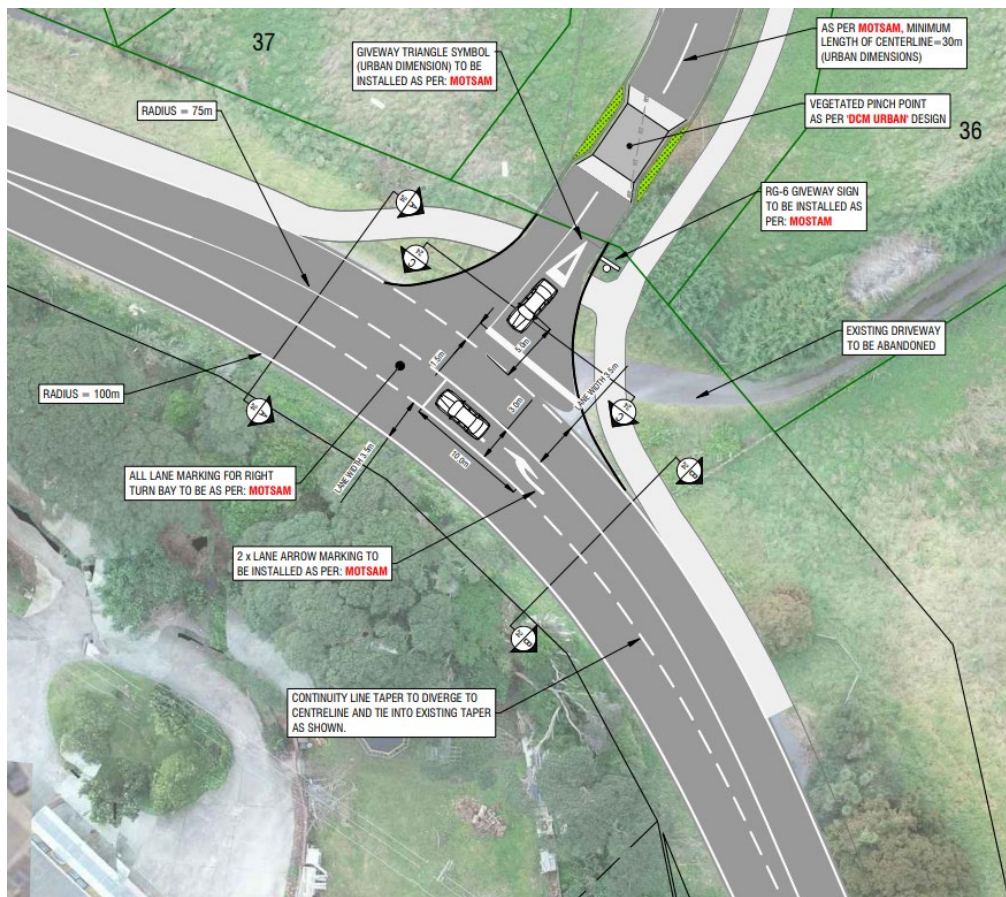


Figure 4: Tee Intersection Concept Design

The Levels of Service included in the intersection performance results are based on the average delay per vehicle as follows:

Level of Service (LOS)	Roundabout Average delay per vehicle (s)	Sign-controlled Intersection Average delay per vehicle (s)
A	$d \leq 10$	$d \leq 10$
B	$10 < d < 20$	$10 < d < 15$
C	$20 < d < 35$	$15 < d < 25$
D	$35 < d < 50$	$25 < d < 35$
E	$50 < d < 70$	$35 < d < 50$
F	$70 < d$	$50 < d$

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.

Approach	Traffic Flow (vph)	Average Delay per Vehicle (sec)	Level of Service	95th percentile queue (veh)
Otaihanga Road (E'way)	357	6	A	2
New Road	210	8	A	2
Otaihanga Road (Otaihanga)	337	5	A	2
TOTAL	904	6	A	

Table 3: New Otaihanga Road Intersection – Roundabout - 2034 AM Peak

Approach	Traffic Flow (vph)	Average Delay per Vehicle (sec)	Level of Service	95th percentile queue (veh)
Otaihanga Road (E'way)	426	6	A	3
New Road	120	9	A	1
Otaihanga Road (Otaihanga)	441	6	A	3
TOTAL	987	6	A	

Table 4: New Otaihanga Road Intersection – Roundabout – 2034 PM Peak

Approach	Traffic Flow (vph)	Average Delay per Vehicle (sec)	Level of Service	95th percentile queue (veh)
Otaihanga Rd (E'way) R	41	7	A	0
T	316	0	A	0
New Road L	113	6	A	0
R	97	11	B	1
Otaihanga Rd (Otaihanga) L	49	6	A	0
T	288	0	A	0
TOTAL	904	3	A	

Table 5: New Otaihanga Road Intersection – Sign Controlled - 2034 AM Peak

Approach	Traffic Flow (vph)	Average Delay per Vehicle (sec)	Level of Service	95th percentile queue (veh)
Otaihanga Rd (E'way) R	92	2	A	0
T	334	0	A	0
New Road L	59	1	A	0
R	61	8	A	1
Otaihanga Rd (Otaihanga) L	88	0	A	0
T	353	0	A	0
TOTAL	987	1	A	

Table 6: New Otaihanga Road Intersection – Sign Controlled – 2034 PM Peak

As shown, in terms of capacity and associated delay, the intersection is forecast to operate with a level of service of A during both weekday traffic peaks and with either intersection layout.

Given the 60km/h speed limit, which increases the risk of serious and fatal injuries in side impact crashes compared with a 50km/h speed limit, the roundabout layout is preferred from a safety perspective. In the Safe System context, roundabouts are considered a primary safety treatment, with safety benefits for vehicles due to the reduced speeds, number of conflict points, and impact angles. While safer for vehicles, the provision for pedestrians and cyclists needs to be carefully considered.

In this case, there is no footpath along the southern side of Otaihangā Road, so the key matter is providing for the shared path to cross the new side road. The proposed design includes a crossing point set back two car lengths from the hold line at the roundabout and will include a hold rail for cyclists within the refuge. The safety for pedestrians and cyclists will be further considered through the road safety audit process with associated modifications to the arrangements through detailed design.

6. District Plan Provisions

The site is located within the General Residential Zone in the District Plan. The level of compliance with the District Plan rules and standards for access and roading which apply to this proposal is discussed in Table 7.

KCDC District Plan Rules & Standards	Comment
SUB-RES-R33 Subdivision of land within the General Residential Zone	
7. The maximum number of allotments gaining legal and physical access by rights of way shall be 6.	Complies for all new rights of way which all provide access to six or fewer lots. Does not comply for the existing Tieko Street right of way which will provide access to nine lots including the three that form part of this application.
8. Access to all allotments must comply with the standards in the Transport chapter.	Alignment with Transport standards discussed below.
TR-R2 Vehicle movements	
2. In all other zones, any activity must not generate more than 100 vpd, except extractive industries that are provided for.....	Does not comply. With each dwelling generating 8 to 10vpd, the overall subdivision could generate up to 2,530vpd.
TR-R3 Site access and loading	
1. Access – every site must provide either: a. vehicular access over land or by mutual right of way or service lane for parking and/or loading and shall be in accordance with TR-Diagram-2; or b. for sites with no carparking or loading spaces, pedestrian access over land by mutual right of way with a minimum 1.8 metre legal width may be provided as an alternative to vehicle access.	Complies. All lots will have either direct access to public road or via a right of way.
2. Access – Vehicle access and pedestrian access - all vehicle accesses and pedestrian accesses must be designed, constructed and maintained to ensure that: a. they are able to be used in all weather conditions;	Complies. All roads, rights of way and pedestrian paths will be formed with all weather surfaces.

KCDC District Plan Rules & Standards	Comment
<ul style="list-style-type: none"> b. they have no adverse impact on the roadside drainage system; and c. surface water and detritus (including gravel and silt) does not migrate onto the highway pavement. 	<p>Complies. The road and drainage design are integrated.</p> <p>Complies. All roads will be sealed and drainage provided for within the site.</p>
<p>3. Vehicle access – all vehicle accesses must meet the following:</p> <ul style="list-style-type: none"> a. to be minimum of 3.5m wide, except for as set out in TR-Table 1. b. Be a maximum of 9m wide except... 	<p>Complies. All vehicle accesses can be provided within the required range.</p>
<p>6. Vehicle access-spacing – at intersections (except on strategic arterial routes) carrying traffic volumes of 1,000 vehicles or more in any peak hour, or at which traffic signals are operating, no part of a crossing point must be within 30m of an intersection....</p>	<p>Complies. The new intersection with Otaihang Road may in the future carry more than 1,000vph. The Lot 1 access is more than 30m from the intersection. If the Lot 140 access is positioned on the boundary with Lot 139 there will be a separation distance of around 30m from the intersection.</p>
<p>7. Vehicle access spacing - where a site is located near an intersection having volumes less than 1,000vph in any peak hour, the minimum distance between the crossing point and the roadway edge or kerblines must be:</p> <ul style="list-style-type: none"> a. 9m from the intersecting point of the kerb lines or road edge lines or 4.5m from the tangent point of the kerb lines whichever is greater; and b. 12m where a Stop or Give Way control exists on the roadway measured from the intersecting point of the kerb lines or road edge lines. 	<p>Complies. All lots adjacent to side roads at intersections have the potential for complying driveway locations.</p>
<p>9. Vehicle access spacing sight distances – the required minimum sight distance between the vehicle access and the road must be in accordance with TR-Diagram-3 and TR-Table 3 – Sight Distance Dimensions. 50m is required in 50km/h speed limit increasing to 60m with a 60km/h speed limit.</p>	<p>Does not comply. Available sight lines discussed above in Section 3 of this assessment.</p>
<p>12. Manoeuvring –</p> <ul style="list-style-type: none"> a. Private residential access – unless the driveway accesses directly from a local road, sufficient manoeuvring space must be provided on-site to ensure no reversing onto the road is necessary. 	<p>Complies. Lots 22 and 23 are sufficiently large to accommodate on-site turning with no reverse manoeuvres to/from Otaihang Road expected.</p>
<p>15. Landscaping – all landscaping adjoining the road boundary of sites must be designed and maintained so that visibility to and from the crossing point complies at all times with the minimum sight distances set out in TR-Table 3 Sight Distance Dimensions.</p>	<p>Can comply. Recommended that berms are grassed or have low level planting to minimise risk of obstruction to sight lines.</p>
TR-R9 New roads including where they are to serve subdivision (including boundary adjustments)	
<p>2. Cycle paths must be provided either as on-street cycle lanes, off-street shared paths or off-street dedicated cycle paths.</p>	<p>Complies. NZS4404:2010 does not require cycle facilities on local roads. However, a separated shared path has been included through the site. The shared</p>

KCDC District Plan Rules & Standards	Comment
	path has a width of 2.5m in line with the desirable minimum width for local access shared paths in Table 5.3 of Austroads Guide to Road Design Part 6A.
TR-R16	
Permanent parking (i.e. more than two times in any one week) for more than 12 consecutive hours of any registered heavy trade vehicle within the Residential Zones.....is a non-complying activity	Can comply. Heavy trade vehicles associated with construction activities can be managed through the Construction Traffic Management Plan such that they do not park on-site for more than 12 consecutive hours. It is, however, noted that the traffic effects are likely to be less if trucks and plant can remain on the site during construction as needed.

Table 7: District Plan Rules and Standards

The relevant access and road cross-sections included in Table 3.2 of NZS4404:2010 are summarised below in Table 8.

Access Type	Target Operating Speed (km/h)	Maximum Grade	Pedestrians/ Cyclists/ Passing	Minimum Road Width (m)
Access to 1-3 dwellings	10	20%	Shared in movement lane. Allow for passing up to every 50m.	2.75-3.0m formed width within 3.6m legal width.
Access to 4-6 dwellings	10	20%	Shared in movement lane. Allow for passing up to every 50m.	2.75-3.0m formed width within 4.5m legal width.
Lane serving up to 20 dwellings (200vpd)	20	16%	Pedestrians and cyclists shared in movement lane.	5.5-5.7m movement lane within minimum 9m road width.
Primary access to up to 100 dwellings	40	12.5%	1.5m footpath on one side or on each side where more than 20 dwellings or more than 100m in length. Cyclists and parking shared in movement lane.	5.5-5.7m movement lane within minimum 15m road width.
Primary access 100 to 200 dwellings	40	12.5%	1.5m footpath on each side. Cyclists shared in movement lane. Separate parking required.	5.5-5.7m movement lane within minimum 15m road width.

Table 8: Extract from NZS4404:2010 Table 3.2

Road 200 from Otaihangā Road through to the intersection with Road 201 is aligned with the NZS4404:2010 cross-section for a road serving up to 200 dwellings with the inclusion of indented parking bays. With the provision of a separated shared path along the western side of the carriageway and a 6m width for the carriageway, the road will easily accommodate additional traffic in the event that more than 200 houses are accessed via this section of road.

Beyond Road 201 and through to Road 203, Road 200 is aligned with the cross-section for a road serving up to 100 dwellings with the addition of a shared path along the western side. North of Road 203, Road 200 has a cross-section aligned with a road serving up to 100 dwellings including a footpath along the eastern side. This section of Road 200 is a little over 100m long and, as such, would trigger the need for a footpath on each side based on the guidance in NZS4404:2010.

Road 201 provides access to up to 23 residential lots with the potential to provide access to more than 23 dwellings if some lots have more than one house. Road 201 has a 12m legal width and a single footpath compared with the NZS4404:2010 guidance of including a 15m legal width and footpaths on both sides.

Road 202 is aligned with the cross-section for a road serving up to 100 dwellings with the addition of a shared path along the southern edge.

Road 203 is aligned with the cross-section for a road serving up to 100 dwellings, with the exception that although it is longer than 100m and potentially provides access to more than 20 dwellings, there is only a footpath along the eastern side.

Areas of partial or non-compliance with the transportation matters included in the District Plan and Table 3.2 of NZS4404:2010 are:

- Number of lots accessed from Tieko Street right of way;
- Driveway sight lines for some lots;
- Cross-sections of Road 201, Road 203 and the northernmost section of Road 200;
- Non-standard residential turning head on Road 201;
- Sight distances at Road 200/ Road 201 intersection;
- Sight distance from Road 203 to the north along Road 200; and
- Sight distance from Road 203 along Road 202; and
- Traffic generation.

The traffic effects associated with this are discussed in Section 7.

The alignment of the proposed subdivision with the District Plan Transport Policies which apply to this proposal is summarised in Table 9.

District Plan Transport Policies	Comment
TR-P1 – Integrated Transport and Urban Form	
<p>Development and subdivision will be integrated with and consistent with the transport network hierarchy in TR-Table 7, and undertaken in a manner and at a rate to ensure:</p> <ol style="list-style-type: none"> 1. the transport network is capable of serving the projected demand safely and efficiently; 2. the location of development is appropriate, including providing for the co-location of compatible developments and land use and transport networks to reduce unnecessary travel; 3. travel time and distance to services are minimised for all modes of travel; 4. development is consistent with Council's Land Development Minimum Requirements; and 	<ol style="list-style-type: none"> 1. The new intersection with Otaihanga Road is expected to operate safely and efficiently. Traffic flows on Otaihanga Road will remain within the road's capacity. 2. The site has ready access to Otaihanga Road which in turn connects with the Arterial road network. The site is within a commutable distance of Paraparumu for cyclists with shared paths through the site and access to the frontage shared path on Otaihanga Road and then the Expressway path. 3. As per comment above. 4. The roading design has good alignment with the requirements of NZS4404:2010 and is in turn consistent with the Council's Land Development Minimum Requirements.

District Plan Transport Policies	Comment
5. enhanced community connectivity is achieved, resulting in more efficient travel patterns from the community.	5. The proposal results in improved connectivity for pedestrians and cyclists.
TR-P2 – Sustainable Transport and Maximising Mode Choice	
<p>Development and subdivision will be integrated with a transport system that offers a wide range of travel mode choices, which connects residents to essential community services, centres and social infrastructure, through:</p> <ol style="list-style-type: none"> 1. well-integrated and connected communities; 2. development that is conducive to active modes of travel, particularly walkable communities which reduce demand for vehicular travel, particularly by private vehicle; 3. land use that is integrated with the transport network; 4. improved public transport services to the District; 6. consistency with the Council's Land Development Minimum Requirements; and 7. development that ensures adequate access and space for all modes, including pedestrians, people with mobility problems, cyclists, public transport and private car travel. 	<ol style="list-style-type: none"> 1. The site has ready access to the road and shared path network. 2. As per comment on TR-P1 5. above. 3. As above. 4. The increase in residential population will increase the viability of a bus route along this section of Otaihanga Road. 6. As per comment on TR-P1 4. 7. As above.
TR-P5 – Effects of Land Use on Transport	
The potential adverse effects on the transport network from development and subdivision will be avoided, remedied or mitigated by identifying both the key existing transport routes and proposed transport routes likely to be required long term as part of the District's transport network and having regard to these when considering applications for subdivision or development.	The proposed road layout and intersection arrangement will ensure that the adverse effect of the additional traffic activity on the external transport network is appropriately mitigated, so that all road users can be safely accommodated and any additional traffic delays are small.
TR-P6 – Safety	
<p>The safety of all transport users will be enhanced during the development, operation, maintenance and upgrading of the transport network, by:</p> <ol style="list-style-type: none"> 1. implementing the principles set out in Appendix 5.5 – Crime Prevention Through Environmental Design (CPTED) Guidelines; 2. requiring that all developments provide for safe vehicular and pedestrian access, and have adequate visibility (sight lines); 3. requiring all developments to have safe connections to the wider transport network. 	<ol style="list-style-type: none"> 1. Alignment of the separated sections of shared path and footpath with CPTED guidelines is commented on by others. 2. Safe sight lines for the anticipated local speed environment can be achieved. 3. The proposed new intersection with Otaihanga Road is expected to perform safely and efficiently. There will be opportunities to refine the design of the intersection through the detailed design process and to confirm that the connections are safe through the road safety audits.
TR-P7 – Cycling, Walking and Bridleway Links and Safety	
Subdivision, use and development will be as far as practicable, located and designed to make walking, cycling and the use of bridleways safer, more enjoyable and convenient in accordance with the Crime Prevention Through Environmental Design (CPTED)	1. The proposed shared paths and footpaths within the site will improve the connectivity for pedestrians and cyclists. There is a good degree of connectivity with Otaihanga Road minimising walking distances to potential future bus stops.

District Plan Transport Policies	Comment
<p>Guidelines set out in Appendix 6 and the following principles:</p> <ol style="list-style-type: none"> 1. new street linkages will provide safe pedestrian access to shops and services and public transport nodes; 2. subdivision and development will: <ol style="list-style-type: none"> a. enable cycle and pedestrian routes, both on and off road, which offer good continuity; b. avoid large blocks that sever connectivity; and c. consider opportunities to provide bridleways in suitable locations; and 4. pedestrian and cycle routes will have well designed and built facilities including surface conditions, lighting, signage and passive surveillance from adjacent development. 	<p>2.a. As above.</p> <p>2.b. Good level of connectivity with Otaihanga Road for all road users.</p> <p>2.c. Provision of a bridleway is not considered appropriate in this future suburban setting.</p> <p>4. It is anticipated that these requirements can be met with details of the shared path and separated footpath to be delivered as part of the detailed design and subject to the road safety audit process.</p> <p>The pedestrian and cycle network within the site will provide safe connections to the external transport network facilitating active mode travel whether for commuting or recreational purposes. The connected routes through the site will also facilitate access for residents of Tieko Street and beyond.</p>
TR-PARK-P8A – Cycle Parking	
All new subdivision and development shall provide for safe, sufficient, and appropriately located on-site cycle parking facilities.	The anticipated housing types will readily be able to accommodate cycle storage within the individual properties.

Table 9: District Plan Transport Policies

In summary, the proposed subdivision delivers roading, accesses and lots which are well aligned with the transport policies included in the District Plan.

7. Traffic Effects

7.1 Traffic Generation

The subdivision is expected to yield some 145 to 253 dwellings with an associated peak hour trip generation of 170 to 300 vehicle movements per hour during the weekday traffic peaks. The modelling of the new intersection on Otaihanga Road has shown that the additional traffic activity, including at the high end of the range, can be readily accommodated. The modelling also included an allowance for background traffic growth on Otaihanga Road of 2% per annum.

7.2 Number of Lots off Tieko Street RoW

The existing Tieko Street RoW will provide access to nine lots including the three that form part of this application, exceeding the District Plan provision that limits access to six lots from a RoW. The existing RoW can readily accommodate the traffic activity from the three proposed lots for the following reasons:

- There is currently a lot within the site that has frontage onto the RoW. This lot could be developed with three houses with all legal and physical access to the RoW;
- The proposed three lots are each restricted to accommodating a single dwelling; and
- The proposed subdivision includes improvements to the RoW to better provide for vehicles to pass each other.

7.3 Driveway Sight Lines

The 50m District Plan access sight distance requirement within a 50km/h speed environment can be met for all internal lot frontages and the rights of way with a few exceptions.

Lots 1, 2, 3, 19, 27, 65, 93, 94 and 121 cannot achieve 50m in both directions but can accommodate at least 40m. AS/NZS2890.1:2004 has a 40m sight line as being adequate for accesses serving up to three dwellings within a 50km/h speed environment. As such, these driveways can be expected to operate safely.

Lots 11, 20, 28, 64 and 78 have sight lines in one or both directions of 30-40m. These lots are located on side roads close to intersections or bends where vehicle speeds can be expected to be 40km/h or less. AS/NZS2890.1:2004 has a 30m sight line as being adequate for accesses serving up to three dwellings within a 40km/h speed environment. As such, these driveways can be expected to operate safely.

Lot 12 can only achieve 20m sight lines from the rear or side frontages onto Road 201. It is recommended that this lot has vehicle access onto the inside of the bend on Road 201.

Lots 141, 142 and 143 have vehicle access via the RoW at the end of Tieko Street. It is recommended that there are fencing and planting restrictions that enable sight distances of at least 30m in each direction to be achieved from 2.5m back from the sealed edge of the RoW.

7.4 Road Cross-Sections

North of Road 203, Road 200 has a cross-section aligned with a road serving up to 100 dwellings including a footpath along the eastern side. This section of Road 200 is a little over 100m long and, as such, would trigger the need for a footpath on each side based on the guidance in NZS4404:2010. Given that this section of Road 200 forms a cul de sac providing access to 17 lots, meaning a relatively low population density, and is around 140m long, the provision of a single footpath is considered adequate.

Road 201 provides access to up to 23 residential lots with the potential to provide access to more than 23 dwellings if some lots have more than one house. Road 201 has a 12m legal width and a single footpath compared with the NZS4404:2010 guidance of including a 15m legal width and footpaths on both sides. Given that Lots 4 to 12 will have pedestrian access to the shared path along Road 200, a footpath along their rear frontage to Road 201 is not considered necessary. The berm widths along each side of Road 201 are at least 2.5m which will provide for sight lines along the road for drivers exiting frontage properties. I therefore consider the non-compliance due to the reduced legal width acceptable from a traffic effects perspective.

Road 203 is aligned with the cross-section for a road serving up to 100 dwellings, with the exception that although it is longer than 100m and potentially provides access to more than 20 dwellings, there is only a footpath along the eastern side. It is only the northern, 100m long section, of Road 203 that will have houses along both sides. As such, the provision of a single footpath is considered adequate.

7.5 Intersection Sight Distances

The ASD of 50m on the Road 200 north approach to the intersection with Road 201 and the 45m ASD on the Road 201 approach, compared with the 55m requirement, are considered satisfactory given that the vehicle speeds will be less than 50km/h due to the curve and raised treatment on the north approach and the curve on the Road 201 approach. For the same reasons the available SIRD and MGSD are considered appropriate given the anticipated vehicle operating speed environment.

The 85m SISD to the north along Road 200 from Road 203, compared with the 97m requirement, is considered satisfactory given that approaching vehicles will be decelerating and travelling slower than 50km/h on the approach to the raised treatment and the curve in the road.

The 60m SISD at the Road 202/ Road 203 intersection, compared with the 97m requirement, is considered adequate given that approaching vehicles from the west are within 20m of the cul de sac head and will be travelling at reduced speeds, and approaching vehicles from the east will be travelling at reduced speeds having just turned into Road 203.

7.6 Construction Traffic

The earthworks have been designed to be contained within the site, with areas set aside for unsuitable material and topsoil stockpiles. The only material to be imported is roading aggregate with a preliminary estimate of 5,165m³ of compacted material needed. With a compaction factor of 1.2 and assuming 8m³ per truckload this equates to 775 loads (1,550 movements total).

How this relates to daily truck movements will vary due to a number of factors. It is estimated that it would take 15 to 20 minutes to spread each load, so between 3 and 4 loads could be received each hour. With an eight hour working day, there might be up to 24 to 32 loads per day with an associated 48 to 64 truck movements equating to 6 to 8 truck movements per hour. Most trucks will be able to access the site from Otaihangā Road. Only trucks associated with the works on the Tieko Street right of way will need to use Tieko Street. In practice, the delivery rates will vary and 64 truck movements per day is considered a high daily estimate of truck activity.

The District Plan includes a calculation whereby a single rigid truck is equivalent to six vehicle movements. As such, 64 truck movements per day would be equivalent to 384 vehicle movements per day with up to 48 vehicle movements per hour. This level of vehicle activity is significantly less than that expected with the subdivision completed and occupied. As such, the construction traffic is expected to be able to be safely and efficiently accommodated. A Construction Traffic Management Plan (CTMP) has been provided which covers such matters as days and hours of construction traffic access, access to the site to avoid trucks queuing on Otaihangā Road, minimising truck movements on Tieko Street and the right of way, and wheel washing.

7.7 Non-Standard Residential Turning Head on Road 201

The turning area at the end of Road 201 is provided by a tee arrangement rather than a standard residential cul de sac head. The proposed arrangement provides for vehicle turning, including for an 8m truck while also accommodating access to Lots 4, 5 and 13 and some on-street parking. Road markings will be used to clearly define the different functions of this part of Road 201.

7.8 Positive Effects

The proposed subdivision has a number of positive traffic effects including:

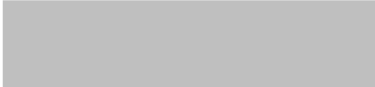
- provision of a shared paths within the site;
- able to take advantage of the proximity to the recreational active mode routes along Otaihangā Road, Ratanui Road and the Expressway;
- easy access to the wider road network and to central Paraparaumu and Waikanae via the old SH1 route; and
- increased residential population will result in a bus service being more viable along this section of Otaihangā Road benefiting existing and future residents.

8. Conclusion

The findings of the transportation assessment show that the proposed subdivision can be appropriately, safely and efficiently accommodated with very little change in traffic capacity or delays for existing users of Otaihangā Road. Any adverse traffic effects associated with the proposed subdivision will be properly mitigated to an acceptable level and there will be wider benefits in terms of connectivity for active modes.

Please do not hesitate to be in touch should you require clarification of any of the above.

Yours faithfully

A grey rectangular box used to redact the signature of Harriet Fraser.

Harriet Fraser