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Issued via email: kanstey@propertygroup.co.nz

Dear Kim

RURAL TO RESIDENTIAL PLAN CHANGE – RONGOTEA

East Cape Consulting (ECC) Limited has been engaged by the Te Kapiti Trust ('the Proponent') to assess the transportation effects of rezoning of approximately 21ha of land in Rongotea from Rural 2 to Village. We are pleased to present our assessment as follows.

1. SITE LOCATION

Rongotea is an established rural village in the Manawatu. By road it is located approximately 20km from Palmerston North, 12km from Sanson, 15km from Ohakea Air Base (between Sanson and Bulls), and 18km from Fielding. The location of the village at a district level is shown as Figure 1.





Figure 1 – Site Location (Base Map Source: Open Street Maps)

The subject site is located at 14 Banks Road on the southern side of Rongotea. As shown on Figure 2 below is it generally bounded by established residential activities to the north, farmland to the south-west and east, and recently approved subdivisions to the south-east.



Figure 2 – Site Context (Base Map Source: Manawatu District Council (MDC) Maps)

The site has an area of approximately 21 hectares (ha). It is zoned Rural 2 in the Manawatu District Council (MDC) District Plan. The adjacent urban area of Rongotea is zoned Village.

The Proponent also owns the adjoining property to the southwest which is available for stormwater management, as shown later as Figure 15.

2. EXISTING TRANSPORTATION ENVIRONMENT

2.1 Road Hierarchy

Rongotea Road is the primary transport corridor in Rongotea. It is classified as a Minor Arterial road in the MDC roading hierarchy. It runs from State Highway 1 (SH1) in the west to Longburn Rongotea Road in the east. Longburn Rongotea Road carries on southeast to meet State Highway 56 (SH56) on the outskirts of Palmerston North.

Green Road, which links Rongotea Road to State Highway 3 (SH3), is also classified as a Minor Arterial road. These roads are shown below as Figure 3.



Figure 3 – District Road Network (Base Map Source: Open Street Maps)

Through Rongotea village, Rongotea Road becomes Thames Street for a length of approximately 1.2km. It retains its Minor Arterial road status. Other roads in Rongotea including Trent Street, Severn Street, Mersey Street and Banks Road are classified as local roads. The local transport network is shown as Figure 4 below.

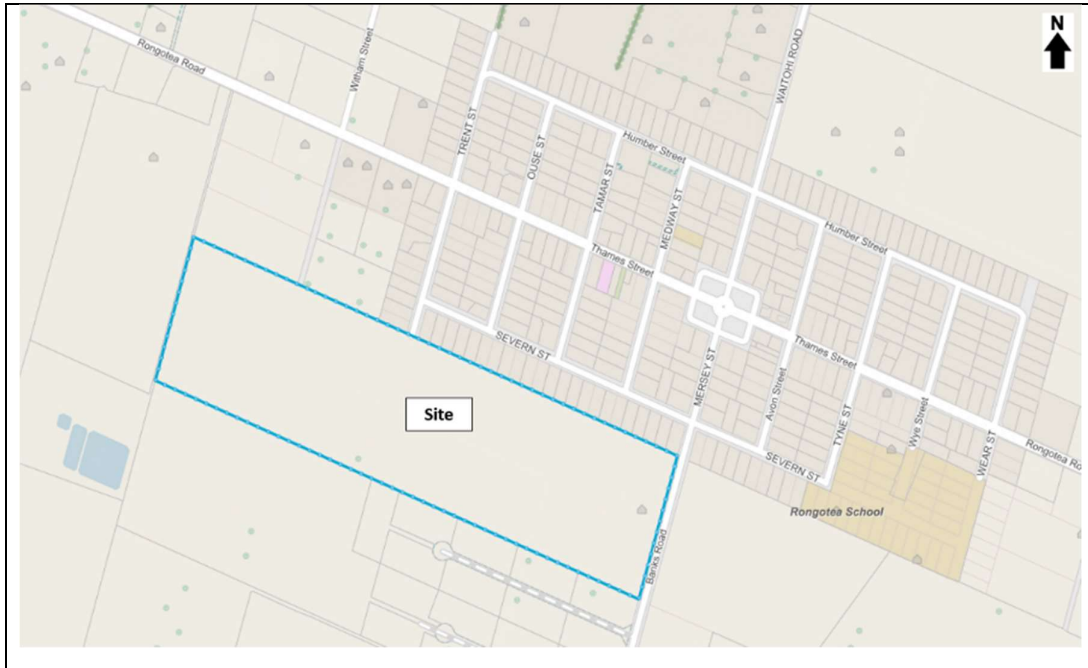


Figure 4 – District Road Network (Base Map Source: Open Street Maps)

2.2 Road Network Form

The subject site has frontage of approximately 240m to Banks Road. Along the site frontage Banks Road has a legal width of 20m and carriageway width of approximately 6m with grass berms and roadside drains on both sides. It provides one traffic lane in each direction and is marked with a painted centreline and delineated with edge marker posts.

The posted speed limit on Banks Road as it approaches Rongotea is 100 km/h. This changes to 50km/h at the established residential area, approximately 50m to the south of the Severn Street intersection. Views of Banks Road are shown as Figure 5 and 6 below.

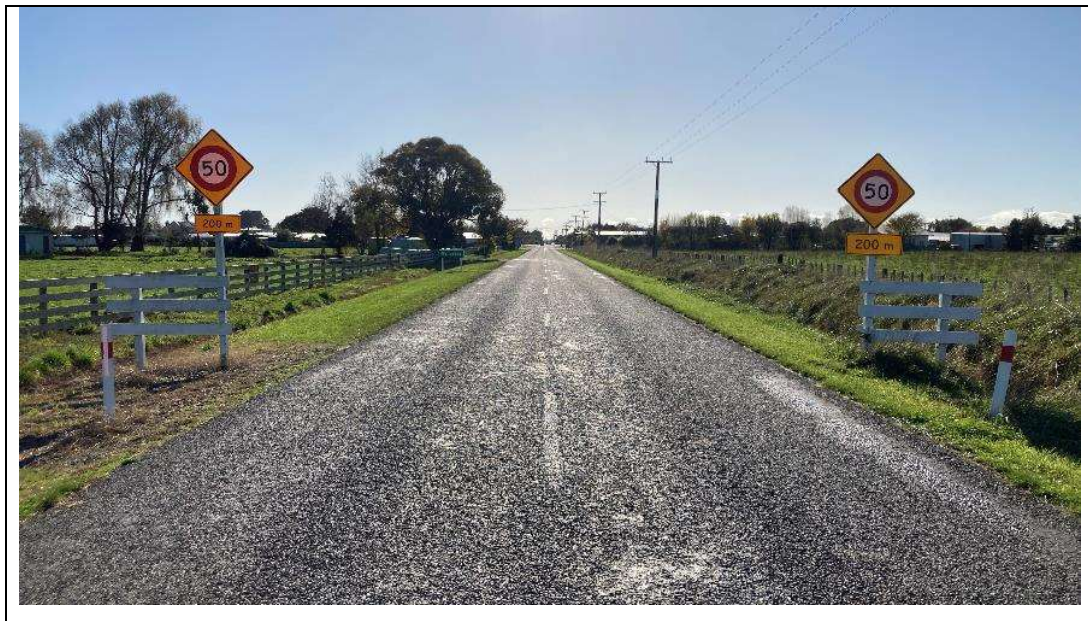


Figure 5 – Banks Road, viewed looking north (site on left)

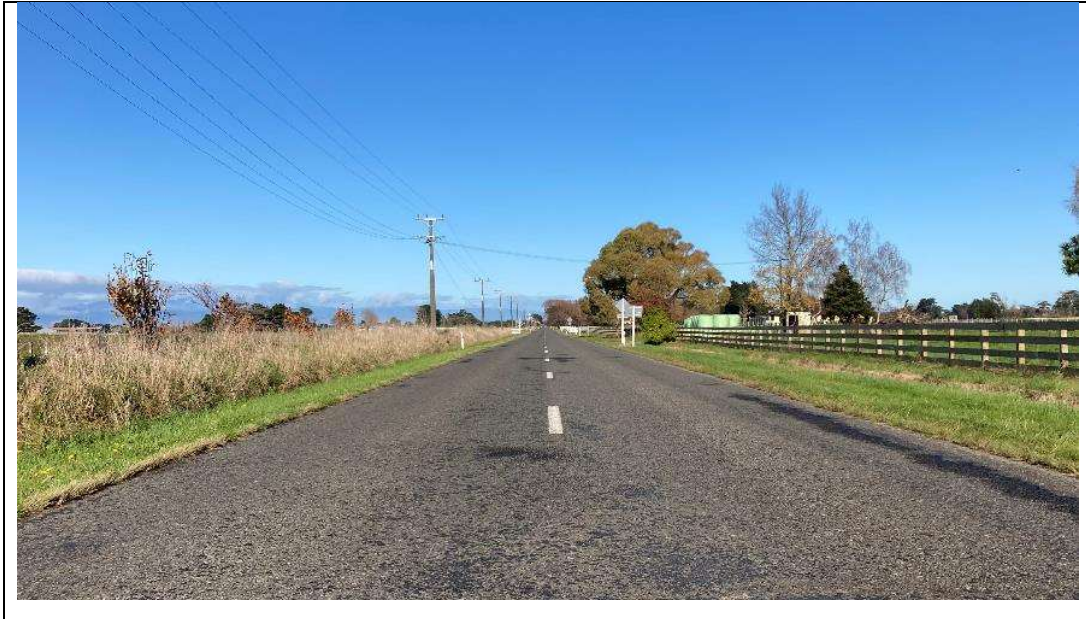


Figure 6 – Banks Road, viewed looking south (site on right)

Banks Road is straight and flat in this area and there are no impediments to achieving appropriate sight distance along the site frontage. The Safe Intersection Sight Distance required by Austroads¹ in a 100 km/h environment is 248m and this can be met at any location along the Banks Road frontage.

Banks Road changes to Mersey Street as it moves north into Rongotea. It meets Severn Street at a Give Way controlled four-leg intersection, where Mersey Street has priority.

The subject site also abuts the southern end of Trent Street. Trent Street has a legal width of 20m (which is along the length of the site frontage). It has a sealed carriageway width of 4.0m to 4.5m, no pavement markings, wide grass berms, and roadside drains on both sides.

Trent Street provides for two-way traffic movement but is formed to less than a typical two-lane carriageway width. The existing formation width would require a degree of courtesy behaviour when drivers meet travelling in opposite directions. This could involve using localised widening around driveways or the grass berms to move past each other.

Trent Street meets Thames Street at a Give Way controlled four-leg intersection, where Thames Street has priority. Trent Street and Thames Street operate with a 50 km/h posted speed limit.

Views of Trent Street are shown below (noting that it was undergoing maintenance at the time these were taken in June 2022).

¹ Austroads – Guide to Road Design: Part4A Unsignalised and Signalised Intersections



Figure 7 – Trent Street, viewed looking north past Severn Street



Figure 8 – Trent Street, viewed looking south past Severn Street (site at end)

The site also has access to the southern side of Thames Street via Witham Street (which is unformed). This corridor is approximately 10m wide and formed as an unsealed driveway.

2.3 Existing Traffic Volumes

Existing daily traffic volumes in the local and wider areas were sourced from Waka Kotahi databases and the Mobileroad website (which references Council asset management information).

Figures 9 and 10 below present existing daily volumes on roads in the wider and local area (in two-way vehicles per day, vpd). Figures 11 and 12 presents estimated peak hour volumes (in two-way

vehicles per hour, vph). These estimates assume that the peak hour volume accounts for 10% of the daily volume.

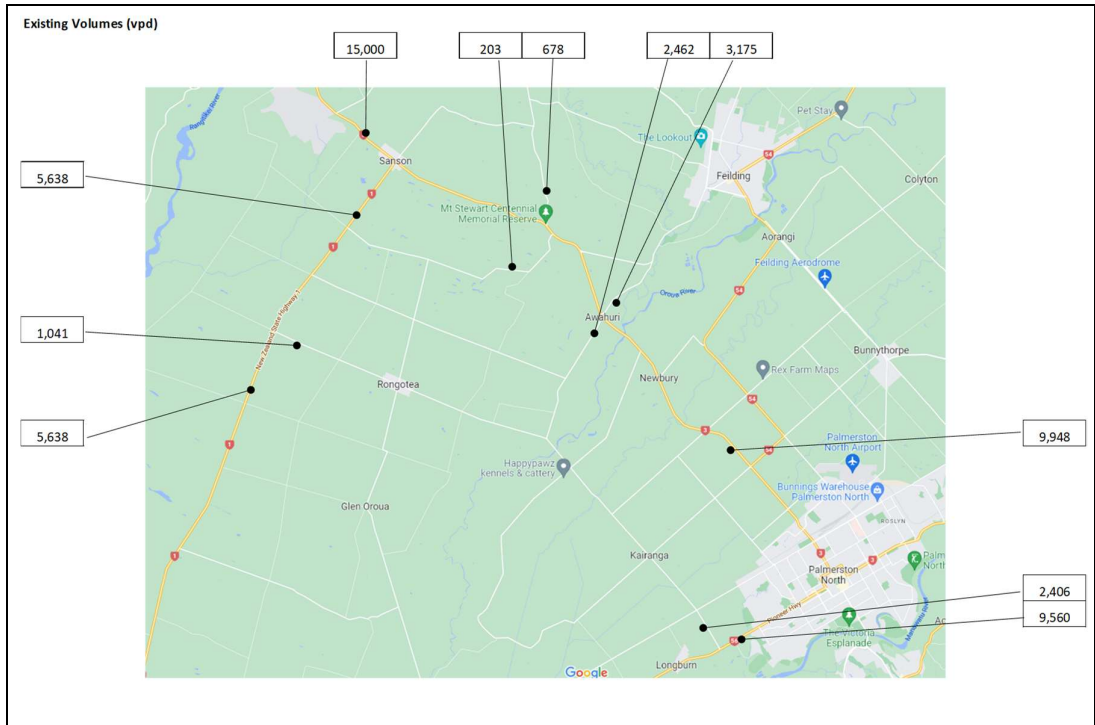


Figure 9 – Existing Daily Volumes (Wide Area)



Figure 10 – Existing Daily Volumes (Local Area)

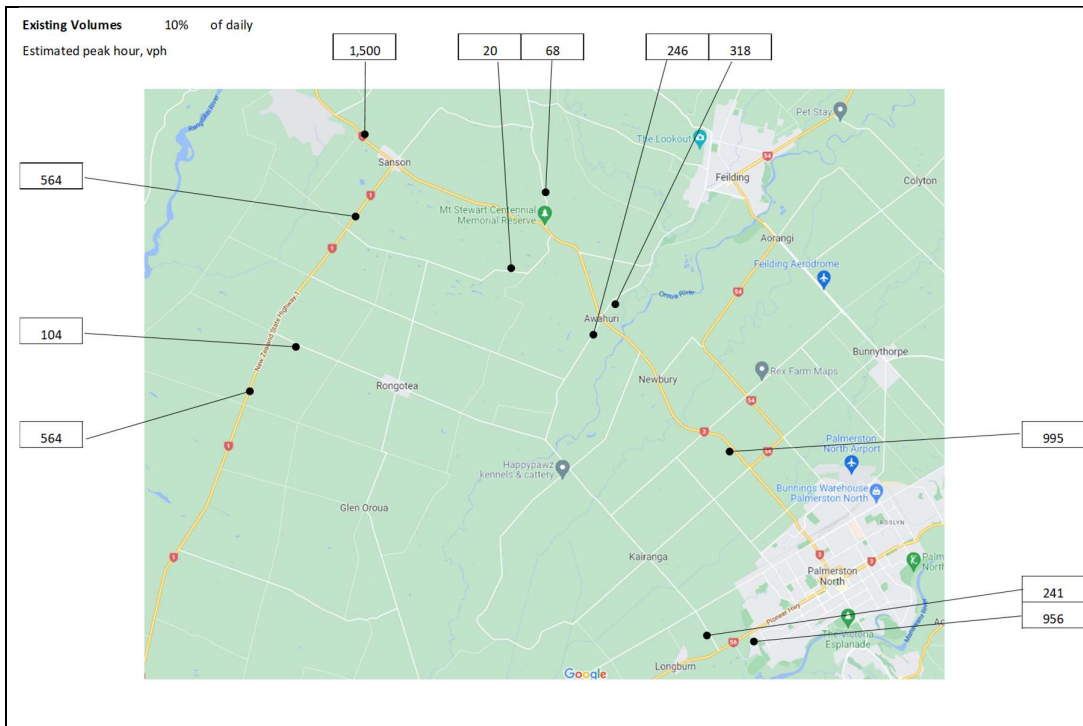


Figure 11 – Estimated Peak Hour Volumes (Wide Area)

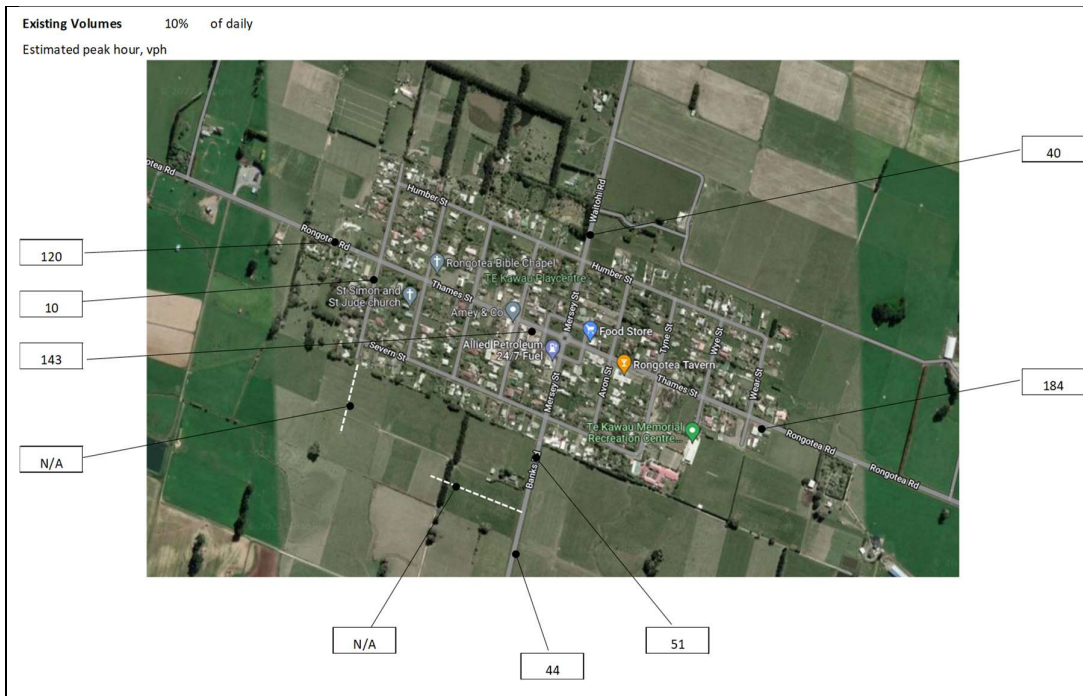


Figure 12 – Estimated Peak Hour Volumes (Local Area)

The Figures show that the State Highway network is carrying between 5,600 vpd and 15,000 vpd at various points. Rongotea Road has an existing daily volume of 1,040 vpd at its western end. This increases to 1,200-1,800 vpd in Rongotea. Banks Road carries 500 vpd and Trent Street has an existing volume of 100 vpd.

Peak hour volumes on the State Highway network range from 560 vph to 1,500 vph (two-way). Locally in and around Rongotea volumes reach up to 184 vph. The typical carrying capacity of a traffic lane is upward of 900 vph each way. On that basis, all roads in the local and wider area are operating within their carrying capacities.

2.4 Road Safety

The road safety history of the area was reviewed using the Waka Kotahi Crash Analysis System (CAS). A search was undertaken for the entire village area (including the site frontages) for the five-year period 2017 to 2021 (and including any available data from 2022).

The search revealed five crashes, three of which resulted in minor injury and two that resulted in no injury. The location of the crashes and the factors involved are summarised as follows.

At the Mersey Street/Severn Street intersection:

- One single vehicle loss of control crash involving a southbound vehicle. The crash was attributed to speed and alcohol. The crash did not result in injury.

At the Mersey Street/Thames Street roundabout:

- Two minor injury crashes involving drivers failing to give way to a vehicle approaching from their right.
- One single vehicle loss of control crash that did not result in injury. The crash was attributed to driver intoxication.

At the Thames Street/Tyne Street intersection:

- One crash involving a driver failing to give way to a cyclist travelling along Thames Street. The crash, which resulted in a minor injury, was attributed to driver distraction.

Overall, the crash history does not point to any underlying issues with the existing road network in Rongotea. Full CAS outputs are included as Attachment 1.

2.5 Walking and Cycling

Generally, roads in Rongotea either have no formal footpaths or footpaths on one side of the road only. Cyclists share the road carriageway with general traffic.

The existing footpath network around the site includes paths on:

- The southern side of Severn Street for its full length; and
- The eastern side of Banks Road from Severn Street northwards;

There are no footpaths on Trent Street or on Banks Street to the south of Severn Street.

Examples of existing paths are shown as Figure 13 and Figure 14 below.

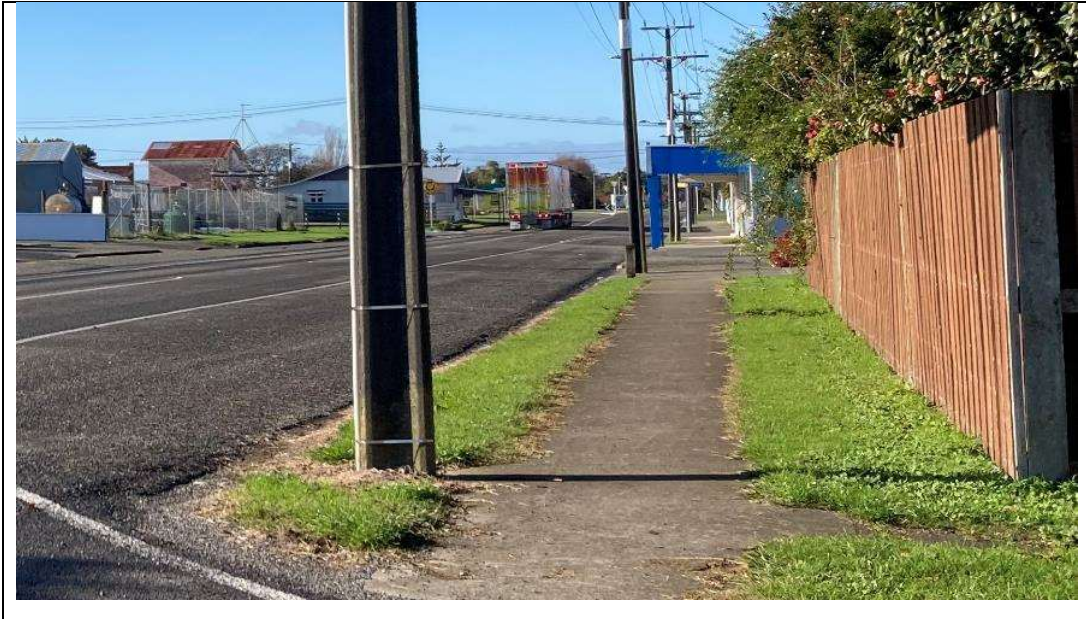


Figure 13 – Footpath Example 1 (Thames Street)

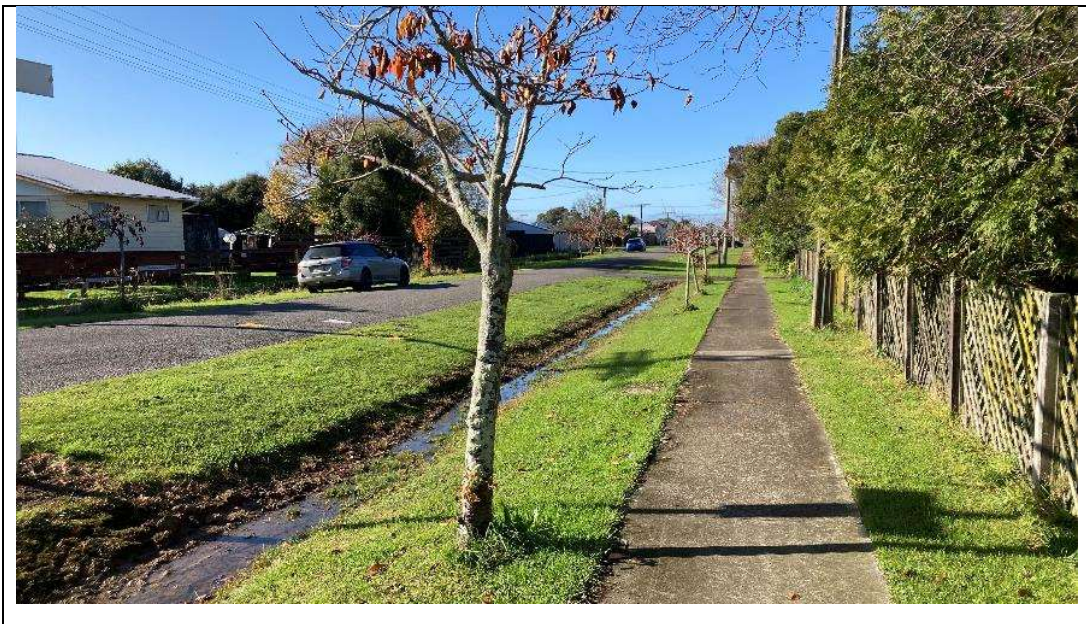


Figure 14 – Footpath Example 2 (Severn Street)

2.6 Public Transport

Rongotea is not currently served by any public transport routes.

3. DEVELOPMENT PROPOSAL

3.1 Land Use

The proposed rezoning of the land would enable an estimated 160 to 180 residential lots. These would range in size from 500 square metres (sqm) to 1,500 sqm. The draft Urban Design Framework for the area is shown below as Figure 15.



3.2 Transport Network

The transport network has been planned to integrate with the existing network in Rongotea, provide permeability for walking and cycling, support the servicing needs of the area (such as rubbish collection and future public transport), and to provide convenient travel routes for people travelling in all directions.

The proposed vehicular transport network connects to the existing network at two points:

- A continuation of Trent Street; and
- A new priority-controlled T-intersection on Banks Road.

The opportunity for future connectivity west and south into adjacent land is also protected, should there be a need to connect to these areas in future. These links are proposed to have a 20m wide legal corridor (Street Type 1).

Pedestrian and cycle connectivity is provided via these main connections and via the Whitham Street corridor, an additional link to Banks Road. Although it is outside the Plan Change area, there is also potential to connect via the wetland to Sterling Lane.

Links like this for pedestrian and cycle movement contribute to shorter walking and cycling distances to the centre of the village and destinations such as the local school. They also offer connections that can be used to form loops for local recreational use.

A supporting network of local roads (Street Type 2 and Street Type 3) is proposed in a generally grid-based formation. This network has been designed to provide vehicle access to all lots, a high degree of walking and cycling permeability, and a practical route for rubbish collection vehicles without reliance on reversing. The network of Street Type 1 roads would also be compatible with public transport vehicles should these services come in future.

The 'Active Mode and Green Street' is intended to prioritise walking and cycling with features including a shared off-road path and management of direct property access to minimise interactions with vehicles. Indicative cross-sections are discussed in further detail in Section 5.1.

4. TRIP GENERATION AND DISTRIBUTION

The distribution of trips has been assessed using data from the 2018 Census. This data captures what proportion of people in the Awahuri area (the Statistics New Zealand area unit covering Rongotea and the surrounding area) travel for work or school and where they travel to. It also captures the mode people used to travel.

Detailed statistics are included in Attachment 2. The most popular destinations were Awahuri (staying in the local area) with 39%, Palmerston North Central with 8%, and Fielding Central with 8% also. Driving a private car or a company car was the most popular mode of travel (54%), followed by being a passenger in a car (18%) or working at home (17%).

Typically, rural residential properties are assessed with a daily trip generation rate of 10 vehicle movements per lot. This is the rate recommended in the MDC Engineering Standards for Land Development². Suburban households are typically assessed at around 8 vpd/lot.

A lower vehicle trip rate is considered appropriate in this case for three reasons. Firstly, Census data indicates that 39% of people living in the Awahuri area remained in the local area for work or school. Secondly, only 54% of people in Awahuri who travelled to work or school did so as a car driver. Thirdly, Rongotea is a small village where everything is accessible within a walk of 10-15 minutes. This creates high potential for walking, cycling and other active modes as a means of getting to school, the local shops, church, or social activities.

For all these reasons, the 10 vpd/lot standard rate has been adopted as a demand for trips (of all modes) and the expected vehicle mode share (54%) has been applied to get the expected number of vehicle trips. This means that 180 lots are expected to generate demand for 972 vpd including 97 vph during the peak hours of the day.

This expected number of trips was assigned to the most likely route to/from each area identified in the Census data. Where multiple route options were available of similar time and/or distance the trips were shared across each route. The assessed routes are shown in Attachment 2.

In terms of access into and out of the Plan Change area, drivers were assumed to use the shortest route to/from their destination. Given the higher proportion of travel demand to the east compared to the west, this results in Banks Road being used more than Trent Street.

Figure 16 below shows the resulting estimates of additional vehicle movements (vpd) on roads in the wider area. Figure 17 shows the same analysis for the peak hour (vph). Figure 18 presents the percentage change (which is the same for both the daily and peak hour analyses). Cumulative total volumes are also presented in Attachment 3.

² Section 3.3.3.2

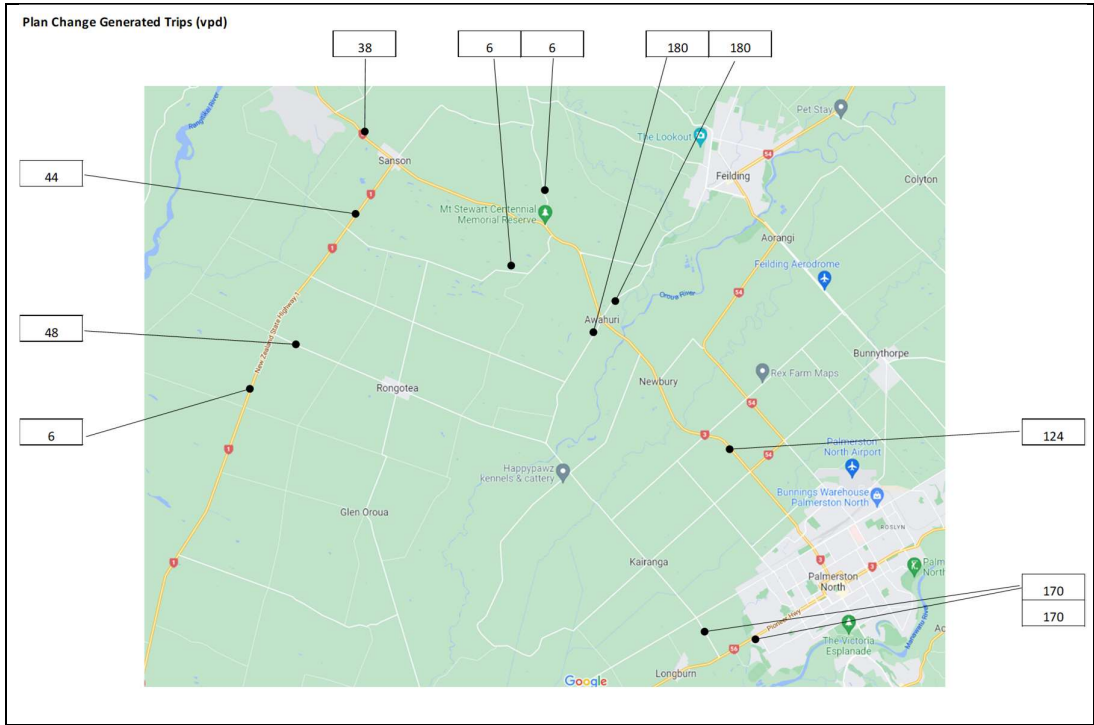


Figure 16 – Expected Plan Change Daily Trips, Wider Area

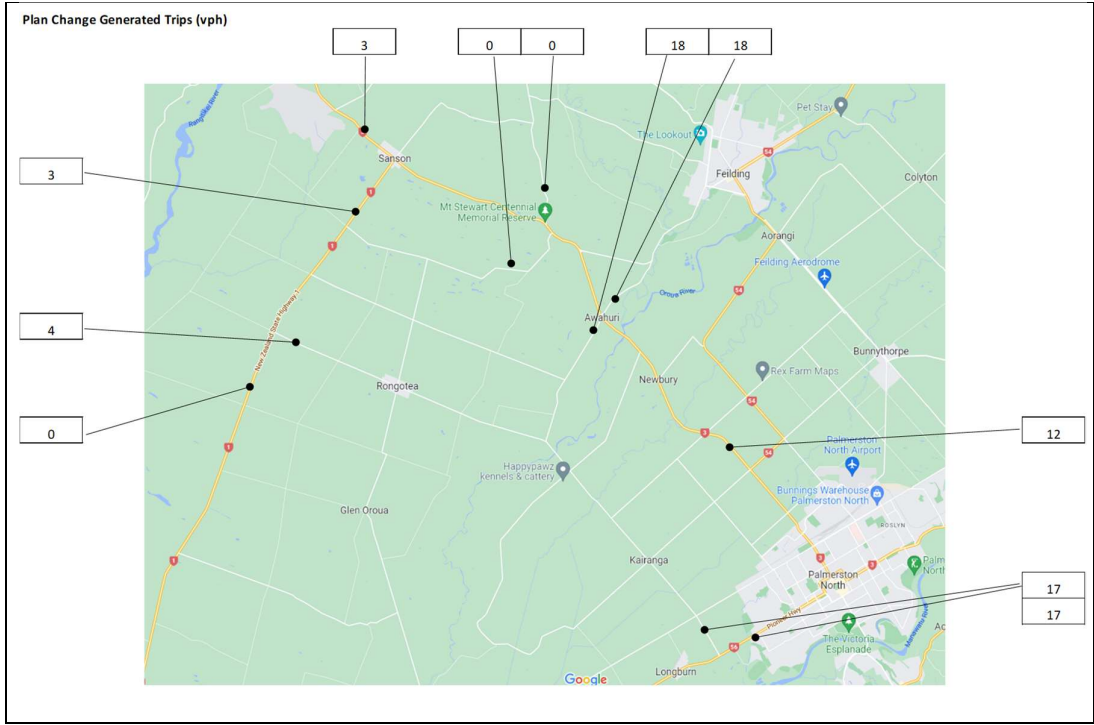


Figure 17 – Expected Plan Change Peak Hour Trips, Wider Area

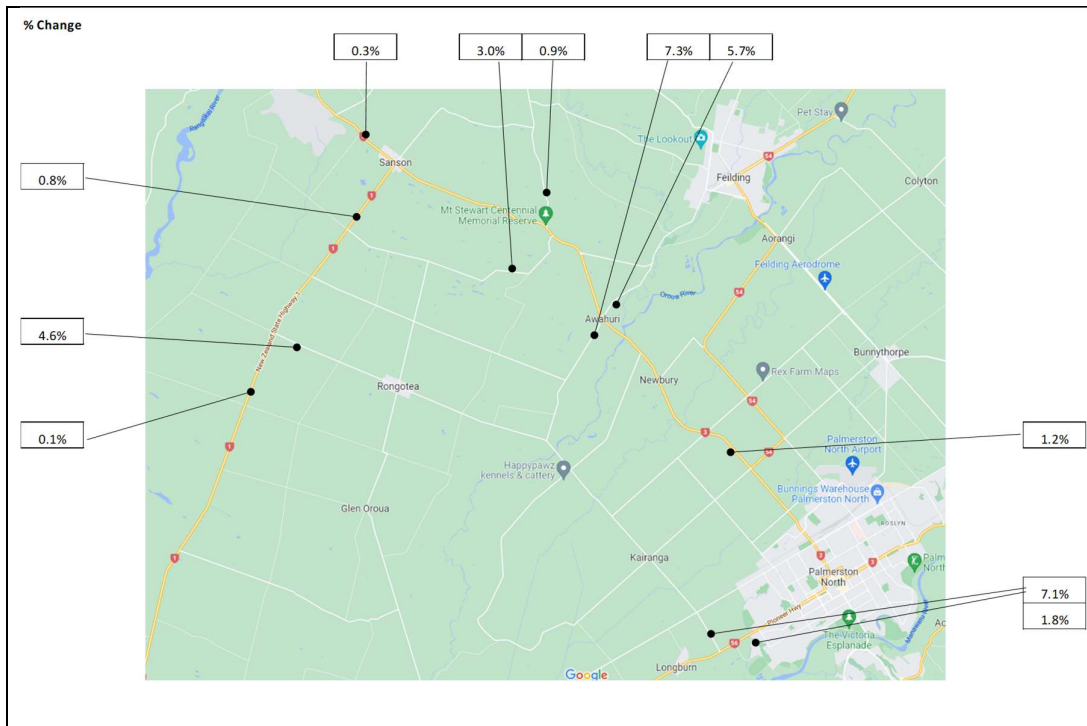


Figure 18 – Expected Plan Change % Change (Daily and Peak), Wider Area

These Figures show that on the State Highway network, the rezoning would add:

- 38-44 vpd to SH1 (a change of less than 1%);
- 124 vpd to SH3 (a change of 1.2%); and
- 170 vpd to SH56 (a change of 7%).

These changes correlate to peak hour increases of 3-17 vph, which is at most one additional vehicle in either direction every three minutes, on average. The addition of this level of traffic is not expected to generate any noticeable effects on these State Highways.

Similarly, the changes on the Minor Arterial routes of Rongotea Road (4-7%), Green Road (7%) and Longburn Rongotea Road (7%) are not expected to generate adverse effects. The cumulative daily volume on these roads remains below 2,600 vpd which is well within their capacity.

Figure 19 below shows the resulting estimates of additional vehicle movements (vpd) on roads in the local area and in the Plan Change area itself. Figure 20 shows the same analysis for the peak hour (vph). Figure 21 presents the percentage change (which is the same for both daily and peak hour analyses).



Figure 19 – Expected Plan Change Daily Trips, Local Area



Figure 20 – Expected Plan Change Peak Hour Trips, Local Area



Figure 21– Expected Plan Change % Change (Daily and Peak), Local Area

Locally, the primary transport corridors in the Plan Change area are expected to carry in the order of 360-610 vpd each. Existing roads within Rongotea including Trent Street, Banks Road, Mersey Street and Rongotea Road could also see increases in this range.

The cumulative daily volume on these roads (presented in Attachment 3) remains below 2,400 vpd which is well within the capacity of the road.

The effects of increased volumes on individual roads are discussed in Section 5.2 of this report.

5. INFRASTRUCTURE REQUIREMENTS

5.1 Internal Road Cross-Sections

A three-level road hierarchy is proposed as shown earlier on Figure 15. The road types are:

- Street Type 1 (20m legal width);
- Street Type 2 (15m legal width); and
- Street Type 3 (15m legal width).

Indicative cross-sections for the first two road types are shown below as Figure 22 and Figure 23.

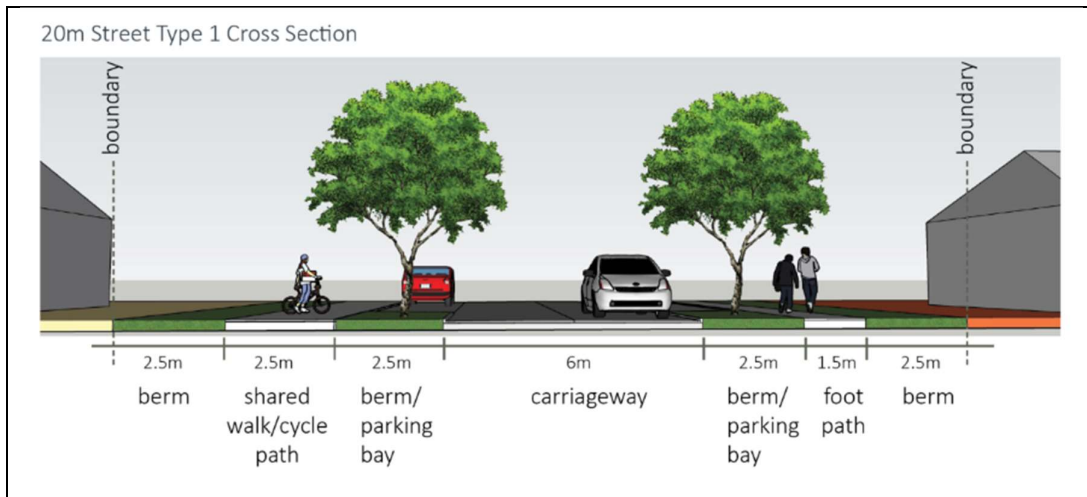


Figure 22 – Proposed Cross-Section, Street Type 1

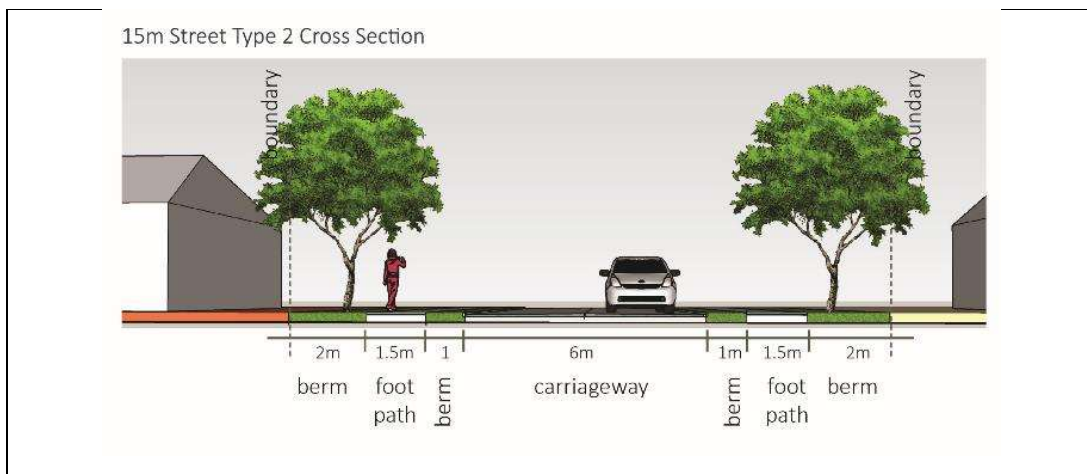


Figure 23 – Proposed Cross-Section, Street Type 2

The Type 1 cross section provides a 20m road reserve width and meets the MDC³ requirements for a Residential / Village Street serving more than 20 dwellings, it also meets NZ4404 (Figure number E13)⁴. It incorporates a services/landscaping berm along both boundaries, with a shared path along one side and pedestrian path along the other; it also provides sufficient width for recessed parking if preferred. The total seal width of 11m meets the MDC standard where recessed parking laybys are provided.

The Type 2 cross section provides a 15m road reserve width. It is similar to the Residential / Village Street Cul-de-sac serving less than 12 dwellings, it also meets NZ4404 (Figure number E12)⁵. There is adequate width for a services/landscaping berm along both boundaries, a pedestrian path on each side and on-street parking on the carriageway. The proposed seal width does not meet the MDC standard however the carriageway is consistent with the Type 1 cross section (and NZS4404) and slightly wider than comparable streets within Rongotea.

³ Table 3.1 of the Manawatu District Council Engineering Standards For Land Development (dated July 2017)

⁴ Table 3.2 of NZS4404:2010 Land Development and Subdivision Infrastructure

⁵ Table 3.2 of NZS4404:2010 Land Development and Subdivision Infrastructure

The Type 3 cross section (not shown above) is intended to provide consistent 15m road corridor but with diminished vehicle provisions. Its purpose would be to provide for localised property access and the movement of pedestrians and cyclists, without enabling through movement for vehicles. Indicative locations of where these breaks in the vehicle network could be located are shown on the Urban Design Framework (Figure 15) above.

Introducing this third cross-section typology allows the subdivision to provide a grid layout, and maximum permeability for pedestrians and cyclists, while channelling the broader movement of vehicles into a series of crescents. The connected series of crescents provides circulation route options for service vehicles such as rubbish collection trucks.

The cross section would be similar to that suggested for a narrower corridor in NZ4404 (Figure number E11⁶). The proposed 15m corridor provides the flexibility for the detailed features to be determined at subdivision stage.

All roads in the Plan Change area are expected to carry low traffic volumes, with up to around 610 vpd on the primary road connections. These road cross-sections can adequately provide for this level of use along with the movement of pedestrians and cyclists.

5.2 Off-Site Infrastructure

5.2.1 Trent Street

The proposed Plan Change is expected to increase traffic volumes on Trent Street, between the subject site and Thames Street. The existing carriageway is 4.0m to 4.5m wide which will generally provide for one vehicle at a time. At present, if drivers meet travelling in opposite directions, they will need to take an option like using the grass berm or localised widening around the various driveways to move past each other.

Based on existing volumes (100 vpd and 10 vph) and a one-lane bridge style probability analysis (which considers the volume and the length of the one-lane section), opposing drivers are likely to meet around one in every five times they use the road during the peak hours of the day.

The rezoning of the subject site is expected to increase the daily volume on Trent Street from approximately 100 vpd to some 462 vpd (46 vph). Repeating the probability analysis with 46 vph at peak times indicates that drivers would essentially encounter an opposing driver every time they used Trent Street during the peak hours of the day.

Therefore, to support increased use of Trent Street by light vehicles and by service vehicles such as rubbish trucks, it is recommended that it be widened to a two-way sealed width of 6m.

5.2.2 Banks Road

Banks Road is straight and flat in the vicinity of the location of the proposed new intersection. Measurements on site indicate that at 248m of sight distance can be achieved in both directions.

The MDC District Plan requires sight distances of 282m at 100km/h and 113m at 50km/h for accessways (not intersections). This standard, and the less onerous Austroads SISD standard, can be met.

Review of the expected peak hour volumes against Austroads auxiliary turn lane warrants indicates that right turn lane and left turn lane treatments are not required at the intersection. A standard

⁶ Table 3.2 of NZS4404:2010 Land Development and Subdivision Infrastructure

Give Way controlled T-intersection with single lane approaches from all directions is therefore recommended.

It is expected that the new intersection would be designed at subdivision stage and be subject to engineering design approval by MDC. Given that no auxiliary turn lane treatments are required, the existing road reserve and the subject site (20m) are expected to provide adequate opportunity to form a suitable intersection.

It is noted that the existing speed threshold (100km/h to 50km/h) is located in line with the northern site boundary. It may be beneficial in future to move this further south to bring the entire site frontage, and potentially the new subdivision intersections further south, into the 50km/h urban environment.

Any change to the speed limit is ultimately a decision for MDC and would require a separate Council-led process. It is recommended that the Council consider this in due course. The proposed new intersection on Banks Road can achieve appropriate sight distance if the 100km/h threshold remains in place and as such, a speed limit change is not required to enable the rezoning.

The District Plan also contains rules regarding the separation between intersections and accessways. This is something that will need to be considered at subdivision stage in terms of where individual lot accesses are placed around the new intersection on Banks Road.

If the speed limit is to be reduced, there could be merit in considering direct property access to some lots on Banks Road to create side friction and manage vehicle speeds. Alternatively, direct property access could be limited to the internal network only. Either option is available and can be determined at subdivision stage.

5.3 Walking and Cycling

To connect the subject site with key destinations in the village including shops and the school it is recommended that footpaths be provided:

- On the western side of Banks Road from the southern boundary of the site to Severn Street; and
- On the eastern side of Trent Street from the site to Severn Street.

If the speed limit remains 100km/h along the Banks Street frontage a wider path should be considered (to approximately 2.5m) to provide a shared facility. This can be resolved at subdivision stage and there is adequate width within the road reserve to provide either.

6. ROAD SAFETY

The CAS search at Section 2.4 does not suggest any underlying issues with the road network. The Plan Change has provided for a multi-modal transport network and included safety features such as:

- Avoiding long straight sections of road where speeds could be high;
- A shared user path with managed vehicle access to adjacent properties to minimise conflict points; and
- Allowing for service vehicles such as rubbish trucks to move through the area without reliance on reversing or three-point turns.

Residential growth within the Plan Change area will add new vehicle, pedestrian and cycling activity to the network. Specific infrastructure upgrades have been recommended to support this, including widening of Trent Street and new sections of footpath.

Internally, the Plan Change area has been designed to provide space for all modes, to minimise potential conflict points, and to manage vehicle speeds. All new roads and intersections will also be subject to design approvals by MDC.

Overall, it is expected that the on and off-site infrastructure can appropriately support the expected additional demand.

7. PARKING

It is expected the Plan Change area would have the same parking provisions that apply to the existing Village zone. Noting that there are now no minimum parking requirements, in line with the direction set by the National Policy Statement on Urban Development (2020).

In general terms, the proposed lot sizes are more than adequate to provide on-site parking and the proposed cross-sections also provide on-street parking which can be used to meet both resident and visitor demand.

8. PUBLIC TRANSPORT

If public transport services were to be introduced to Rongotea in future, they could be accommodated on the 'Street Type 1' corridors.

The layout of the Plan Change network with connections to Trent Street and Banks Road enables a circulation route around the Village. The entire Plan Change area is within a short walk of the 'Street Type 1' network and would therefore be within a short walk of any such services in future.

9. SUMMARY AND CONCLUSIONS

This TAR has described and assessed the potential transportation effects arising from the proposed rezoning of approximately 21ha of land on the southern side of Rongotea. The rezoning would change the land from its existing Rural 2 to Village zoning.

A multi-disciplinary design team has developed the proposed urban design framework which would yield an estimated 160 to 180 residential lots, ranging from 500 sqm to 1,500 sqm in size.

An indicative transport network has been designed including three cross-section typologies to support the movement of vehicles, pedestrians, cyclists, and servicing vehicles. This network is designed to integrate with the existing network in Rongotea and provide a low-speed and active mode friendly environment within the Plan Change area.



Analysis of expected trip generation and distribution indicates that the surrounding State Highway network and the MDC arterial network has adequate capacity to accommodate expected increases in demand.

This assessment has identified the need for the following infrastructure improvements:

- Widening of Trent Street (between the site and Thames Street) to 6m to provide for two-way traffic movement;
- A priority-controlled T-intersection on Banks Road;
- A footpath on the western side of Banks Road from the southern boundary of the site to Severn Street; and
- A footpath on the eastern side of Trent Street from the subject site to Severn Street.

It is also recommended (although not essential to enable the rezoning) that Council considers relocating the start of the 50km/h zone further south on Banks Road.

Yours sincerely,

<p>Anna Wilkins (CMEngNZ)</p>  <p>Principal Engineer East Cape Consulting Limited</p>	<p>George Eivers (CMEngNZ, CPEng, IntPE)</p>  <p>Principal Engineer / Director East Cape Consulting Limited</p>
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Encl:

Attachment 1 – CAS Outputs

Attachment 2 – Census Data

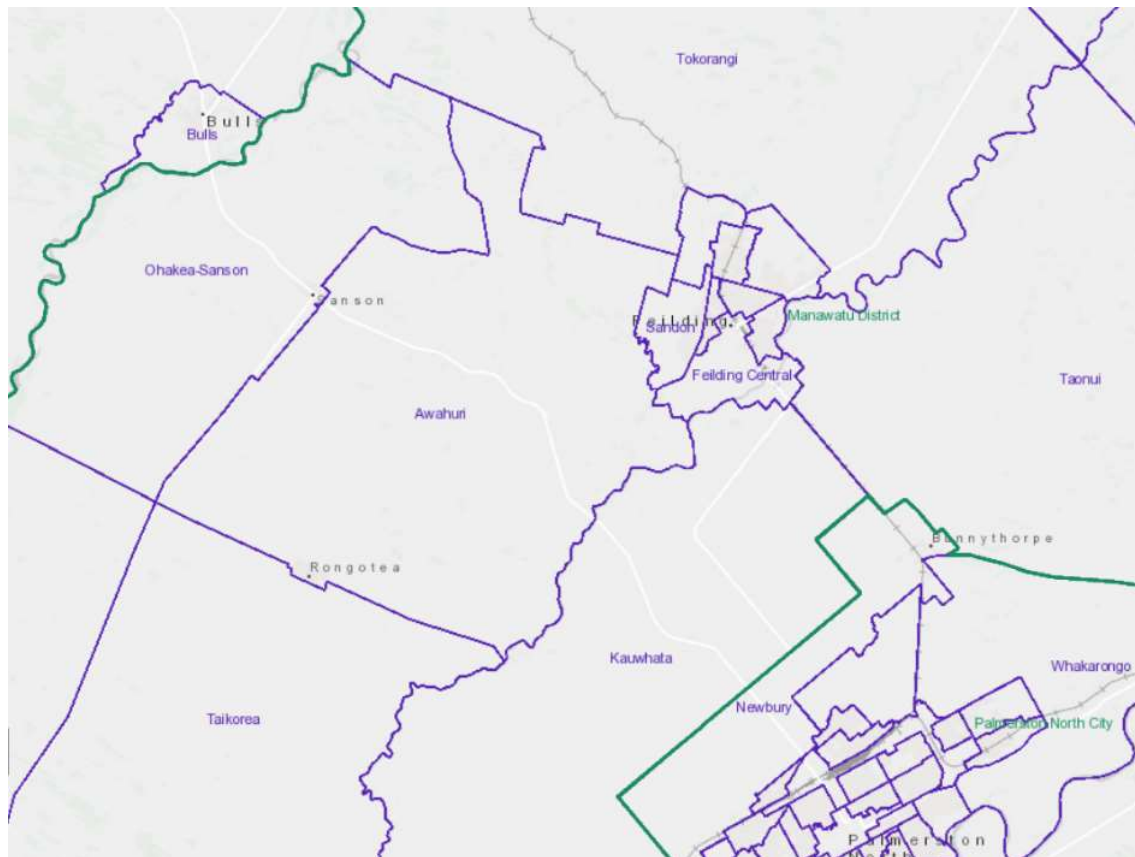
Attachment 3 – Cumulative Traffic Volumes

Attachment 1 – CAS Data

CODED CRASH ID	Crash road	Distance	Direction	Side road	Easting	Northing	Longitude	Latitude	ID	Date	Day of week	Time	Description of events	Surface condition	Natural light	Weather	Junction	Control	Crash count fatal	Crash count severe	Crash count minor
1143213	SEVERN ST		I	MERSEY ST	1806104	5538755	175.42487	40.2943	201737139	23/12/2017	Sat	19:00	Van1 S08 on Severn Street lost control turning right, van1 hit non-specific ditch	Dry	Overcast	Fine	Crossroads	Give way	0	0	0
1161377	THAMES ST	20	E	DOUGLAS SOLARE	1806128	5538955	175.42508	-40.2925	201835930	18/03/2018	Sun	16:20	Van1 W08 on Thames Street, Rongotea lost control, went off road to left, van1 hit non-specific other	Dry	Twilight	Fine	Roundabout	Give way	0	0	0
1110024	THAMES ST		I	MERSEY ST	1806146	5538946	175.42523	-40.2926	201714529	13/06/2017	Tue	6:50	Car/Wagon1 E08 on Tyne St hit Van2 crossing at right angle from right	Wet	Dark	Light rain	Roundabout	Give way	0	0	1
1219134	THAMES STREET		I	MERSEY STREET	1806165	5538940	175.42552	-40.2926	2020145308	16/02/2020	Sun	2:10	Car/Wagon1 W0E on Rongotea Road lost control but did not leave the road, Car/Wagon1 hit fence, building, roundabout,	Dry	Dark	Fine	Roundabout	Give way	0	0	1
1213943	THAMES STREET		I	TYNE STREET	1806370	5538846	175.42796	-40.2934	2020141227	3/01/2020	Fri	9:49	Cycle1 N0R on THAMES STREET hit Car/Wagon2 crossing at right angle from right	Dry	Overcast	Fine	Crossroads	Give way	0	0	1

Attachment 2 – Census Data

Awahuri Statistical Area



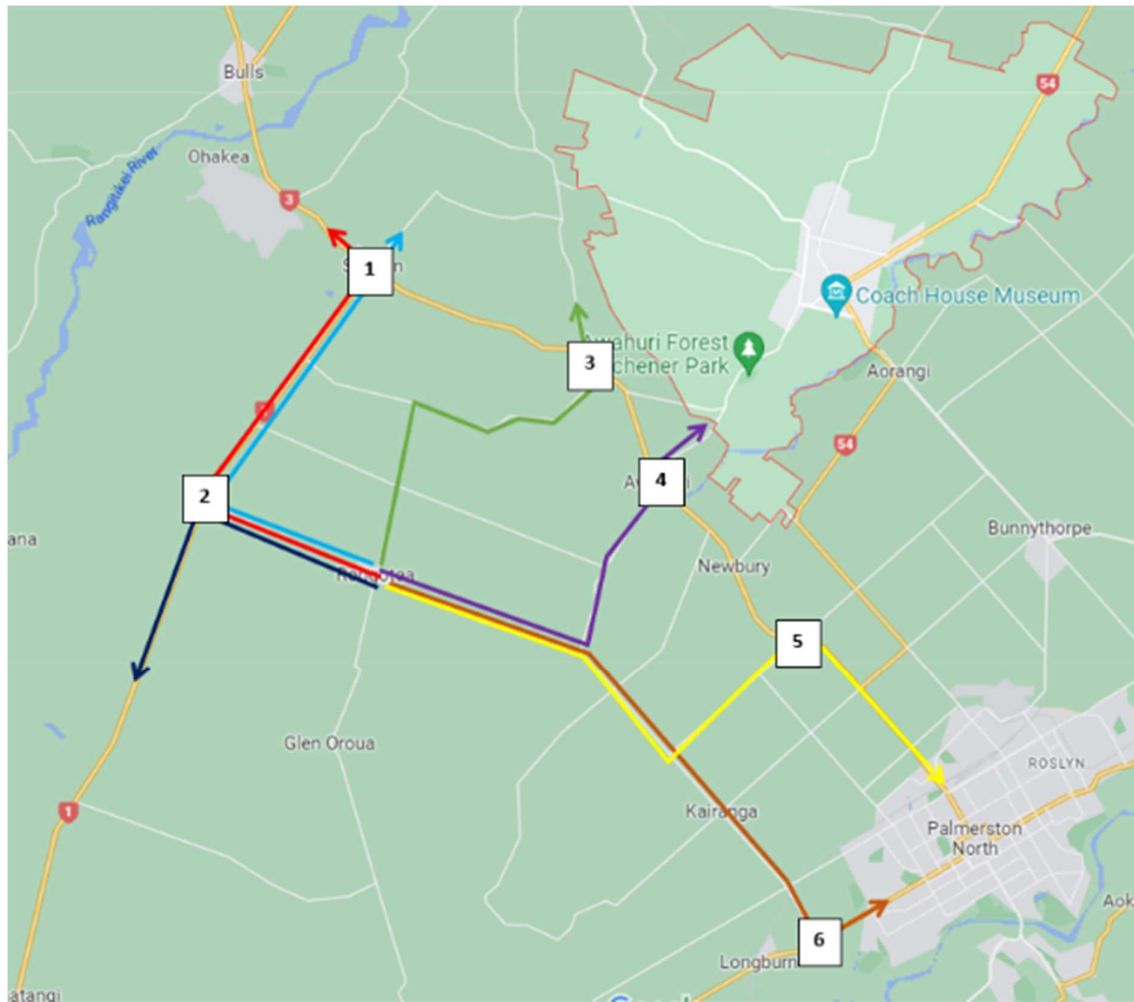
Destinations for work or school travel for people normally resident in Awahuri:

Destination	People	% of Total
Tokorangi	12	1.10%
Kimbolton North	48	4.42%
Warwick	9	0.83%
Taikorea	36	3.31%
Oroua Dows	6	0.55%
Ohakea-Sanson	24	2.21%
Awahuri	423	38.95%
Awapuni South	18	1.66%
Linton Camp	9	0.80%
Turitea	33	3.04%
Esplanade	15	1.38%
West End	12	1.10%
Takaro North	9	0.83%
Kauwhata	15	1.38%
Newbury	24	2.21%
Tremaine	75	6.91%
Papaioea North	6	0.55%
Palmerston North Hospital	15	1.38%
Milson South	9	0.83%
Fielding Central	87	8.01%
Bulls	12	1.10%
Marton North	6	0.55%
Kimbolton West	33	3.04%
Kimbolton South	24	2.21%
Palmerston North Airport	18	1.66%
Roslyn	18	1.66%
Palmerston North Central	90	8.29%

Mode of travel for people normally resident in Awahuri:

Travel Models	% of Total
Other	1.0%
Work at home	17.0%
Drive private car	45.0%
Drive company car	9.0%
Passenger	18.0%
Walk	6.0%
Bus	3.0%
Cycle	1.0%
Ferry	0.0%
Train	0.0%
TOTAL	100.0%

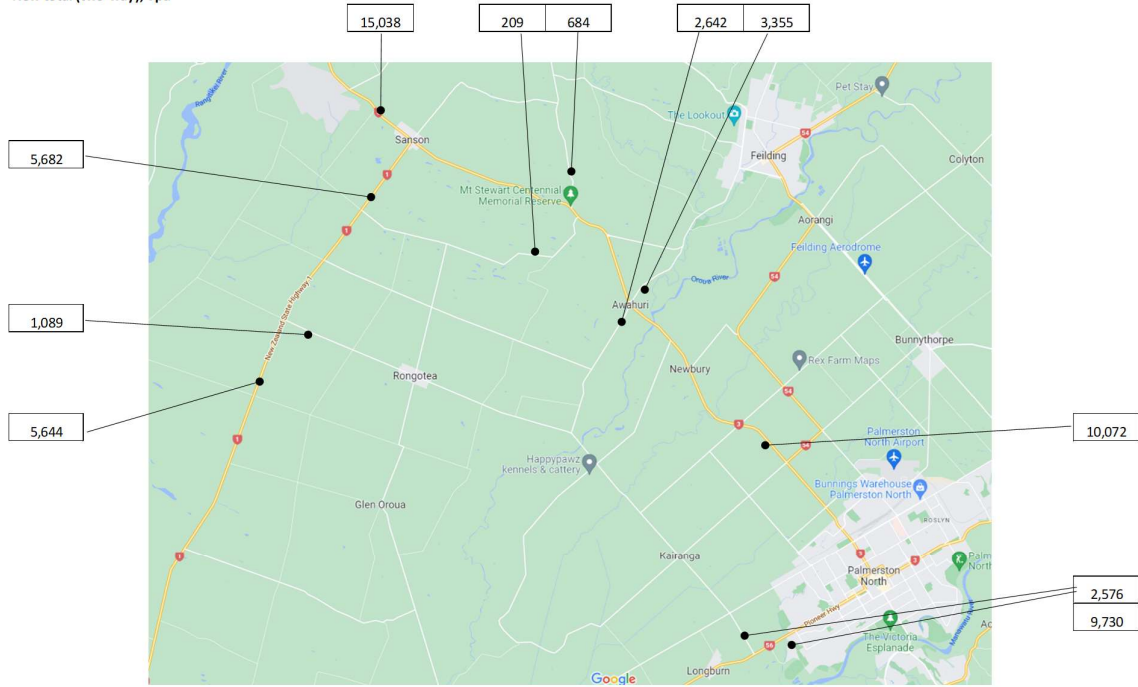
Travel route options:



Attachment 3 – Cumulative Daily and Peak Hour Volumes

Daily Totals

New total (two-way), vpd



Peak Hour Totals

% Change

