Planning | Surveying | Engineering | Environmental

Integrated Transportation Assessment

Lake Whakamaru

1861 Ongaroto Road, Kinleith

DOCUMENT CONTROL

CKL REFERENCE	B20270
DOCUMENT STATUS	Approved
REVISION NO.	2
FILE NAME	B20270-TR- -ITA
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DATE	5 April 2023
OFFICE OF ORIGIN	Hamilton

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1 Introduction

1.1.1 CKL has been engaged to assess the effects of a proposed rezoning of the site located at 1861 Ongaroto Road (SH30), Whakamaru. The site is located within the South Waikato District and is included within the rural zone as stipulated in the Operative South Waikato District Plan (District Plan). It is proposed to rezone the site to be within the Rural-Residential zone.

1.1.2 Assuming the proposed rezoning is accepted, it is expected that the site would be subdivided into 66 lots where each lot is anticipated to be developed to accommodate a single dwelling. A future subdivision would be expected to include a new internal road network to provide access to the future dwellings. Initial consultation has also been undertaken with Waka Kotahi given that the site has frontage to SH30 only.

1.1.3 This assessment has considered the transportation effects of the proposed Plan Change and the associated effects of a subdivision. By way of summary, it can be concluded that proposed Plan Change can be supported from a transportation and access perspective.

2 Site Location

2.1.1 The site is located at 1861 Ongaroto Road as outlined in Figure 1 where Ongaroto Road is part of the State Highway 30 (SH30) designation. The site is adjacent to Lake Whakamaru which has been created by the Whakamaru Dam located approximately 1.5km northwest of the site and is part of the Waikato River.

Figure 1: Site Location (Google Earth)

2.1.2 The site was formerly used for forestry activities and has recently been cleared. The existing site access can be seen on the aerial image and is located on the inside of a horizontal curve and is approximately 350m south of the site's northern boundary. This access was used during the clearing of the site and will be removed as part of any future development of the site.

2.1.3 A boat ramp to Lake Whakamaru is provided just north of the site and no changes are proposed to this boat ramp or its access. There will no direct access from the site to the boat ramp.

2.1.4 The Lake Whakamaru Reserve is located along the southwestern boundary of the site adjacent to the lake. The proposed rezoning will not allow future development within this area, maintaining the reserve space as a reserve.

3 Existing Road Network

3.1 Physical Environment

3.1.1 SH30 provides a connection from Rotorua to Te Kuiti. Adjacent to the site, it is a two-way, two-lane road with a painted centreline. The carriageway is approximately 7m wide within a 20m road reserve. There are approximately 2m wide unsealed shoulder on both sides of the carriageway and the posted speed limit is 100km/h. Figure 2 shows the typical cross section of SH30 across the frontage of the site.

Figure 2: SH30 Looking Southeast

3.2 Existing Traffic Volumes

3.2.1 Existing daily volumes on SH30 have been extracted from the Waka Kotahi TMS database. The count site is located approximately 5km east of the site however there are no notable driveways or intersections between the site and the count location. At this location, SH30 is reported as carrying some 862 vehicles per day with up to 118 vehicles in the peak hour.

3.3 Road Safety

3.3.1 A search was made of the Waka Kotahi Crash Analysis System for all crashes that had been reported on SH30 within 200m of the site's frontage over the last five years. The search found that two crashes had been reported within the study area, neither of which resulted in any injuries.

3.3.2 Both crashes occurred north of the horizontal curve near the southern extent of the site. One of these was due to a northbound vehicle losing control on the corner likely to due to alcohol and excessive speed. The other crash was due to a southbound vehicle swerving to avoid a wild animal.

3.3.3 Given the low severity and number of crashes report, no specific road safety issues or trends have been identified in the vicinity of the site.

3.3.4 A check of Waka Kotahi MegaMaps has identified the personal and collective risk ratings of Otongaro Road in the vicinity of the site as Medium High and Low Medium respectively.

3.3.5 Collective risk is the measure of how likely a crash is to happen along a given stretch of road network. Personal risk relates to the chance that if a crash does occur that it involves a given individual. It is not unusual to see higher personal risks on a road, particularly when there are low traffic numbers.

3.3.6 The associated risk ratings of Medium High personal risk and Low Medium collective risk aligns with the observed crash record in the vicinity of the site and therefore demonstrates that the road corridor operates in what can be considered relative safety.

4 Sustainable Travel Modes

4.1.1 There are currently no dedicated footpath or cycle facilities along the site frontage of SH30, which is consistent with the existing rural character of the area. Similarly, there are no bus services that operate in the vicinity of the site.

4.1.2 The Waikato River Trail is a track along the banks of the Waikato River. This is predominantly for cyclists given its length however pedestrians are also able to use this path. The subject site is located between the River Trail and SH30 with the River Trail providing an off-road connection for active mode users from the site to Whakamaru approximately 2.5km from the

site. Based on Waka Kotahi Research Report 426, the average cycling trip length is 3km and Whakamaru town is therefore well within cycling distance of the site.

5 Committed Environmental Changes

5.1.1 No future projects are known to be committed or planned in the vicinity of the site that would affect the transportation environment in the area.

6 Proposal

6.1.1 It is proposed to rezone the site at 1861 Ongaroto Road from the Rural to Rural-Residential zone to allow for future residential development. Figure 3 below shows the proposed rezoning of the site.

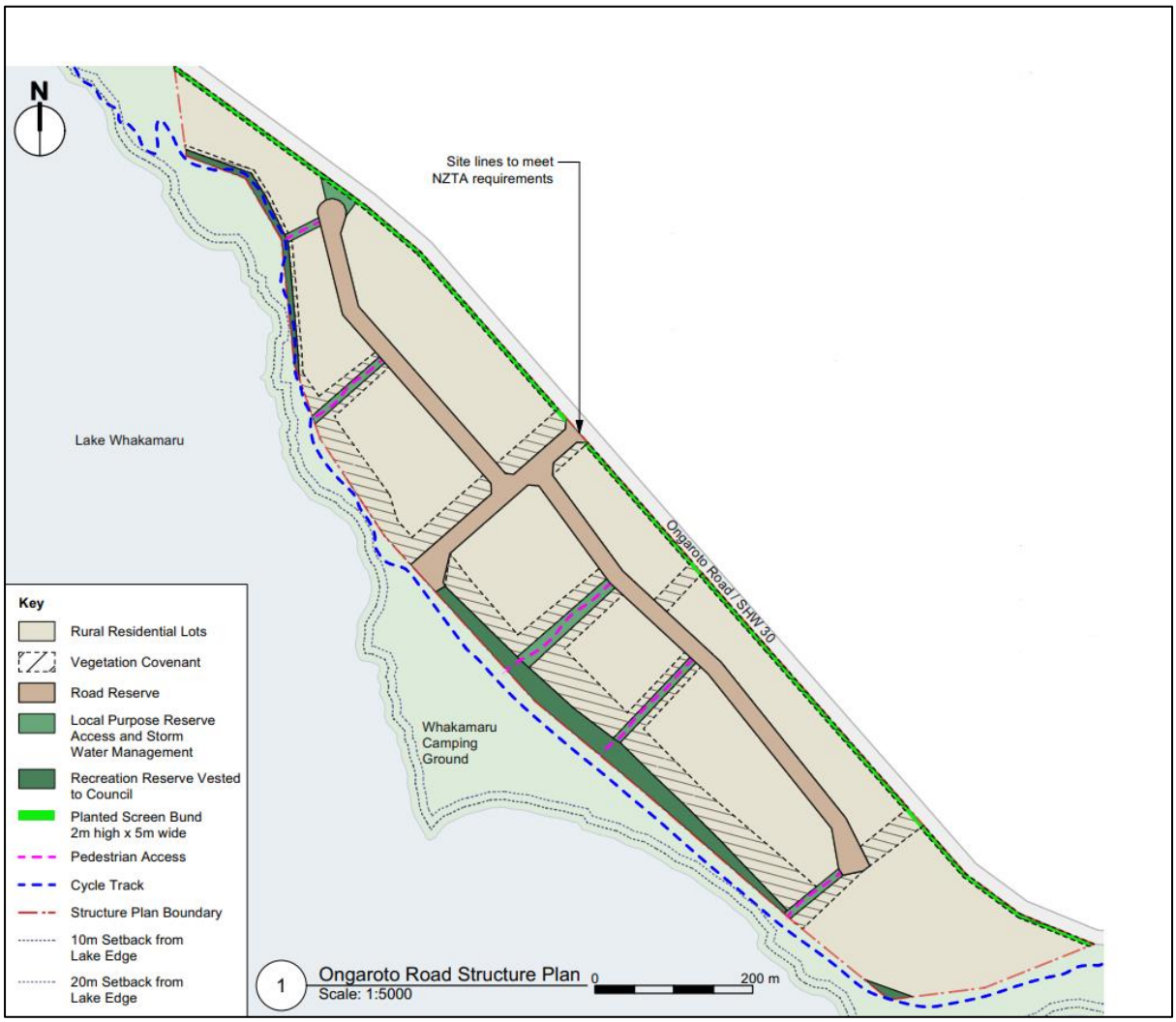

Figure 3: Proposed Plan Change

6.1.2 Assuming the Plan Change is accepted, it is anticipated that the site would be subdivided to allow for future residential development. A total of 66 lots would be expected for the site and Figure 4 below shows a potential site layout.

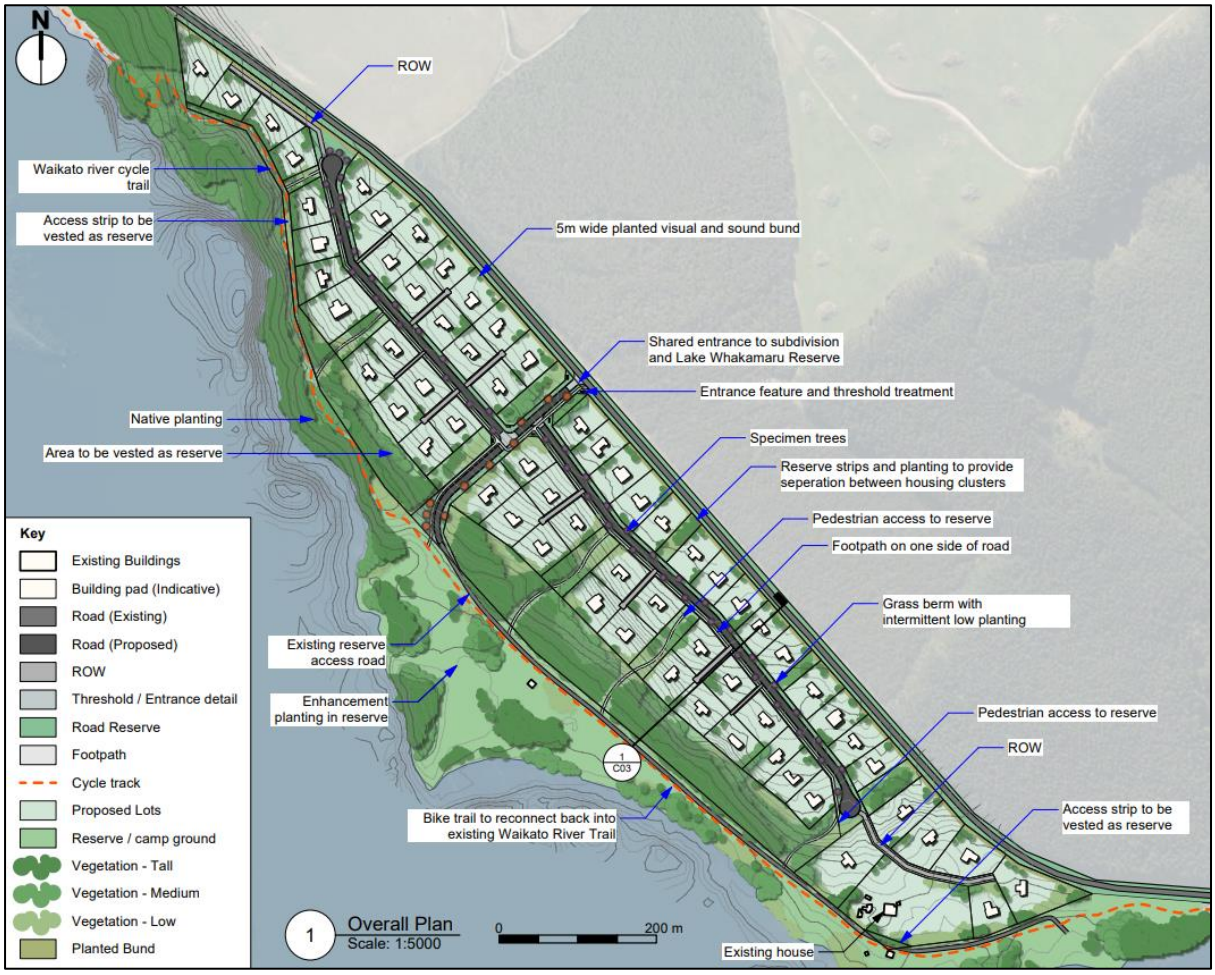

Figure 4: Potential Subdivision Layout

6.1.3 The existing access from the site to SH30 will be removed and a new internal road network created with only a single access to SH30. The new intersection to SH30 will be located to provide appropriate visibility and a right turn bay will also be provided on SH30 to assist vehicles turning right into the site.

6.1.4 All new lots would be expected to gain access to the internal road network with no direct property access to SH30. The internal road network is expected to be publicly vested and will also enable public access to Lake Whakamaru Reserve and the Waikato River Trail.

6.1.5 Consultation has also been undertaken with Waka Kotahi and a summary of the consultation to date is provided in Appendix A of this report.

7 Traffic Effects

7.1.1 From Waka Kotahi Research Report 453 Trips and Parking Related to Land Use (RR453) a rural dwelling is expected to generate 1.1 trips in the peak hour and 8.5 trips per day. For 66 lots, this equates to 73 trips in the peak hour and 561 over the course of the day.

7.1.2 As noted in section 3.2 previously, SH30 is reported as carrying some 118 vehicles in the peak hour. The addition of 73 vehicle movements would therefore result in a total of 191 vehicles in the peak hour. The carrying capacity of a single lane of traffic is typically at least 1,000 vehicles per hour. The future volumes are still less than 200 vehicle movements and therefore well within the carrying capacity of the road.

7.1.3 The surrounding road network is therefore considered to be able to accommodate the future traffic volumes of the proposed Plan Change and subdivision.

8 Access Effects

8.1.1 At present, the site has a single access to SH30. This was primarily to provide access to the lakeside reserve but was also used when the site was used for forestry activities. It is expected that this existing access would be removed as it is opposite another forestry access road and located on the inside of slight bend and between two vertical crests which limit visibility for this access location.

8.1.2 The District Plan includes standards for visibility and separation at intersections to the State Highway network. This aligns with those provided within the Waka Kotahi Planning Policy Manual (PPM). The posted speed limit of SH30 is 100km/h and the operating speed has been taken as 110km/h, 10km/h above the posted speed limit. Therefore, at least 282m visibility should be available for the intersection to SH30 and that intersection should be at least 200m from another intersection or access.

8.1.3 The proposed intersection is approximately 350m south of the existing access into the site. At this location, there is 285m visibility available to the south which is limited by a vertical crest. Over 300m visibility is available to the north which is limited by the horizontal curve close to the existing site access. However, at least 282m visibility is available in both directions and there is also over 300m from another intersection or access which satisfies the District Plan and PPM requirements. In comparison the visibility from the existing site access was over

300m to the north but approximately only 160m to the south and this was opposite another access. The proposed intersection location is therefore assessed as being appropriate and an improvement when compared to the existing access location.

8.1.4 Part 6 of the Austroads Guide to Traffic Management *Intersections, Interchanges and Crossings* includes warrants to identify when a right turn bay is appropriate for an intersection. Background traffic on SH30 is 118 vehicles per hour. Future development based on a Rural-Residential zoning is expected to generate up to 73 vehicles in the peak hour. Of these, up to 80% (58) are expected to be outbound in the morning peak hour and then returning in the evening peak. As such, up to 58 vehicles may be turning into the site in the peak hour. Figure 5 below is the warrant diagram from Austroads with the orange lines marking the background and turning traffic volumes.

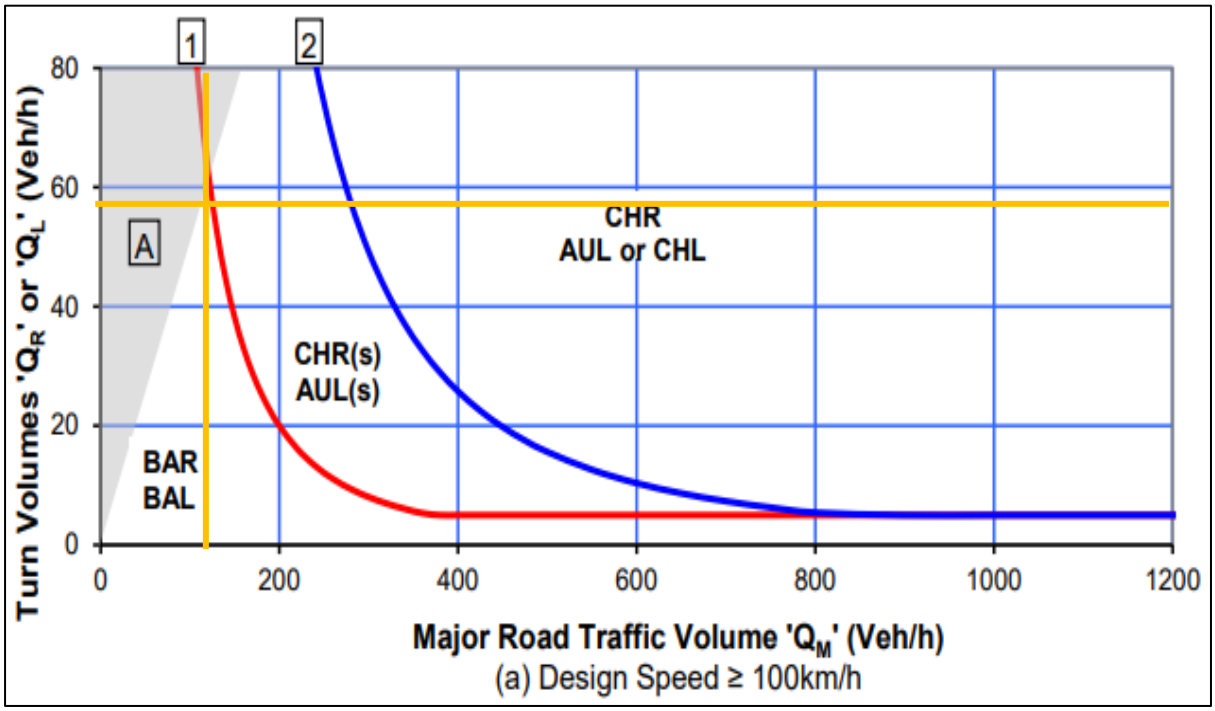

Figure 5: Right Turn Bay Warrants

8.1.5 The point of intersection on the graph is just below the red line which identifies when a right turn bay should be considered. A turning volume of 58 vehicles intersects with the red line, the time at which a right turn bay is warranted, at a major road volume of 126 vehicles per hour. This is an increase of only eight vehicles above current volumes. Prior to 2020, traffic volumes on SH30 had been growing at an approximate rate of 3% per annum. The addition

of eight vehicles is an increase of 7% above current traffic volumes. Therefore, an increase of this magnitude would be achieved within five years.

8.1.6 Given this relatively short time frame, it is considered that providing a right turn bay as part of a future subdivision is appropriate for the site. This would be designed in accordance with the Waka Kotahi Manual of Traffic Signs and Markings (MOTSAM). Localised carriageway widening would be required to accommodate the right turn bay at this location given that the existing carriageway is approximately 7m wide. The detailed design for this intersection would be completed at Engineering Plan Approval stage associated with any future subdivision.

8.1.7 The internal roads within the site would be publicly vested in South Waikato District Council. The District Plan refers to the Waikato Infrastructure Technical Specifications (RITS) for road standards which in turn refers back to District Plan for public road standards. The proposed road reserves are 22m wide as illustrated provided in Figure 6 below. Similar to the design of the intersection to SH30, the cross-sectional detail would be considered in greater detail as part of future subdivision consent applications.

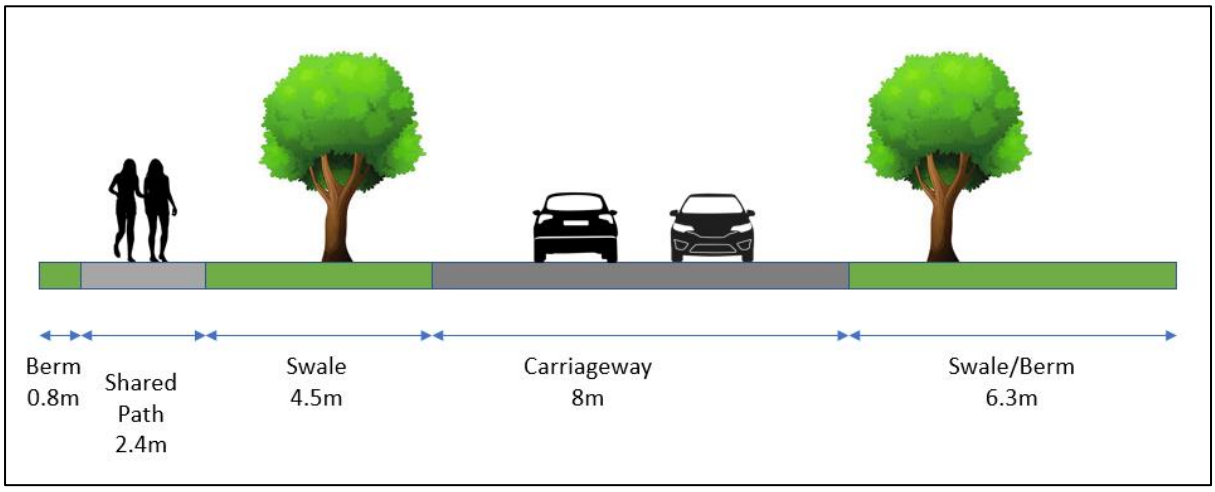

Figure 6: Indicative Internal Road Cross Section

8.1.8 It is anticipated that any future subdivision would include T-intersections between on-site roads. Based on the concept layout, one intersection would be approximately 80m from SH30 which aligns with the District Plan and PPM standard of having at least 60m between an intersection and an intersection to a State Highway. The RITS standard states that intersections on the opposite side of a local road should be at least 30m apart. The separation

between the two internal intersections is approximately 45m which satisfies this standard. This demonstrate that a future subdivision can comply with the relevant design standards.

8.1.9 All lots created would have access established to the internal road network with no direct access provided onto SH30. This ensures that the site would continue to have only one access onto SH30. It is recommended to include a rule was part of the Plan Change that states that no future subdivision of 1861 Ongaroto Road can include direct property access to SH30.

8.1.10 Overall, future access arrangements and internal road networks can be fully compliant with the District Plan and Waka Kotahi standards and are assessed as being appropriate for a future subdivision.

9 Parking Effects

9.1.1 The District Plan requires at least one parking space per dwelling. Given that each potential lot is at least 2,500sqm in size, it is expected that at least one parking space can be provided within each lot with parking spaces designed to comply with the District Plan standards.

10 Construction Effects

10.1.1 It is standard practice as part of the resource consent that a Construction Traffic Management Plan (CTMP) is developed to outline how deliveries to and from the site will be managed and mitigated. It is expected that that this would be part of any future subdivision application rather than being a specific rule or condition in relation to the proposed Plan Change. The CTMP should include the following:

- Construction dates and hours of operation including any specific non-working hours for traffic congestion, noise, etc;
- Diagrams identifying which routes trucks will use to travel to and from the site;
- Temporary traffic management signage / details to appropriately manage vehicles and pedestrians in the vicinity of the site; and
- Details of site access / egress over the entire construction period noting that all access points to be located so that appropriate visibility is achieved onto the adjacent road network.

10.1.2 Based on experience with the construction planning and traffic management associated with similar subdivision, it is considered that construction activities can be managed to ensure an appropriately low level of construction traffic effects. Of note, the construction activities are temporary and with appropriate measures in place as identified above, will be able to be managed.

10.1.3 Construction traffic effects are therefore considered to be less than minor and can be managed through the CTMP.

11 Planning Framework

11.1 Objectives and Policies

11.1.1 Section 7 of the District Plan includes infrastructure related objectives and policies, including those related to transportation. The relevant objectives and policies are summarised in Table 1 below along with commentary stating whether the proposed Plan Change and expected residential development align with the objective or policy.

Table 1: District Plan Compliance

Ref	Objective	Comment	Alignment
7.2.1	To ensure that an integrated, efficient, safe and sustainable transportation network is maintained and enhanced to support the social and economic wellbeing of people and communities in the District including provision for active transport and physical activity options.	The site is located within cycling distance of a commercial area which reduces reliance on private vehicles for the future residents. The number of traffic movements expected to be generated is not large, with even fewer heavy vehicles. There is unlikely to be a notable increase in maintenance requirements of the road network.	Aligns
7.2.2	To ensure safe and efficient land use, subdivision and development, well-integrated with the functions of different roads, and which is designed to provide for appropriate alternative transport modes (particularly walking and cycling).	The site is within cycling distance of a commercial area with an off-road path that reduces reliance on private vehicle modes and supports residential zoning of the site.	Aligns
Ref	**Policy**	**Comment**	**Alignment**
7.3.2	Establish networks of parks and walkways along the urban streams to provide linkage between neighbourhoods.	The Waikato River Trail already exists adjacent to the site providing a linkage along the waterway. Public access will be maintained through the site to the River Trail	Aligns

7.3.11	Development should be located, designed and managed to minimise the need to travel, minimise conflict to and across arterial routes, and provide appropriate access.	The Whakamaru commercial area is located within 3km of the site and the proposed Plan Change enables additional commercial development to support future residents. Only one access is proposed from the site to SH30.	Aligns
7.3.12	Protect the safety and efficiency of the land transport network from the adverse effects of inappropriate noise-sensitive activities located close to State Highways and designated rail corridors.	A noise bund is proposed along the site frontage between the site and SH30. A noise expert can confirm but it is expected that this bund would align with this policy.	Alignment expected
7.3.13	Ensure vehicle access onto the transportation network does not adversely affect to a more than minor extent the safety, efficiency operation and maintenance of these roads and other road users.	As outlined in Section 7, the surrounding road network is considered to readily accommodate the traffic associated with the site.	Aligns

11.1.2 Overall, the proposed Plan Change and expected development aligns with the transportation objectives and policies of the District Plan.

11.2 Compliance Assessment

11.2.1 A future development would be required to meet the provisions set out in Section 11 of the District Plan. Table 2 below summarises the ability of a future development to comply with the relevant transportation criteria from the District Plan.

Table 2: District Plan Compliance

Rule	Requirement	Proposed	Compliance
11.3.1 Provision of Vehicle Parking			
a)	Dwellings - 1 space per household unit	Parking provision for each lot will be determined at a subsequent stage of development	Compliance expected
b)	All parking spaces shall be formed and sealed or otherwise maintained to the satisfaction of Council so as to avoid creating a dust nuisance or permit vehicles to carry material such as mud, stone, chip or gravel onto the public road or footpath	Parking spaces expected to be constructed to District Plan standards	Compliance expected
c)	The dimensions and layout of parking spaces shall be in accordance with Figure 1, and the spaces shall be marked to delineate the parking space	Parking spaces expected to be constructed to District Plan standards	Compliance expected

d)	Every parking space shall be provided with the necessary manoeuvring space and access from and to the road, without requiring another vehicle to be moved	Parking spaces expected to be constructed to District Plan standards	Compliance expected
e)	All required parking and manoeuvring space shall be kept clear to ensure it is able to be used for its intended purpose	Parking spaces expected to be constructed to District Plan standards	Compliance expected
f)	Parking spaces shall have a gradient of no more than 1 in 8 in any one direction	Parking spaces expected to be constructed to District Plan standards	Compliance expected
g)	Where the assessment of the number of parking spaces results in a fractional space being required, any fraction less than half shall be disregarded. Fractions of one half or greater shall be considered as a requirement for one more parking space	Rounding can be undertaken accordingly	Compliance expected
h)	Where activity on the site involves more than one category of land use, and those uses are unlikely to occur at the same time, parking will be calculated in relation to the activity having the greatest requirement. For a multi-purpose site where more than one facility may be used at the same time, the total parking requirements for each facility will have to be provided	Only residential activities are anticipated by the zoning	N/A
i)	All on-site parking spaces and manoeuvring areas shall be located on the site containing the activity that they are intended to serve	Parking spaces expected to be constructed to District Plan standards	Compliance expected
11.3.2 Provision of Loading Spaces			
a)	Where a change of use occurs that would increase the amount of goods handling by an activity, or where the floor area of a building is increased, an off-street loading space shall be provided in the following circumstances: i) on every site in the Industrial Zone, the Tokoroa Business Zone, and the Putāruru Business Zone, except those sites where loading can be undertaken from an adjoining formed service lane, and except where the landowner is able to demonstrate that there are sufficient loading spaces on-site for the demand generated by any change of use or increase in floor area. ii) on every site in the Town Centre zones, except those sites where loading can be undertaken from an adjoining formed service lane.	Site not in these zones and no loading spaces expected given only residential activities proposed to be allowed by the rezoning.	N/A
b)	Loading spaces shall have at least a minimum width of 4 metres and a minimum depth of 8.5 metres	No loading spaces expected.	N/A
c)	All loading spaces shall be accessible at all times and not used for other purposes	No loading spaces expected.	N/A
d)	Loading spaces are not required in rural areas, however all stock loading races and other loading/unloading facilities shall be located to avoid any vehicles undertaking loading or unloading on a public road.	No loading spaces expected.	N/A
11.3.3 Vehicle Manoeuvring			

a)	On-site vehicle manoeuvring (such that reversing onto a road is avoided) is required to be provided for every parking and loading space provided on-site, in the following circumstances: Where a site bounds a state highway	No reverse manoeuvres anticipated	Compliance expected
b)	Where a site bounds a road with a posted speed limit of 70km per hour or greater	No reverse manoeuvres anticipated	Compliance expected
c)	Where any vehicle entrance serves more than 3 required parking and/or loading spaces; or	No reverse manoeuvres anticipated	Compliance expected
d)	Where a site is a rear site with vehicle access provided by an accessway in excess of 30 metres in length.	No reverse manoeuvres anticipated	Compliance expected
11.3.4 Access			
a)	A formed vehicle crossing shall be provided to each site in accordance with Table 2, including on sites where there is an existing crossing but where the character, intensity or scale of the land use activity increases	Vehicle crossing design to be confirmed at later stage. Compliance expected	Compliance expected
b)	Accessway gradients shall not exceed 1 in 6	Accessways expected to not exceed 1 in 6 grade	Compliance expected
c)	Vehicle crossings onto state highways shall comply with Table 3, or comply with NZTA requirements.	No vehicle crossings to state highway	N/A

11.2.2 Overall, the proposed subdivision is expected to comply with the transportation rules in Chapter 11 of the District Plan.

12 Conclusion

12.1.1 It is proposed to rezone the site at 1861 Ongaroto Road from the Rural to Rural-Residential zone to allow for future residential development. It is anticipated that the site could be subdivided into 66 lots where each lot would be developed into a single dwelling. Based on the assessment of traffic effects undertaken it is concluded that:

- The site may generate some 73vph in the peak hour and 561 vehicles over the course of the day. This additional traffic is able to be accommodated by the surrounding road network. No mitigation measures have been identified as necessary to accommodate the additional traffic volumes.

- A new intersection onto SH30 is able to comply with the District Plan and Waka Kotahi PPM standards. A right turn bay is recommended to future proof this intersection in

anticipation of increases in background traffic and to align the intersection with the Waka Kotahi Safe Systems strategy.

- A new internal road network will be established. The internal roads would have a legal width of 20m which is sufficient to provide an appropriate road network for the future development. It is recommended to include a rule that states that no individual property access is permitted to SH30 as part of any future subdivision.

- Individual lots within the subdivision are at least 2,500sqm in size which is considered suitable to provide sufficient access and parking to comply with the District Plan rules. No non-compliances have been identified in relation to the transportation rules of the District Plan.

- The Waikato River Trail runs along the western side of the site and provides a route for pedestrian and cyclists to the commercial activities within Whakamaru. This reduces reliance on private vehicle modes.

12.1.2 Overall, it is assessed that the traffic effects of the proposed Plan Change will be less than minor.

CKL

Appendix A – Waka Kotahi Consultation

Initial consultation was undertaken with Waka Kotahi given that the site has frontage and access to SH30. The preliminary feedback is provided below with additional commentary provided in response to the Waka Kotahi feedback:

> *"The proposed location of the entranceway needs to be carefully looked at as there's a slight vertical curve, that is more prominent at the southern side, Atiamuri side, of the proposed entranceway. The type and design of an entranceway should come out in the ITA. Note the existing entranceway services the reserve so some form of access to this area will still be needed.*
>
> *The proposed access location appears well-considered in terms of providing an approaching user with as much advanced sight distance as possible. Regarding the proposed access type, though 'T-intersections' with right-turn-bays have their appropriate purpose and place, you will need to show how you have considered the 'Safe System' approach to determine the preferred intersection option, and how the preferred option will cater for all road users in a high speed environment.*
>
> *In considering the 'Road to Zero' strategy and Governments 'Emissions Reduction Plan', new developments should work towards providing safe 'vehicle / road user' interactions that minimise the potential for harm and offer options for travel that reduce vehicle kilometres travelled."*

The visibility from the proposed intersection location has considered the vertical geometry of the road. The vertical crest is the limiting case for visibility to the south.

Sections 8.1.4 and 8.1.5 previously provided detail regarding the type of intersection to SH30. While not currently warranted, a right turn bay is recommended given the future growth expected on SH30 would warrant a right turn bay within five years' time. Given that traffic volumes through the intersection are well below 1,000 vehicles per hour, an intersection with a higher capacity, such as a roundabout or signals, is not considered necessary. Pedestrians and cyclists are unlikely to use the intersection given that the Waikato River Trial is located west of the intersection and there are no public transport services operating in the vicinity of the site. As such, a T-intersection is considered to be an appropriate intersection form when considering the future users of the intersection. Providing a right turn bay aligns with the 'Safe System' approach by separating turning traffic from through traffic and reduces the risk of a crash occurring particularly within a high-speed environment.

As stated above, the right turn bay is considered to reduce the risk of a crash occurring at this intersection location. Non-vehicular road users have an off-road path available to a nearby commercial area thereby minimising the potential for intersection between different travel modes. This is considered to align with the 'Road to Zero' strategy. Similarly, the presence of the Waikato River Trail reduces the reliance of future residents on private vehicles which aligns with the 'Emissions Reduction Plan'.

Waka Kotahi also asked for a formal Integrated Transportation Assessment (ITA) to be provided. This report satisfies that request and sent to Waka Kotahi for additional comments in November 2022.

Following on from sending the ITA to Waka Kotahi, the following comments were received:

> *Waka Kotahi engineers and planners have assessed the application regarding a private plan change for 1861 Ongaroto Road (SH 30). The proposal is to rezone Lot 9 DP 425239 from Rural to Rural Residential. If the rezoning is accepted, it is expected that a 66-lot subdivision may be proposed.*
>
> *We have provided the following high-level comments:*
>
> - *With appropriate design and form, safe and efficient access to the site can be achieved in principle. It is important to note that the access solution and detailed design will need to be determined and conditioned at the subdivision stage.*
> - *This section of state highway 30 is low volume which reduces risk. Moreover, acceptable access sightlines are achievable.*
> - *Mitigation regarding reverse sensitivity will be required at subdivision stage, due to the location it is likely our standard requirements or appropriate setbacks will need to be met.*
> - *We believe it is important that the plan change application assesses the appropriateness of growth in this location from a multi-modal transport integration perspective.*
>
> *Should the plan change be accepted by Council for processing, we look forward to engaging with you further and submitting at the notification stage*.

No additional questions or information were required or requested. Allowing for consultation with Waka Kotahi at future development stages is considered to be appropriate.