Lauren Patterson

From: Colin Hattingh
Sent: Friday, 17 February 2023 2:42 pm
To: Laura Galt
Subject: UD Comment: Plan Change 13 Te Rapa Racecourse

Follow Up Flag: Follow up
Flag Status: Flagged

Hi Laura, thanks for sending through.

These comments are in relation to Appendix D of the report.

1. **UD Advisory Panel**

- The proposal was presented to the UD Advisory Panel on 12 May 2022
- The Panel provided a number of comments and recommendations. In terms of an appropriate land use response the following comments are relevant:
    - *"The Panel notes that the site is well placed in terms of potential amenity and connectivity for future residents, with sports and swimming facilities, outdoor recreation, retail and public transport all in immediate proximity"*
    - "*The site has a range of possible land use options available to it, being a buffer currently between land uses including residential, open space, commercial or light industrial"*
- In relation to the proposed **residential use**, the Panel commented that the applicant should: "*think about how the development is going to meet the needs of the city and local community, particularly considering government directives for higher residential densities in Tier 1 cities"*. The Panel indicated their support for higher densities.
- In relation to the concept masterplan, the following comments are relevant:
    - "*there is a disconnect between the two designated development areas*" and that the housing should respond to and integrate with the open spaces.
    - The panel raised concerns regarding the proposed racetrack shape particularly in respect to visibility (safety)
- As illustrated below, in response to the Panel's recommendations, the concept plan was completely revised noting changes that will help future flexibility, a range of dwelling typologies, improved integration of the open space elements and the improved / safer roading layout.

Original

Amended

2. UD Report

- I have read through the report and in particular would like to highlight the following positive elements of the proposed design and layout:
    - A strong building frontage will be presented to the streets and open spaces
    - Buildings at corners and the ends of vistas are expected to be distinctive
    - The buildings which front the proposed landscape margin on the eastern boundaries will address potential noise factors
    - Elements of open space are built into the design to support an attractive urban landscape character
- The assessment of the design against the VISTA design elements is acknowledged and supported.

3. Conclusions

- Having read the plan change documentation, with a focus on the overall intent, the UD approach and the associated proposed rule framework, I am of the opinion that this is a well-considered proposal, that will provide for good quality residential land, that is well-located in relation to a number of other facilities and uses including various community facilities and transport routes and connections.
- The UD report contains a finer grain level of detail and diagrams that are not proposed to be included within the district plan. This, however, does not imply that the vision as articulated in the UD report cannot be realised as the plan change touches on a number of chapters and introduces a set of provisions for the precinct that will be read in conjunction with those introduced through PC12.

Thanks
Colin

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City Safe Unit

To:	Kylie O'Dwyer		
From:	Peter McGregor – Environmental Health Manager		
Subject:	Plan Change 13 – commentary on noise aspects of the proposed plan change		
Date:	22 June 2023	File:	

1. INTRODUCTION

1.1 Te Rapa Racecourse proposes to rezone an unused area of their larger site for residential development.

1.2 An acoustic assessment report titled 'Plan Change 13 Acoustic Assessment' (Marshall Day Acoustics, 19 July 2022) (referred to within this memo as the 'MDA report') has been provided with the proposal. It is proposed to amend existing noise rules to facilitate the plan change.

1.3 The purpose of this memo report is to provide commentary on the proposal in general and to respond to concerns from submitters. The area of land within Plan Change 13 is referred to as the 'subject site' in this report.

2. PROPOSAL

2.1 The proposal is to rezone parts of the racecourse area into a Medium Density Residential zone. The application includes a precinct plan for the site which will sit within the District Plan.

2.2 The precinct plan anticipates one residential area would be developed at the northern part of the subject site and a smaller area in the southern part of the site adjoining the Forest Lake Village site.

2.3 A 30-m wide buffer setback is proposed from the common site boundaries with the existing industrial zone. This applies only to the northern residential area. No setback is proposed for the southern residential area.

2.4 A Noise Sensitive Area (NSA) overlay is proposed that would be 60m deep from the industrial boundaries in the northern residential area and that would include all of the southern residential area (adjacent to the Forest Lake Village). The NSA would cover the

residential buildings to a depth of 30m in the northern residential area and all residential buildings in the southern residential area.

2.5 A 1.8m high acoustic fence is also proposed along the common site boundaries with the industrial zone (refer section 6.2 of the MDA report).

3. CURRENT SITUATION

3.1 There are no current constraints on noise emission from the adjacent industrial activity into the racecourse site being a Major Facilities zone.

3.2 Rule 25.8.3.7(c) requires noise from any industrial site to be at or below 65dB LAeq at any point in any other industrial site at all times.

4. EXISTING RULES

4.1 This section discusses the existing rules that would apply to the proposal in the absence of the proposed changes to the noise rules. The rules impose noise limits on both industrial and racecourse activity in relation to the proposed residential precinct.

4.2 Rule 25.8.3.7(a) – Activities in all zones (including industrial zones but excluding major facilities zone and others stated in the rule) shall not exceed the following noise levels at any point within the boundary of any other site in the residential zones-

Time of day	Noise level measured in LAeq (15-mins)	Noise level measured in LAF max
0600 – 0700 hours	45dB	75dB
0700 – 2000 hours	50dB	
2000 – 2300 hours	45dB	
2300 – 0600 hours	40dB	75dB

4.3 This rule would apply to and potentially restrict activities in the adjacent industrial zone, in particular during night-time.

4.4 Rule 25.8.3.9(a) – Activities within the Major Facilities Zone, Knowledge Zone and Open Space Zones shall not exceed the following noise levels at any point within the notional boundary(1) of any other site within the Residential Zones-

Time of day	Noise level measured in LAeq (15-mins)	Noise level measured in LAF max
0600 – 0700 hours	45dB	75dB
0700 – 2300 hours	55dB	
2300 – 0600 hours	40dB	75dB

(1) A line 20m from any side of any dwelling or the legal boundary where this is closer than 20m

4.5 This rule also provides an elevated noise limit of 75dB LAeq within residential areas for up to 6 events per calendar year in several locations including the Te Rapa Racecourse (rule 25.8.3.9(c) - several constraints apply such as public notification etc).

4.6 This rule would apply to and potentially restrict the activities of the racecourse operation.

5. PROPOSED CHANGES TO NOISE RULES

5.1 The proposed changes can be divided into two parts. The first is in relation to noise from industrial activity on the eastern site boundaries and the second is noise from racecourse operations. A table summarising the proposed changes is provided at the end of this section.

Noise from industrial activity-

5.2 The tracked changes to existing rules (as at 13 January 2023) relevant to industrial noise are applied to rule 25.8.3.7(a) and rule 25.8.3.7(e) (a new clause). These differ from the recommended changes in section 8 of the MDA report but have the same general effect.

5.3 The proposal is to exempt industrial activity where it has a common boundary with the residential precinct from rule 25.8.3.7(a) and to introduce a new rule allowing noise emission up to 65dB at all times at any point within the Te Rapa Racecourse Medium Density Residential Precinct. This includes the residential area at the southern part of the subject site (adjoining the Forest Lake Village site).

Noise from the Te Rapa Racecourse-

5.4 The tracked changes to existing rules (as at 13 January 2023) relevant to the racecourse apply to rule 25.8.3.9(d)(ii).

5.5 The updated proposed changes as at 13 January 2023 retain the exemption from rule 25.8.3.9(a) but now do not include the requirement to comply with rule 25.8.3.7(a). The end result is that there would be no noise limits imposed on the racecourse activity.

Application of rule 25.8.3.10 (Noise-sensitive activities)-

5.6 Post notification of the plan change, in response to concerns about the practically of using an incident level of 65dBA for the design of the buildings, the applicant has amended the proposal to make some changes to the requirements for the indoor noise levels for noise sensitive activities (residential activities).

5.7 Clause (c) of the proposed assessment criteria in P. Te Rapa Racecourse Medium-Density Residential Precinct requires assessment of the extent to which noise-sensitive activities within the NSAs described in paragraph 2.4 are protected from noise using the same internal noise design criteria in rule 25.8.3.10(e) and an incident level based on 65dB at the industrial boundary.

The following table summarises the proposed changes-

Affected rules	Noise source the rule relates to-	
	Industrial activity	**Racecourse activity**
25.8.3.7(a)	Exemption from noise limits in 25.8.3.7(a)	No change – the racecourse activity is already exempt from this rule
25.8.3.7(e) New clause	Sets a noise limit at any point within the residential precinct of 65dB LAeq at all times	Not applicable
25.8.3.9(d)(ii)	Not applicable	Exemption from noise limits in 25.8.3.9(a) and (c)
RD assessment criteria	Requires habitable rooms within the NSAs to comply with the stated internal noise design criteria (taken from rule 25.8.3.10(e)) using an assessed incident level based on 65dB at the industrial boundary	

6. COMMENTARY ON PROPOSED CHANGES - NOISE FROM INDUSTRIAL ACTIVITY

6.1 The ambient daytime level in relation to industrial noise (represented by measurement locations LP1/MP1, MP2 and LP2 in section 2.2 of the MDA report) was measured at or below 51dB LAeq during 2017 and 2018. The ambient night-time level (2000hrs to 0600hrs) ranged from 43 to 45dB LAeq during 2018. The ambient levels were dominated by traffic noise from Te Rapa Road rather than from existing industrial activity.

6.2 The proposed noise limit of 65dB LAeq over the whole residential precinct (including the southern residential area) is a very high noise level for a residential area, being the level that is the limit between sites in the industrial zone (refer rule 25.8.3.7(c)). It would apply at all times, including during the night-time period when the existing limit is 40dB LAeq in other residential zones (refer rule 25.8.3.7(a)).

6.3 The proposed application of the internal noise design levels in the assessment criteria based on an incident noise level of 65dB LAeq at the industrial boundary is proposed to offset this high level by providing acceptable indoor amenity noting that this applies to habitable rooms only. This would apply only to those buildings within the NSAs as described in paragraph 2.4 above. It would involve additional design and construction costs to achieve the internal levels.

6.4 The incident level would be determined for each building within the NSAs based on distance, any screening and orientation of the building relative to the nearest industrial boundary.

6.5 The new clause (c) appears to focus on buildings in the northern NSA by reference to the 65dB at the industrial boundary. It is not clear how this clause would apply to the buildings within the southern NSA, which are all more remote from the industrial area, or how the

incident level should be determined. An option is to use the sound level measurement data in section 2 of the MDA report.

6.6 With reference to outdoor amenity in the northern residential area, reliance is placed on the configuration of buildings on site providing shielding to outdoor living areas, which would be located on the 'quiet' side of the buildings (refer section 4.2.5 of the MDA report). Any building within the NSA would be a restricted discretionary activity, with one of the assessment criteria being the extent to which buildings create a contiguous built form to act as an acoustic barrier.

7. COMMENTARY ON PROPOSED CHANGES - NOISE FROM THE TE RAPA RACECOURSE

7.1 The ambient daytime level in relation to racecourse activity on non-racedays (mainly represented by measurement location LP3 in section 2.2 of the MDA report) was measured at or below 51dB LAeq during 2018. The ambient night-time level (2000hrs to 0600hrs) ranged from 43 to 44dB LAeq during 2018.

7.2 Measurements carried out during 2018 showed that noise levels on racedays averaged 60dB to 61dB LAeq between 1200hrs to 1700hrs within the proposed southern residential area (represented by LP3) but were commensurate with non-raceday levels within the proposed northern residential area (represented by LP1 and LP2 - refer section 2.2.7 of the MDA report).

7.3 The racecourse would not be subject to any noise limits within the residential precinct. Instead, reliance is placed on the proposed NSA and the proposed assessment criteria. Comments in section 4.2.4 of the MDA report indicate that the acoustic insulation would be beneficial in relation to race day noise.

7.4 As stated in paragraph 6.5 above, it is not clear how the incident noise level should be determined in relation to buildings within the southern NSA. However, sound level measurement data in section 2 of the MDA report could be used to determine the incident level.

8. SUBMISSIONS ON NOISE

8.1 Submissions have been received from 23 submitters referencing noise as an issue in some form.

8.2 The issues raised are summarised under the following headings. I have commented on the submissions in section 9 of this report.

Reverse sensitivity-

8.3 Nineteen submitters raised reverse sensitivity as a concern.

8.4 The major concern from all 19 submitters is the potential for complaints from the new residential areas about noise emission from industrial activity, with two submitters also concerned how this could restrict development of their site in the future. All but one of these submitters seek a no complaints covenant in relation to industrial activity existing and future development.

8.5 Three of these submitters also raised the following noise-related concerns in addition to the above. These are-

(a) The adjoining industrial land being considered as being occupied by light industrial and commercial activities without consideration of larger scale activities occurring on the land in future.
(b) The acoustic assessment assuming that industrial land in the south would not be subject to large scale industrial use due to small lot sizes and land use ignoring the possibility of noisy activities occurring.
(c) The proposed 30m setback is insufficient.

8.6 The submitters in the previous paragraph seek to decline the plan change or that-

(a) The buffer setback be increased to a depth of 60m
(b) Extend the NSA to cover the whole of the residential areas

8.7 Fonterra (submitter 3) and Denise Allen – Ecostream Irrigation (submitter 10) raised reverse sensitivity issues in general.

Noise and vibration standards-

8.8 It is noted that Metlifecare Ltd (submitter 4) is in support of the proposed plan change in relation to noise and vibration.

Construction noise and disturbance-

8.9 Murray J. Vereker-Bindon (submitter 5) is concerned about noise from the construction of the residential area, which would include preparatory works, installation of infrastructure and services, roading and the construction of the actual housing.

8.10 This concern is in relation to the southern residential area adjoining the Forest Lake Village and how this noise would affect residents in that village. The submission seeks that this area is not developed for residential use.

Kainga Ora submission-

8.11 Kainga Ora (submitter 24) state that there is a duplication of conflicting noise rules in relation to noise limits within the proposed residential areas. They seek to delete the proposed rule 25.58.3.7(e) and to apply rule 25.8.3.7(a) to the proposal.

30m setback-

8.12 Stephen Lyons (submitter 25) states that the setback needs to be a minimum of 30m to address issues of noise from medium density housing.

9. COMMENTARY ON SUBMISSIONS

Reverse sensitivity-

9.1 The proposed assessment criteria for buildings within the NSA to comply with the stated internal noise design criteria would provide a low noise internal environment in habitable

rooms in those buildings using an incident noise level based on 65dB at the industrial boundary.

9.2 The proposed assessment criteria for buildings to create a continuous built form to act as an acoustic barrier, orientation of outdoor living areas, the proposed 30m setback and the acoustic fence would protect the outdoor environment to some extent.

9.3 The proposed 65dB noise limit throughout the residential precinct is high and is no different from that in the existing rule 25.8.3.7(c) that applies this level between industrial sites in any case.

9.4 On the basis of the above comments, I consider that there would be no need to do any of the following-

(a) Impose a no-complaints covenant
(b) Increase the depth of the buffer strip to 60m
(c) Extend the NSA to cover the whole of the residential precinct

9.5 Imposing a no-complaint covenant would be unnecessary and inappropriate. It would also be difficult to enforce noting that Council is not responsible for enforcing private covenants.

9.6 Increasing the depth of the buffer setback would provide the benefit of a lower noise level within the occupied area of the precinct. However, such a large setback would adversely affect the extent of the developable area which is not considered to be necessary given the full extent of mitigation proposed.

9.7 Increasing the coverage of the NSA would be unnecessary given that the current coverage would be more than sufficient to provide the desired internal amenity levels with respect to noise. In addition to this, the buildings closer to the industrial area would provide screening in relation to buildings further away from the industrial zone boundary.

9.8 With reference to the Fonterra submission and in relation to noise emission from their operations – their site on Crawford Street is approximately 600m away from the closest residential unit in the southern residential area of the subject site and approximately the same distance from the closest unit in the existing Forest Lake Village. There are very large buildings on the Fonterra site between the outside operational area of the site and the subject area. The distance and screening from these buildings would sufficiently mitigate noise. In addition, there have been no complaints received from residents in the Forest Lake Village or the new Bupa Foxbridge Retirement Village in Minogue Drive indicating the Fonterra site does not currently emit a level of noise that creates adverse effects at these locations.

Construction noise and disturbance-

9.9 Construction work can involve significant emission of noise. This is recognised by NZS6803:1999 Acoustics – Construction noise, which provides for elevated noise levels on the basis that construction is a temporary activity. The applicable noise limits in NZS6803 depend on the expected duration of the construction phase of the project, which in this case would likely be the long-duration noise limits (over 20 weeks). This results in the lowest noise limits being applied, which is 70dB LAeq during the daytime hours.

9.10 Assessment of construction noise in relation to significantly larger projects, such as multi-storey apartment buildings, shows that the construction noise limits can be complied with using general management type mitigation measures that minimise the emission of noise as much as practicable. It is expected that this proposal would also comply with mitigation measures in place.

9.11 Concrete pours would be a part of the foundational work for the residential units. The noise effects from this activity can be mitigated by requiring concrete pours to occur after 7:30am or some other deemed more appropriate time when the 70dB limit applies. This could be coupled with notification to affected residents in the village prior to the concrete pours. The notification would include the date and times of the pours and a contact phone number of a key on-site person.

9.12 Construction noise would be considered in more detail at the time of application for resource consent. A requirement for a Construction Nosie and Vibration Management Plan may be included as a condition of consent if granted.

Kainga Ora submission-

9.13 Kainga Ora appears to have misinterpreted the proposed change to rule 25.8.3.7(a). The proposed change would exclude the residential precinct from that rule. The proposed new rule 25.8.3.7(e) has the proposed noise limits.

30m setback-

9.14 Lyons is concerned about noise emissions from the residential precinct.

9.15 It is considered this is not an issue in relation to the industrial zone, where there is a 30m setback and the high permitted level of noise within industrial sites.

9.16 There is no setback in relation to the Forest Lake Village complex. However, any acceptable noise would be from short-duration activities ancillary to residential use such as lawn mowing. Noise from activities other than those that are ancillary to residential activity (such as the use of powered equipment used for section maintenance) would be subject to the noise limits in rule 25.8.3.7(a) that apply in most other residential areas. Noise from short-term activities such as parties would be subject to noise control as in any other situation in the city.

10. CONCLUSIONS

10.1 The proposed plan change would amend existing noise rules that would otherwise apply in to noise from industrial activity and to noise from major facilities zones in relation to the proposed residential precinct.

10.2 Two NSAs would cover residential buildings to a depth of 60m from the industrial boundary in the northern residential rea and all residential buildings within the southern residential area.

10.3 A general limit of 65dB at any point within the whole residential precinct at all times would apply to noise from industrial sites.

10.4 New assessment criteria stipulates an incident noise level is calculated using a level of 65dB at the industrial boundary to apply at the façade of all residential buildings within the two NSAs together with distance from the boundary, screening and orientation of buildings.

10.5 The assessment criteria would require assessment of the orientation of outdoor living areas relative to the adjoining industrial area.

10.6 It is considered that the proposed rule changes would serve to address the concerns of submitters in relation to reverse sensitivity.

10.7 Construction noise can be effectively managed by well-established mitigation methods and would be considered at the resource consent stage of the development.

11. RECOMMENDATIONS

11.1 Consideration be given to providing guidance on how to determine the incident noise level on buildings within the southern NSA.

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22 June 2023

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14_450

Dear Laura and Kylie

PLAN CHANGE 13 - TE RAPA RACECOURSE: TRANSPORTATION REVIEW – ISSUE 5

1. Introduction and Summary

HCC have requested that Gray Matter review from a transportation perspective the request for a private plan change – Te Rapa Residential Plan Change – by Waikato Racing Club Incorporated (the requestor). The proposal includes about 200 residential dwellings of varying densities.

In general, the proposed trip generation and assignment to the network described in the ITA appears reasonable.

From a transportation planning perspective, the location and transport connections mean that residential activities are consistent with the transportation objectives and policies in the Operative District Plan (ODP) and HCC's strategic framework.

Separate to this plan change, we recommend that HCC:

- Review and update the existing signage to ensure that u-turns identified as banned in the HCC Traffic Bylaw are enforceable.
- Review and update the HCC Traffic Bylaw to include the section of the service lane north of Sir Tristram Ave as one-way.

We have the following additional comments:

- The proposed redesign of the Sir Tristram Ave / Te Rapa Road intersection continues to accommodate rather than discourage the use of the roadside and berm by Fairview Motors. We note that this is an enforcement issue and does not affect the outcome of this review.
- Some mitigation measures (e.g., parking restrictions) rely on processes that are separate to the plan change process and cannot be relied upon. A separate consultation process through the Local Government Act is required.

Alasdair Gray 027 249 7648 alasdair.gray@graymatter.co.nz **Karen Hills** 021 923 905 karen.hills@graymatter.co.nz

2. Background and Basis of Review

Gray Matter previously completed transportation reviews of:

- the initial plan change proposal in 2018[1], which concluded that additional information was needed; and
- a draft ITA[2] which has since been updated.

Since the reviewed draft, the Integrated Transport Report (ITA) has been updated to:

- Reflect changes to the proposal;
- Consider comments from the initial review, specially including an assessment of proposed cross-sections and additional intersection information; and

This letter replaces previous work completed by Gray Matter and reviews the ITA: *Plan Change 13: Te Rapa Racecourse Medium Density Residential Plan Change, BBO, 15 September 2022.*

3. Structure of Review

This review is in the following sections:

Table 1 Structure of this letter

Section	Description
Overview of proposal	Summary of plans, expected trip generation and access.
Adequacy of provided information	ITA review compared to HCC requirements – a detailed assessment is in Appendix 1.
Transport infrastructure required to service the proposal.	The ITA recommends changes to existing transport infrastructure. This section provides our comment on the proposed changes.
Proposed District Plan provisions	Comment on proposed transport related changes to district plan.
Conclusion and recommendations	Conclusion, and next steps.
Appendix 1	Detailed ITA review
Appendix 2	Extracts from HCC Traffic Bylaw
Appendix 3	Summary of transport related submissions

4. Overview of Proposal

The Waikato Racing Club Incorporated (the Applicant) is proposing the rezoning of approximately 6.48 hectares (ha) of the Te Rapa Racecourse site from Major Facilities Zone to Residential Zone.

To summarise, the proposed plan change:

- Enables approximately 200 residential dwellings to be developed based on a mix of dwellings, houses and apartments.
- Is expected to result in a trip generation of approximately 1,500 vehicle trips per day and 160 trips per peak hour.
- Would provide access to the dwellings via the existing access to the racecourse at Ken Browne Drive and a new access at Sir Tristram Avenue approximately 90m southwest of the Te Rapa Road/ Sir Tristram Avenue intersection.

[1] Letter from Alasdair Black (Gray Matter Ltd) to Paula Rolfe and Andrew Parsons (HCC) dated 28.06.2018.
[2] ITA: Plan Change 13: Te Rapa Racecourse Medium Density Residential Plan Change Integrated Transport Assessment, 01 April 2022 (draft status).

The ITA states *"While these dwellings are located close to the racecourse and may have a degree of interaction with it, the future occupiers may not have any direct connection to, or affiliation with the Te Rapa Racecourse. "*

The proposal includes changes to the transport network to mitigate the potential transport effects, comprising upgrades / changes to access roads and intersection upgrades.

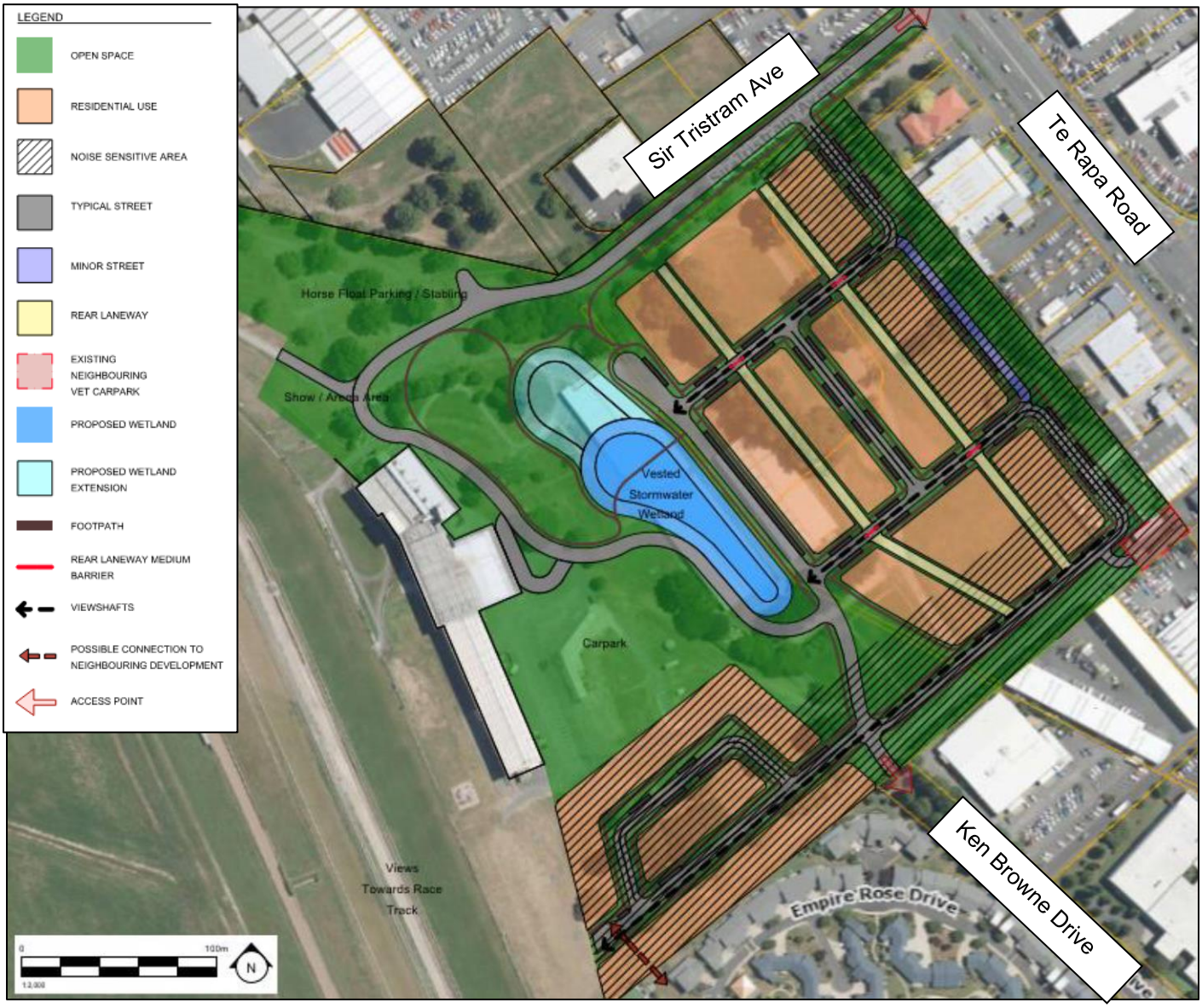

Figure 1 Proposed Concept Plan (extract from Figure 19, ITA)

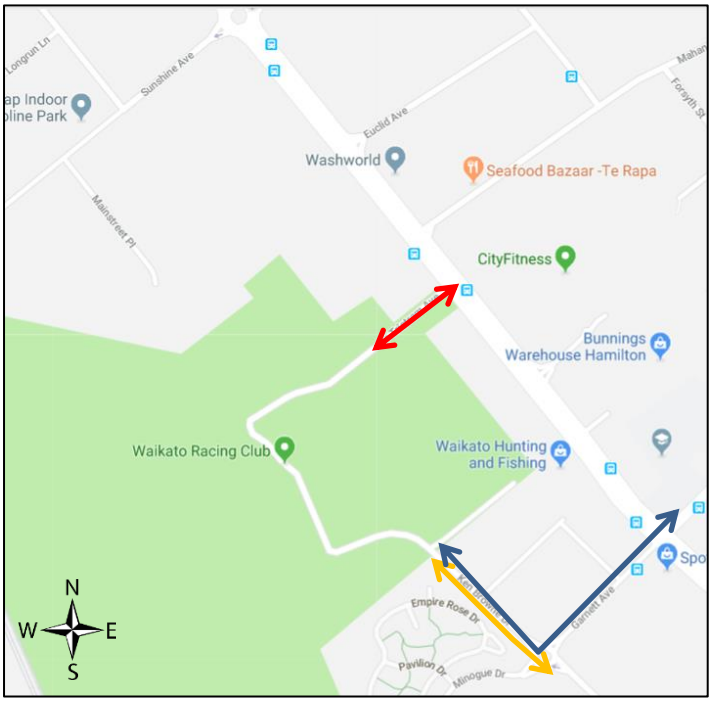

Figure 2 Proposed points of access to wider transport network

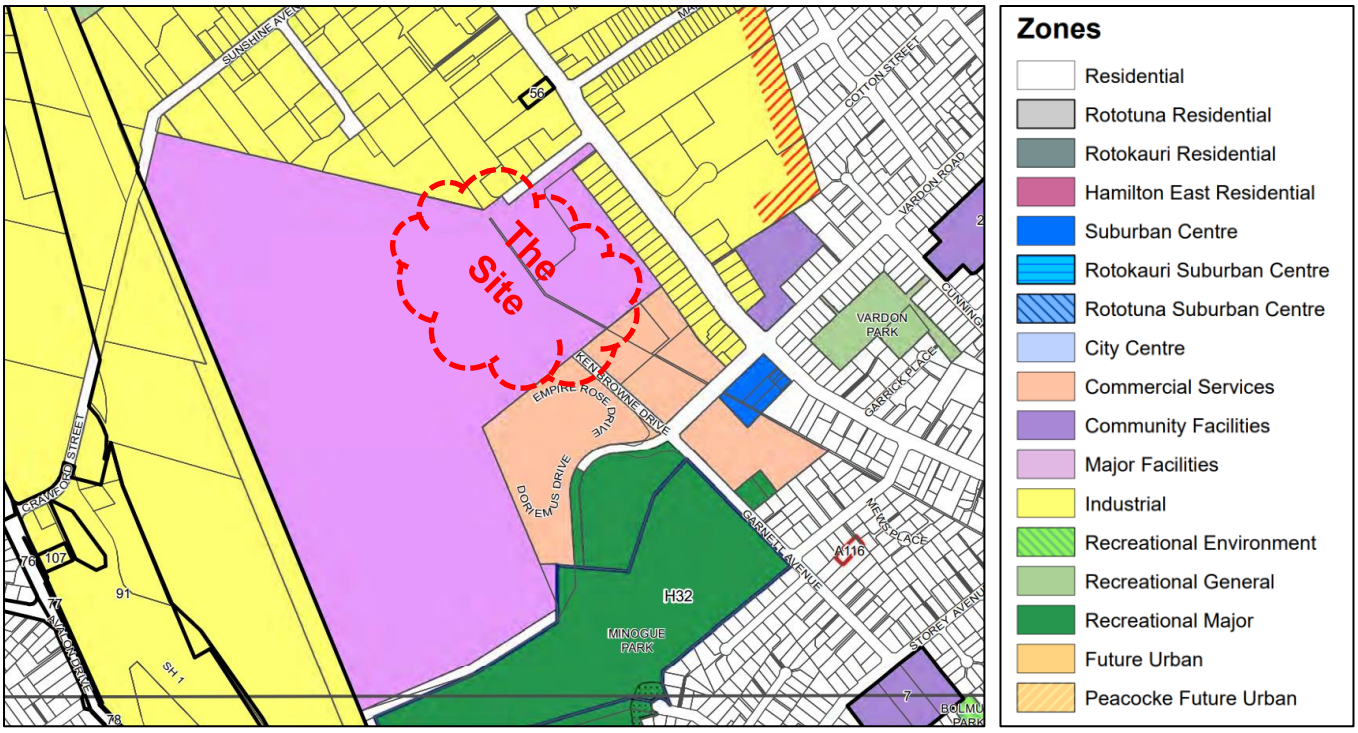

Figure 3 Operative District Plan Zoning

5. Adequacy of Requestor's Documents Relating to Transport Planning

We have completed a detailed review of the ITA (refer Appendix 1) considering HCC's requirements for an ITA. In general, the proposed trip generation described in the ITA appears reasonable as do the assumptions around trip distribution. The proposal consists of ~200 dwellings generating around 1,500 veh/day.

The ITA includes an assessment of the proposal against relevant transport policies and strategies, and we agree that the proposed plan change is consistent with national, regional and local objectives.

6. Transport Infrastructure Required to Service the Proposal

6.1. Comment on Mitigation Recommended in ITA

The ITA recommends changes to existing infrastructure to mitigate potential transport effects and accommodate the plan change. These are summarised in the table below.

Table 2 Changes to existing infrastructure

Change to existing infrastructure	Comments
A no-parking restriction is introduced along the southwest side (northbound lane) of the Ken Browne Drive.	Required to provide for two-way traffic movements. This will require consultation and decision making through a separate Local Government Act process.
The existing footpath on the north-eastern side of Ken Browne Drive be extended 75m to the proposed access to the Plan Change area and be connected to the residential development footpaths.	Agree – appropriate approach.
The existing footpath on the northern side of Sir Tristram Avenue should be extended for approximately 115m running alongside Fairview Motors property to provide a connection to public transport on Te Rapa Road.	Limited berm width at footpath. ITA includes plans for relocation of light pole currently in the way. Details can be confirmed as part of future consents / engineering approvals. Consider interaction of vehicles and pedestrians at the vehicle crossings north of intersection. Car dealership currently parks cars all along the berm. We would prefer that this was discouraged / prevented, however acknowledge that it is an enforcement issue rather than an issue related to the design.
Provide a walking and cycling shared path on the southern side of Sir Tristram Avenue between the proposed residential access intersection and the service lane, and along the Te Rapa service lane to a zebra crossing on a raised safety platform (RSP) across the service lane.	Results in loss of one parking space. Build-outs may be required to achieve pedestrian visibility passed park cars and vehicles in the loading area. Service lane footpath may require vesting of land from lot adjacent to Sir Tristram Ave.
Connect the shared path to a new mid-block RSP staggered signalised crossing across Te Rapa Road. (The introduction / implementation of a RSP at this location will be subject to a Road Safety Audit and Council's decision)	Support concept. We have concerns about cyclist movements through the crossing. These can be addressed at detailed design stage.
Kerb let-downs (pram crossings) are required on Sir Tristram Avenue where pedestrians will cross between the footpaths on each side of the road.	Agree. Indicative location shown on the concept plans provided. Can be addressed as part of future consents/ engineering approvals.
A landscape plan should be submitted to Council for approval as part of the design for subdivision consent, to identify the trees to be removed to accommodate the new access intersection on Sir Tristram Avenue.	Agree
The existing racecourse site access at Mainstreet Place should be permanently closed.	Agree
Te Rapa Road/ Sir Tristram Avenue intersection to be upgraded to ban the right turn movements out onto Te Rapa Road.	Agree

Change to existing infrastructure	Comments
The movements at the above intersection will be limited to left-in, left-out and right-in movements only	Agree

Any changes to on-street parking and banning of turns will require changes under the HCC Traffic Bylaw. This will require consultation and decision making through separate Local Government Act (LGA) processes and due to this uncertainty, it is difficult to rely on these changes.

The ITA includes suggested staging of transport infrastructure improvements. The ITA does not suggest timing of banning parking on Ken Browne Drive. We consider that any change in existing on-street parking should be done prior to the first stage of development.

No changes are proposed along Garnett Ave or at the Te Rapa Road/ Garnett Ave/ Vardon Road intersection.

6.2. Sir Tristram Ave/ Te Rapa Road Intersection

The ITA includes proposed changes to the recently modified Sir Tristram Ave/ Te Rapa Road intersection, illustrated in the extract below. To summarise, the changes ban right turns out of Sir Tristram Ave, reducing the skew where the service lane intersects Te Rapa Road, and add an on-street loading area for Fairview Motors to unload and load vehicles using car transporters.

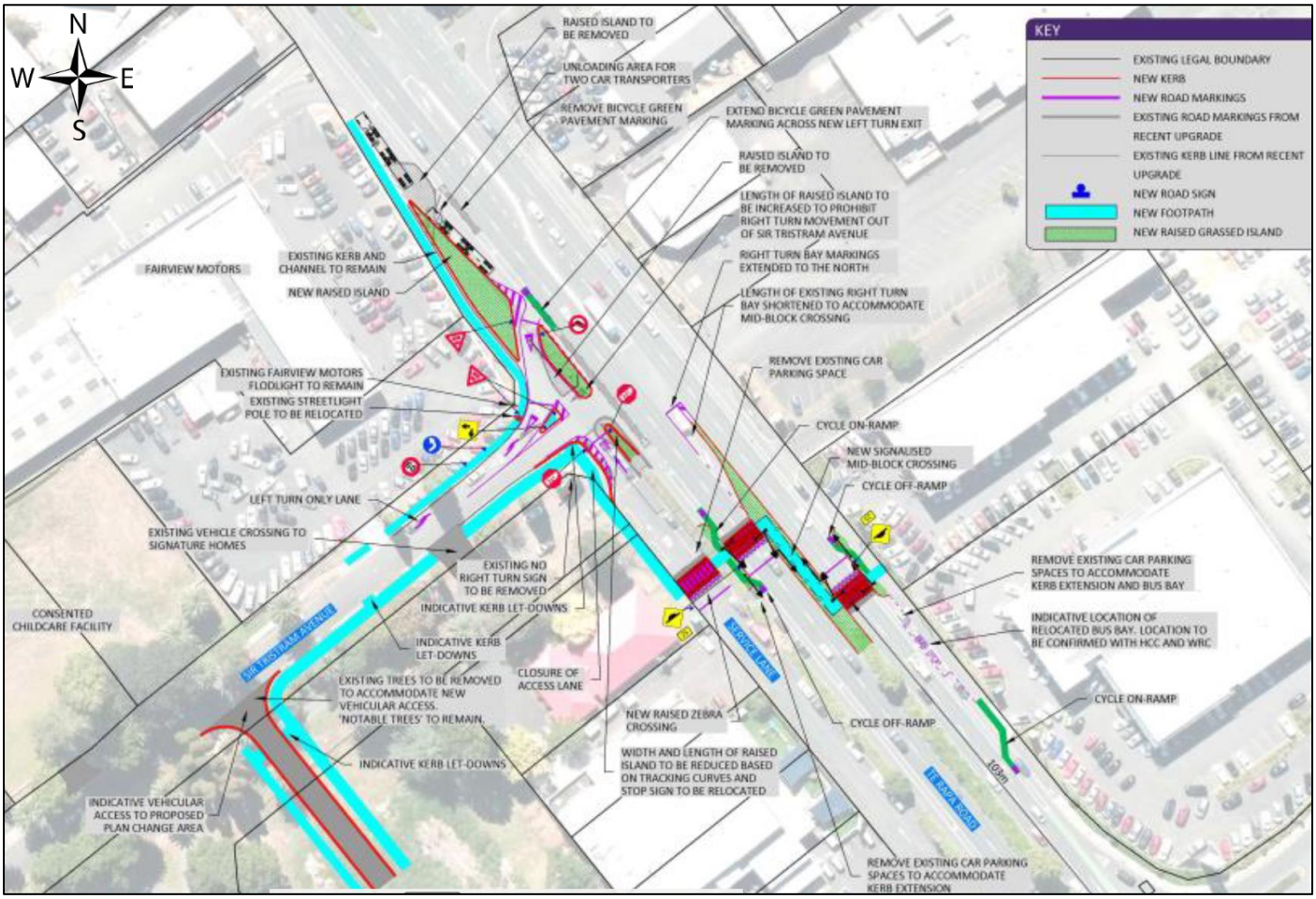

Figure 4 Proposed changes to Te Rapa Road / Sir Tristram Ave intersection

The ITA includes tracking drawings. Tracking is acceptable for both cars and trucks with the exception of the movement that requires a semi-trailer to turn left from Te Rapa Road into Sir Tristram Avenue. In this case the vehicle will track over the island kerb (indicated by the yellow circle below). Although this intentional, there is a risk of damage to any signage placed on this island (e.g. no entry signage, stop signage). The frequency of semi-trailers turning left into the intersection, and therefore the associated risk, is likely to be low. The exact location of any signage can be determined during the design stage.

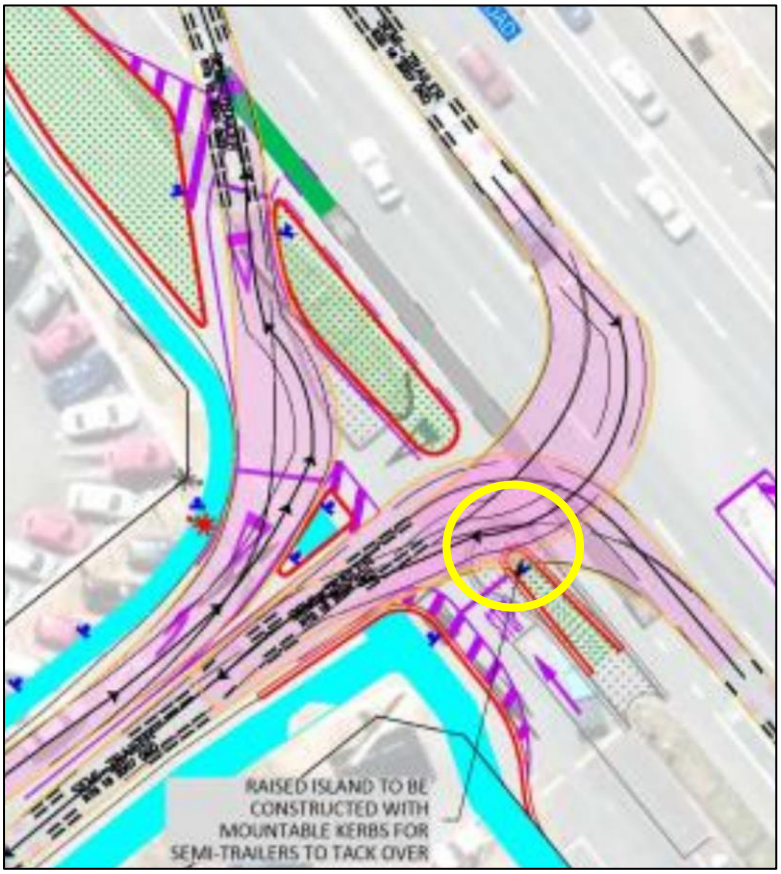

Figure 5 Semi-trailer tracking

Our review of the HCC Traffic Bylaw (relevant extracts at Appendix 2) indicates that:

- The southbound u-turn on Te Rapa Road is banned, but there are currently no signs erected to advise motorists of the u-turn ban.
- The northbound u-turn out of the service lane is banned. Currently no signs erected to advise motorists of this.
- The service lane is one-way (northbound) from Vardon Road to Sir Tristram Avenue. This implies it should be two-way traffic north of the intersection, but no entry signs are erected at the northern end (outside Fairview Motors). The existing median island on Te Rapa Road largely prevents southbound movements in this section of the service lane.

The sealed width of Sir Tristram Ave is 7.6m. The District Plan requires recessed parking and footpaths on both sides of local roads. This is currently not provided. Depending on the level of parking provided on the individual lots, there is a risk of parking overspill from the residential development competing with parking demand from the surrounding industrial and commercial activities, as well as race day activities.

We consider the ITA proposal to add a footpath on the southern side of the road to be sufficient, provided that a safe crossing point of Sir Tristram Ave is provided.

6.3. Garnett Ave/Te Rapa Road Intersection

No changes are proposed for the Garnett Ave / Te Rapa Road intersection. We agree with the ITA that improvements within the existing road boundary are not practical.

We note that the development is expected to result in an increase in the degree of saturation (DoS) from 0.97 to 1.02 for the right turning movement out of Garnett Road on to Te Rapa Road in the afternoon peak period. This means that the intersection may not cope with the additional demand resulting from the new residential area, and traffic queues will increase during the peak period.

A degree of saturation greater than 1.0 indicates oversaturated conditions in which long queues of vehicles build up on the critical approaches. In practice the target degrees of saturation of 0.90 for signalised intersections are generally acceptable. These are usually called 'practical degrees of saturation'.[3]

However, we note that:

- The intersection is already almost at capacity (existing DoS is 0.97);
- This is only during the peak period; and
- In practise, vehicles are likely to divert elsewhere, meaning that the DoS may not change in reality.

The figure below shows alternative access routes from the site to Te Rapa Road that avoid the Garnett Ave intersection. This use of these routes is considered acceptable.

Figure 6 Possible alternative routes that avoid the Garnett Ave intersection

6.4. Service Lane Footpath and proposed Te Rapa Road Crossing

The ITA suggests encouraging use of public transport. This requires pedestrians to cross Te Rapa Road to reach a bus stop. There is currently no pedestrian signal phase on the northern leg of the Garnett Ave intersection, and adding one is likely to result in an unacceptable adverse effect on intersection efficiency.

The concept plan includes a mid-block pedestrian crossing on the service lane and across Te Rapa Road which will provide a safe route to the bus stop. We understand that Waikato Regional Council (WRC) have indicated support for relocating the bus stops. The proposed crossing is discussed further below.

The ITA includes a proposal to provide a footpath along the western side of the service lane and a signalised mid-block crossing on Te Rapa Road. We support the proposed footpath and closure of the service lane that runs parallel to Sir Tristram Ave and providing a crossing facility on Te Rapa Road and a relocated bus stop.

We have some concerns regarding the expected movement of cyclists.

[3] Austroads Guide to Traffic Management part 3: Transport Study and Analysis Methods, Section 4.2

- The concept plan shows on-ramps and off-ramps for cyclists at the pedestrian signals. This is confusing and may lead to conflict between pedestrians and cyclists. It would be preferable for cyclists to have a designated green stopping area at the signals and to remain on the same path.
- Southbound cyclists have no clear route past the relocated bus stop. The on- and off-ramps indicate that they should use the footpath, however this is undesirable and presents a safety risk.

In addition, we note that kerb extensions may be need to both sides of the service lane to enable pedestrians to see past parked cars and past the loading bay. Currently shown on one side only.

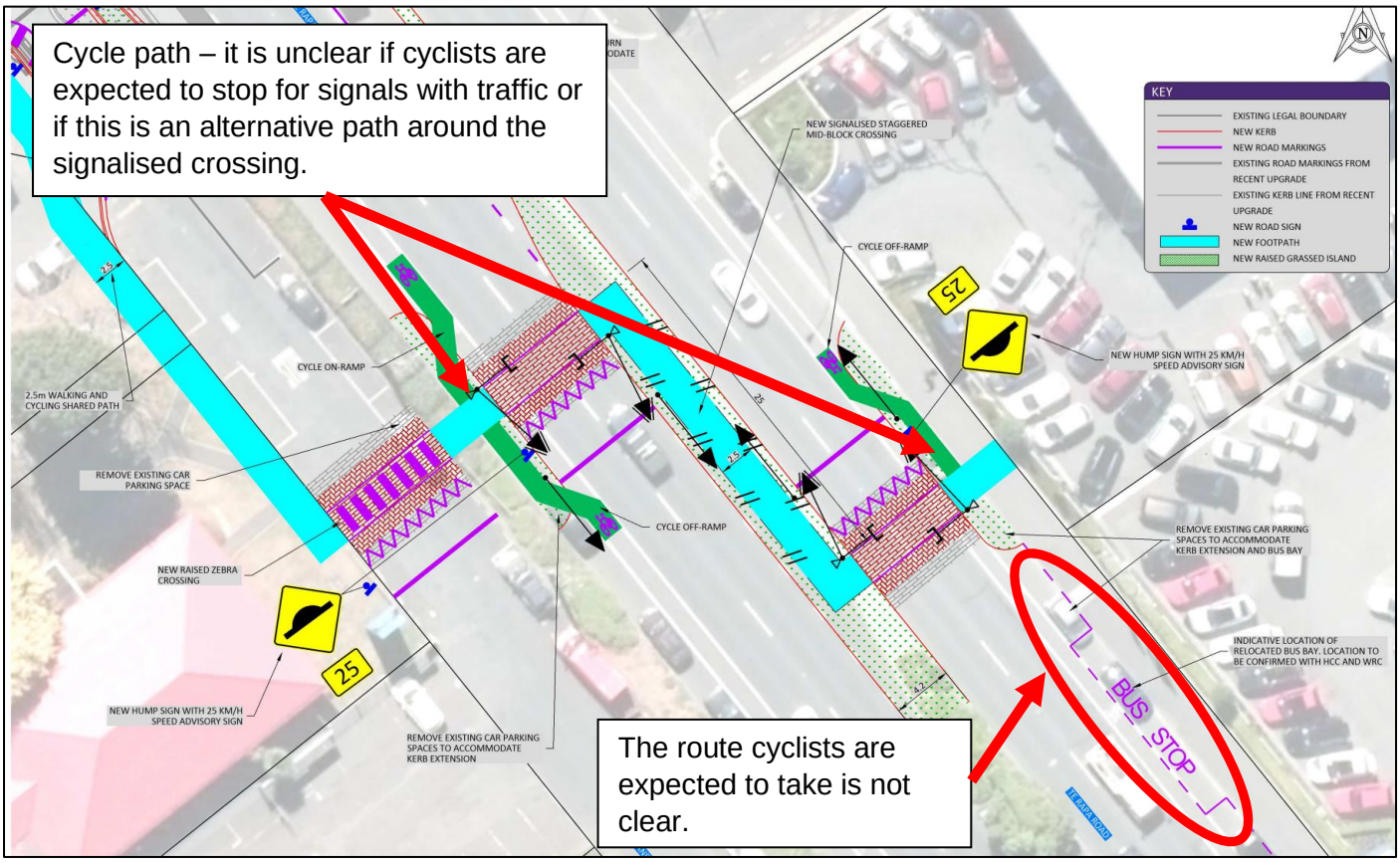

Figure 7 Proposed pedestrian crossing facility

The above issues can be addressed during detailed design, which should undergo safety audits.

The ITA does not provide any information on the effect of the signalised crossing on Te Rapa Road traffic, however splitting the crossing into two stages minimises disruption. The crossing is supported as it prioritises the safety of pedestrians and provides for cyclists to bypass the crossing. There will be an increase in delays to traffic using Te Rapa Road, these delays can be minimised through coordination with the signalised intersection at Home Straight and are unlikely to be significant.

6.5. Ken Browne Drive

Ken Browne Drive does not currently meet the District Plan criteria for local roads as there is no recessed parking or footpaths on either side.

The ITA proposes to extend the existing footpath on Sir Ken Browne Drive by 75m to the site. In the area of the proposed path there is a steep berm. The ITA states that it is likely the footpath can be constructed without tree removal, and this will be confirmed during detailed design. We support the ITA proposal to extend the existing footpath.

Although the ITA states that a footpath on the western side would be of little benefit, it would provide a safer route for pedestrians between the development and Minogue Park. Minogue Drive has less traffic than Garnett Avenue making this a safer option for pedestrians. We note that there is limited space on the sloped

berm on the western side of Ken Brown Drive, and there are trees that would require removal if a footpath were to be constructed.

We agree that restricting parking on both sides of Ken Browne Drive would improve the movement function of the currently reduced carriageway width (7.5m wide carriageway). However:

- As noted earlier, changes to on-street parking requires decision-making through a separate LGA process and due to this uncertainty, it is difficult to rely on these changes. We recommend that changes to parking be completed as part of future subdivision processes.
- Prohibiting parking would reduce side friction, which could result in vehicles travelling at higher speeds along Ken Browne Drive. Additional speed management may be necessary, for example an RSP at the Ken Browne Drive/ Garnett Ave/ Minogue Drive roundabout. These details can be confirmed at the time of subdivision.
- Reduces on-street parking which may be required to manage parking overspill from the Racecourse activities on race day. Changes to parking should align with HCC's Parking Policy. This is discussed further at Section 7.2.

6.6. Sir Tristram Ave

Sir Tristram Ave does not currently meet the District Plan criteria for local roads as there is no recessed parking on either side, and a footpath is only provided on the northern side. Like Ken Brown Drive, the carriageway is 7.4m wide which does not provide sufficient width for two-way traffic and on-street parking on both sides. To maintain space for two-way traffic on-street parking will need to be restricted to one side of the road. As discussed above, changes to on-street parking should be completed as part of future subdivision processes.

6.7. Internal Layout

ITA includes the following concept plan:

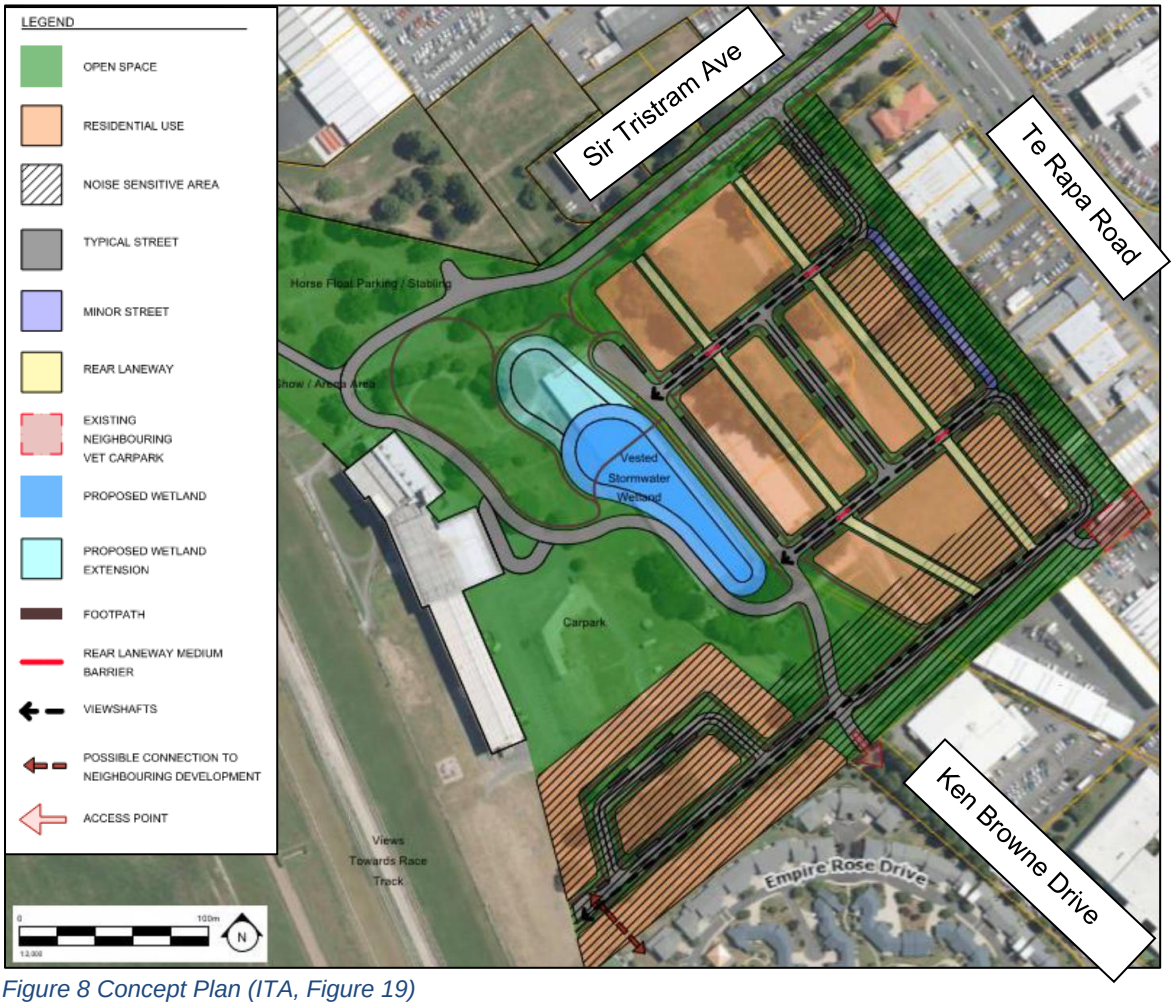

Figure 8 Concept Plan (ITA, Figure 19)

Section 4.3 of the ITA provides some guidance on road design, including a road reserve width of 16m instead of the 20m required for local roads in the Operative District Plan. The ITA and cross-sections provided indicate that footpaths will be provided on both sides of the roads. We recommend that the minimum width be increased to 16.8m to align with the decisions version of PC5 (Peacocke) and notified version of PC12. The additional width provides 2.1m for parking and 1.5m for service corridors.

The ITA states that the 8m rear laneway with a 5.5m carriageway will be private roads. We note that there is a discrepancy between the ITA and the proposed changes to the ODP (Section 23.7.9, extract below) which states a minimum legal width of two-way rear lanes of 7m.

c. All subdivision must comply with the following standards:

(i)	Minimum Local Road legal width (to be vested)	16m
(ii)	Minimum legal width of two-way rear lane	7m
(iii)	Minimum transport corridor boundary length	10m
(iv)	Minimum lot depth	28m

Figure 9 Extract from proposed ODP changes

The Rotokauri North Plan Change (PC7) provides for 7m wide shared spaces as rear lanes. HCC's Plan Change 12 also provides for 7m wide rear lanes.

The ITA does not state how many parking bays will be provided, stating: *'Recessed parking bays will not be provided along the entire length of the internal road. However, pockets of recessed parallel parking bays will be provided at certain sections of the road to accommodate visitor parking.'* and states that the number of parks will be decided at detailed design stage.

Although minimum parking standards have been removed from District Plan requirements, design criteria for local roads[4] include a width of 2.1m for on-street parking. The number of on-street parking spaces should be confirmed at the time of subdivision.

6.8. Future Environment

The current concept design for improvements on Te Rapa Road and the intersection with Sir Tristram Ave is considered adequate based on the current transport environment. However, it may be an interim solution or require amendment to suit the implementation of other strategic transport responses.

The Regional Passenger Transport Plan 2022-2052 (RPTP)[5] identifies a Bus Rapid Transit (BRT) network connecting the Hamilton CBD and The Base via Te Rapa Road. The recommended programme of the Hamilton-Waikato Metro Spatial Plan[6] Transport Programme Business Case identifies bus priority in years 3-10 and implementation of BRT in years 10-15. It is likely that implementation of bus priority and the BRT network may require changes to Te Rapa Road, including the location of bus stops and the Sir Tristram Ave intersection. This may necessitate changes to the concept design to ensure that works to mitigate the effects of the plan change are consistent with the long-term form and function of Te Rapa Road. Any potential changes to the concept design can be identified through consultation with HCC and WRC at the time of subdivision.

7. Submissions

7.1. Summary

A list of transport-related submissions is attached at Appendix 3. The issues raised are listed below and discussed in Sections 7.2 to 7.7.

- Parking – adequacy of supply

[4] District Plan, Volume 2, Appendix 15-6 Criteria for the form of Transport Corridors
[5] https://www.waikatoregion.govt.nz/services/publications/rptp-2022-2032/
[6] https://futureproof.org.nz/h2a/metrospatialplan/

- Connectivity – concern that pedestrians may take shortcuts through adjoining industrial sites, and support for access lanes to connect at both ends.
- Intersection of Garnett Avenue and Te Rapa Road –capacity and performance.
- Ken Browne Drive – congestion concern, use as short cut, increased risk of accidents.
- Sir Tristram Ave – congestion may result in difficulty leaving the service lane.
- Safety – risk from increased traffic.

7.2. Parking

Submitters have the following concerns related to parking:

- *Insufficient parking supply given that some parking may be removed, and the Developer is not required to provide on-site parking*
- *Concern that the service lane will be used for overflow parking, reducing availability for nearby business staff and customers.*

HCC's Parking Policy (August 2022)[7] sets out the following guiding principles for how Council will manage parking:

a. Providing safe facilities and facilities for people with mobility impairments
b. Prioritisation of road space
c. Managing parking provision
d. Charging for parking
e. Application of parking management technology
f. Reducing the demand for private vehicle parking
g. Providing sufficient loading and servicing areas
h. Alignment with local, regional, and national policy

These principles are complemented by the following priortisation of road space:

Location	Central city/ commercial	Residential	Employment areas
Overarching priority	Safety		
Priority one	Movement and place	Movement and place	Movement and place
Priority two	Mobility parking spaces	Mobility parking spaces	Mobility parking spaces
Priority three	Bus stops	Bus stops	Loading and servicing
Priority four	Loading and servicing	Residents' parking	Bus stops
Priority five	Biking and micro-mobility parking	Biking and micro-mobility parking	Biking and micro-mobility parking
Priority six	Short to medium stay parking	Short to medium stay parking	Short to medium stay parking
Priority seven	Long-stay/ commuter parking	Long-stay/ commuter parking	Long-stay/ commuter parking

Figure 10 Prioritisation of Road Space (HCC Parking Policy, Principle Two)

We agree that restricting parking further on existing roads will reduce parking supply and note that existing on-street parking may require further management to address potential parking overspill from the Racecourse activities on race day.

Although minimum parking standards have been removed from District Plan requirements, design standards for local roads do include parking and we expect there to be some demand for on-street parking. Provision of on street parking will be reviewed at the time of subdivision. The final layout provided at the time of

[7] https://hamilton.govt.nz/your-council/policies-bylaws-and-legislation/policies/

subdivision should clearly show where parking is and is not acceptable through the provision of dedicated parking bays. It may be helpful to mark parking bays on the service lane.

We consider that it is necessary to remove some on-street parking to ensure that the movement and place functions of Ken Browne Drive and Sir Tristram Ave are maintained. The level of on-street parking needs to balance the need for two-way vehicle movement against the potential for higher vehicle speeds. On-street parking can be an effective tool in relation to speed management. Any changes to existing on-street parking will be made in accordance with HCC's parking Policy, including the hierarchy described above, noting that in all areas the provision of long-stay/commuter parking is the lowest priority.

7.3. Connectivity

Submitters have the following comments related to connectivity:

- *Concern that pedestrians may take shortcuts through adjoining industrial sites*
- *Support for access lanes to connect at both ends to avoid reversing / turning around to exit.*

A pedestrian connection to Te Rapa Road is provided at the north-eastern end of the development and footpaths are provided on Ken Brown Drive. There is no reason for people to pass through adjoining sites.

There is support for the access lanes to be connected to the road network at both ends. We agree that to enable walking and cycling and provide a permeable development the use of cul-de-sacs and right-of-ways should be minimised. Most of the proposed roads are connected at both ends. The precinct plan in the ITA indicates there is one cul-de-sac[8] affecting less then 50m of road.

The proposed layout is acceptable and will be reviewed at the time of subdivision for compliance with the District Plan rules relating to length, width and number of dwellings accessed from a lane.

7.4. Garnett Ave / Te Rapa Road Intersection

Submitters have the following comments related to the intersection:

- *Concern that the existing intersection is already not fit for purpose and will not cope with additional traffic.*

As stated in Section 6.3 of this letter, we agree with the ITA that improvements within the existing road boundary are not practical. It is likely that traffic will find an alternative route, which might include travelling further down Garnett Ave and using an alternative connection to Te Rapa Road. Several routes are possible as shown Figure 6.

7.5. Ken Browne Drive

Submitters have the following comments related to Ken Brown Drive:

- *Increased traffic will cause congestion, particularly given the width of the road formation in this location.*
- *It may be used as a shortcut*
- *There will be an increased risk of accidents.*
- *Ken Brown Drive will be used for residential parking*

Section 6.5 of this letter addresses the transport effects on Ken Browne Drive. Given that Ken Brown Drive is one of the two access points to the residential area additional traffic is expected. The additional traffic is expected to be within the capacity of the road, especially if some parking is removed.

We support speed management measures and traffic calming to manage vehicle speeds and to discourage shortcuts though the development. The internal layout of the site means that travel through the site takes an indirect route.

[8] In addition, two rear lanes are shown on the Concept Plan within the ITA

7.6. Sir Tristram Ave

Submitters have the following comments related to Sir Tristram Ave:

- *Increased traffic will cause more congestion at the intersection.*
- *This means it may be difficult to exit the service lane.*

The proposed layout of the intersection bans right turns out of Sir Tristram Ave, which means that there won't be a queue of traffic waiting to turn right into Te Rapa Road which would block the service lane exit. Traffic exiting the service lane will only need to give way to traffic turning into Sir Tristram Ave from Te Rapa Road. Overall, we consider the proposed intersection layout acceptable.

7.7. Safety

Submitters have the following comments related to safety:

- *Increased traffic on Ken Brown Drive and use of these roads as a short cut will increase the risk of accidents at peak hours.*
- *Risks to elderly residents from increased traffic and crime.*

We support speed management measures and traffic calming to manage vehicle speeds and to discourage shortcuts though the development. The internal layout of the site means that travel through the site takes an indirect route.

Provided that the transport network meets HCC standards, there is no reason why safety would be compromised. The proposal includes pedestrian facilities that improve safety for non-car modes of travel. We recommend that the plan provisions clearly identify the location and timing of pedestrian improvements.

8. Proposed District Plan Provisions

8.1. Precinct Plan

The proposed Precinct Plan (provided below) aligns with the concept plan described in the ITA. We have no transport related comments on the proposed Precinct Plan.

Figure 11 Precinct Plan (Proposed District Plan Figure 4.5-1)

8.2. Proposed Provisions

The Plan Change includes proposed changes to the Hamilton District Plan relating directly to transport. We generally agree that the proposed transport-related district plan changes are appropriate. We have provided comments and recommended changes in the following table.

Provision	Item / Standard	Comments
Objective 4.2.15 and Policies A4.2.15a-d	**Objective 4.2.15** A well-functioning urban environment that enables all people and communities to provide for their social, economic, and cultural wellbeing, and for their health and safety, now and into the future. The Te Rapa Racecourse Medium-Density Residential Precinct provides for a variety of housing types and sizes that respond to; (a) housing needs and demand; and (b) The neighbourhood's planned urban built character, including 3 to 5-storey buildings **Policy A4.2.15a** Apply the Medium Density Residential Standards (MDRS) across the Precinct except in circumstances where a qualifying matter is relevant (including matters of significance such as historic heritage and the relationship of Maori and their culture and traditions with their ancestral lands, water, sites, wahi tapu, and other taonga). **Policy A4.2.15b** Encourage development to achieve attractive and safe streets and public open spaces, including by providing for passive surveillance. **Policy A4.2.15c** Enable housing to be designed to meet the day-to-day needs of residents. **Policy A4.2.15d** Provide for developments not meeting permitted activity status, while encouraging high-quality developments.	No transport related comments
Objective 4.2.16 and Policies 4.2.16a-e	**Objective 4.2.16** The Te Rapa Racecourse Medium-Density Residential Precinct enables a medium density residential environment with high levels of amenity and connectivity with nearby urban services and development. **Policy 4.2.16a** Development enables a variety of housing types up to 5-storeys, including terrace housing, duplexes and apartments, together with detached residential units. **Policy 4.2.16b** Development includes open space and landscaped areas for amenity, visual mitigation, stormwater treatment and stormwater overland flow paths. **Policy 4.2.16c** Development is designed to prioritise walking, cycling and micro-mobility, and minimize through traffic. **Policy 4.2.16d** Development is designed to minimize reverse sensitivity effects on the adjacent industrial area and the racecourse. **Policy 4.2.16e** Development integrates with and connects to the racecourse and existing residential development on the southern boundary.	Recommend minor edits as per tracked changes in green

<table>
<tr><th>Provision</th><th>Item / Standard</th><th>Comments</th></tr>
<tr><td>4.8.12a</td><td>All development must be in general accordance with the development layout on the Te Rapa Racecourse Medium-Density Residential Precinct Plan (Figure 4.5-1).</td><td>Agree</td></tr>
<tr><td>4.8.12b</td><td>~~Prior to the issue of code compliance certificates under section 95 of the Building Act 2004 for more than 60 residential units (or equivalent vehicle movements) or w~~ When the internal road network is connected to Sir Tristram Avenue, ~~whichever comes first, the Sir Tristram Avenue/Te Rapa Road intersection must be upgraded to prevent right turns out of Sir Tristram Avenue.~~

The Sir Tristram Avenue/Te Rapa Road intersection must be upgraded to prevent right turns out of Sir Tristram Avenue either:
- Prior to the issue of code of compliance certificates under section 95 of the Building Act 2004 for more than 60 residential units, or
- When the internal road network is connected to Sir Tristram Ave.
whichever comes first.</td><td>Recommend rewording condition as per tracked changes in green.
Support requirement for intersection upgrade as soon as the internal network is connected to Sir Tristram Ave.</td></tr>
<tr><td>4.8.12c</td><td>Prior to the issue of any code compliance certificates under section 95 of the Building Act 2004 for any residential units the existing footpath on Ken Browne Drive must be extended to connect to footpaths within the Precinct.</td><td>Agree</td></tr>
<tr><td>4.8.12d</td><td>When the internal road network is connected to Sir Tristram Avenue;
(i) The existing footpath on the northern side of Sir Tristram Avenue must be extended to connect to the bus stop on Te Rapa Road located approximately 110m northwest of Sir Tristram Avenue; and
(ii) A new walking and cycling shared path must be constructed on the southern side of Sir Tristram Avenue from the road access into the Precinct, along the service lane south-eastwards on Te Rapa Road to a new raised safety platform crossing across the service lane, and to a new mid-block raised safety platform staggered signalized crossing across Te Rapa Road; and
(iii) No vehicle ~~connection~~ ~~must~~ access shall be provided from Sir Tristram Avenue to Mainstreet Place.</td><td>(i) Agree

(ii) Agree.

(iii) Recommend minor edits as per tracked changes in green</td></tr>
<tr><td>4.8.12e</td><td>The existing carpark shown on the Te Rapa Racecourse Medium Density Residential Precinct Plan (Figure 4.5-1) must be used only for access and carparking associated with healthcare services on Lot 13 DPS 6240.</td><td>No comments</td></tr>
<tr><td>23.7.9c</td><td>c. All subdivision must comply with the following standards:
<table><tr><td>(i)</td><td>Minimum Local Road legal width (to be vested)</td><td>16m</td></tr><tr><td>(ii)</td><td>Minimum legal width of two-way rear lane</td><td>7m</td></tr><tr><td>(iii)</td><td>Minimum transport corridor boundary length</td><td>10m</td></tr><tr><td>(iv)</td><td>Minimum lot depth</td><td>28m</td></tr></table></td><td>Refer discussion below</td></tr>
</table>

Provision	Item / Standard	Comments
23.7.9c	(i) Minimum Local Road legal width (to be vested) ~~16m~~ 16.8m	**We recommend that the minimum width be increased to 16.8m** to provide 2.1m for parking and 1.5m berms. This aligns with the decisions version of PC5 (Peacocke) (Appendix 15, Table 15-6b). We note that the notified version of PC12 Enabling Housing Supply (Appendix 15, Table 15-5a)ii)) provides for a 16.8m wide Local (low volume) transport corridor.
23.7.9c	(ii) Minimum legal width of two-way rear lane 7m	Generally, we agree that the proposed 7m lane is sufficient. As stated in the ITA, there are strong walking and cycling connections, and each development lot will provide sufficient space for occupants to park vehicles. We note that the notified version of PC12 Enabling Housing Supply (Appendix 15, Table 15-5a)i)) provides for 7m wide rear lanes.
Assessment Criteria Pb	b. The extent to which the subdivision and development layout; (i) gives effect to Objective 4.2.15 and Policies 4.2.15 a-e; (ii) is consistent with the development layout on Figure 4.5-1; (iii) does not foreclose options for future development of the balance of the Te Rapa Racecourse land; (iv) implements Crime Prevention Through Environmental Design (CPTED) principles; (v) integrates landscape design with the adjacent Te Rapa Racecourse; (vi) provides a visual buffer between residential development and the adjacent Industrial zoned land; (vii) avoids incompatible development within the Overland Flow Plath area.	No transport related comments

9. Conclusions and Recommendations

From a transportation planning perspective, the location and transport connections mean that residential activities are consistent with the transportation objectives and policies in the ODP and HCC's strategic framework.

Separate to this plan change, we recommend that HCC (Transportation Unit):

- Review and update the existing signage to ensure that u-turns identified in the HCC Traffic Bylaw are enforceable.
- Update the HCC Traffic Bylaw to include ensure that the section of the service lane north of Sir Tristram Ave is detailed as one-way.

Our assessment of the information provided in the ITA indicates that the Proposal could help promote sustainable management of the environment. We have recommended minor amendments to the proposed plan provisions. The site is appropriately connected and appears to support intensification and infill. In our opinion, from a transport perspective, it is likely to be consistent with the RPS and ODP.

If you have any questions, please contact us.

Yours sincerely

Isa Ravenscroft
Transportation Engineer

Alastair Black
Senior Transportation Engineer

APPENDIX 1: DETAILED REVIEW OF ITA

Table 15-2b of the HCC District Plan outlines the requirements of a Broad ITA. These are detailed in the following table, along with our review of the provided ITA, comments on adequacy of information provided and any recommendations.

Item description	Details to be included [2]	Review of information provided in ITA	Recommendations
a) Background	A description of the proposed activity, the purpose and intended use of the ITA, and an outline of any previous discussions with the relevant road controlling authorities	Adequately described in Section 2.1.	None
b) Existing land data	A description of location, site layout, existing use and consents (if any), adjacent and surrounding land use	Described in Sections 3.1 and 3.2.	None
c) Existing transport data	A description of the existing access and service arrangements and on-site car parking. A description of the surrounding transport network (including hierarchy, traffic volumes, crash analysis, congestion and intersections). A description of passenger transport modes and accessibility, walking and cycling networks.	Section 3.3 has been updated to reflect the latest traffic volumes from mobileroad.org. Section 3.5 of the ITA includes traffic counts and SCATS data from May 2021. At that time NZ was at Covid Alert Level 1, and people were able to return to work. The SCATS and count data appears to be consistent with the mobileroad.org data we extracted. Crash history is included in the ITA, with no obvious safety concerns. A number of non-injury rear-end crashes have occurred at the Garnett Ave intersection. Passenger transport, walking and cycling are well-described.	None
d) Committed environmental changes	Consideration of other developments and land use and transport network improvements (including passenger transport, walking and cycling)	Not considered in the ITA, however we are unaware of any infrastructure changes that would significantly influence the proposal. Further Home Straight development is currently subject to appeals.	None
e) Existing travel characteristics	Details on the existing trip generation, modal split, and assignment of trips to the network	Mostly green space/ park area, not applicable.	None
f) Proposal details	A description of the proposal (including site layout, operational hours, vehicle access, on site car parking and drop off, and internal vehicle and pedestrian circulation). A description of any construction management matters. A description of what end of journey facilities are proposed	ITA includes a concept plan (Page 20, Figure 19). Section 4.3 of the ITA provides information on road design, including a road reserve width of 16m instead of the 20m required for local roads in the District Plan. Typical cross-sections are provided. Footpaths are 1.8m wide as recommended in our previous review. The updated ITA differentiates between local (public) roads and private roads (rear laneways).	Confirm number of on-street parking bays to be provided at design stage. Consent condition requiring construction management plan (CMP) as part of future consents to manage site access and any potential conflict with racing events.

Item description	Details to be included [2]	Review of information provided in ITA	Recommendations
		The ITA recommends that a median barrier with pedestrian and bicycle through route could be installed on the internal local road intersections to prevent the right turns into and out of the service lanes. Detailed design of internal roads and other such transport infrastructure within the subject site will be carried out at subsequent consent application stages of the development project. The ITA does not state how many parking bays will be provided, stating: *'Recessed parking bays will not be provided along the entire length of the internal road. However, pockets of recessed parallel parking bays will be provided at certain sections of the road to accommodate visitor parking.'* and states that the number of parks will be decided at detailed design stage. Although minimum parking standards have been removed from District Plan requirements, design standards for local roads include parking, and it would be helpful to know how many are planned. This can be confirmed during detailed design. The ITA states that footpaths will be provided on both sides of the roads. This is shown on the typical cross-sections however is not apparent in the concept plan provided. Construction management is not addressed in the ITA, however due to the greenfield nature of the site we do not anticipate any construction issues.	
g) Predicted travel data	A description of the trip generation, modal split, trip assignment to the network, trip distribution and trip type proportions of the proposal. Consideration of future traffic volumes and trip generation. A 20-year assessment period for major arterial and strategic transport corridors should be used. Assessment periods shall be from date of application. If relevant validated and comprehensive transportation forecasts are not available, the assessment should consider expected traffic conditions over a 10-year period and the sensitivity of assessment conclusions to changes in traffic condition.	Section 5 of the ITA includes predicted trip generation. The assessment appears reasonable, at 200 dwellings generating about 1,500 vpd and 160 trips / hour in the peak period, based on RTA Guide trip generation rates. We note that the daily trip generation is slightly lower than the original ITA predicted, however we expect this to have little impact on the outcome of the assessment. Section 6 of the ITA addresses trip distribution. The assumptions made around trip distribution to and from the site appear reasonable. The ITA does not consider modal split; however, footpaths are provided for pedestrians, cycling is anticipated within the lane and the areas is served by public transport. Bus stops on Te Rapa Road are some distance from the site and requires a lengthy diversion to the signalised intersection to safely cross Te Rapa Road.	Consent condition requiring no possibility of vehicular access to and from the site via the Racecourse property's internal roading network.

Item description	Details to be included [2]	Review of information provided in ITA	Recommendations
		An assessment period is considered in the ITA, considering an expected increase in traffic volume on Te Rapa Road. This would increase difficulty for vehicles to turn right into Sir Tristram Avenue.	
h) Appraisal of transportation effects	An assessment of safety, efficiency, environmental, accessibility, integration and economic effects (including sensitivity testing). A specific assessment of the safety and efficiency of the transport network against G3 to G6 in Appendix 1.3.3 Restricted Discretionary, Discretionary and Non-Complying Assessment Criteria – G Transportation Where the proposed activity has the potential to impact on the state highway, a summary of consultation with the New Zealand Transport Agency shall be included	Section 7 of the ITA assesses the transport effects of the proposal. **Safety** There are potential safety effects that result from increased traffic to and from the existing transport network, along with increased pedestrian and cycling movements in the surrounding area. Safety risks have been identified in the ITA, which includes suggested mitigation measures. Sight distance, separation distance and vehicle crossing widths are expected to comply. We agree with the ITA that all rear-lane vehicle crossings should be formed in accordance with the RITS Section 3.3.19.3 and Drawing D3.3.1 residential standard crossing.	Continued consultation with WRC regarding connections to public transport
		Efficiency The ITA includes a SIDRA analysis of intersection performance, in terms of level of service, based on 2021 traffic volumes and 2031 traffic volumes. Background traffic volume increases for affected roads were assumed. We agree with the ITA that this is a more conservative approach than using WRTM modes, which may underestimate volumes. • Based on intersection average, the LOS at Garnett Ave is expected to reduce from D to E, and to F for the worst movements. • Efficiency effects at the Ken Browne Dr / Garnett Ave intersection are acceptable. • The ITA suggested changes at the Sir Tristram / Te Rapa Road intersection improves the LOS. The ITA assessment appears reasonable. **Accessibility** Site serviced by public transport, footpaths proposed, cycle parking will be provided for the apartments. No adverse effects expected. ITA includes details for power pole relocation on Sir Tristram so that appropriate footpath extension is possible. **Integration**	None

Item description	Details to be included [2]	Review of information provided in ITA	Recommendations
		Infrastructure expected to be integrated with existing transport infrastructure. No adverse effects expected.	
i) Avoiding or mitigating actions	Details of any mitigating measures and revised effects, including measures to encourage other modes. Travel planning and travel demand management measures and sensitivity testing mitigations	Mitigation measures include intersection redesign, construction and extension of footpaths, parking restrictions. Table 12 in Section 7.10 of the ITA includes suggested staging of transport infrastructure improvements. These appear reasonable and appropriate for the development. Concern about delay of improvements at Sir Tristram Ave/ Te Rapa Road Section 7.8 does not suggest timing of banning parking on Ken Browne Drive, however as this would be carried out as a separate LGA process, it cannot be relied upon.	Confirm process and potential timing of LGA process to restrict parking and change turning manoeuvres at the time of subdivision. Recommend improvements at Sir Tristram Ave/ Te Rapa Road as soon as access provided to Sir Tristram Ave
j) Compliance with policy and other frameworks	Review against District Plan objectives, policies and rules. Detailed assessment against Access Hamilton and associated action plans. Other relevant local, regional and national strategies or plans (e.g., Regional Land Transport Strategy, Regional Public Transport Plan)	Section 8 of the ITA includes an assessment of the proposed plan change against: • Government Policy Statement on Land Transport 2021 / 22 – 2030 / 31 • Waikato Regional Land Transport Plan 2021 – 2051 • Access Hamilton Strategy • Road to Zero Road Safety Strategy 2020 – 2030 We agree with the ITA that the proposed plan change is generally consistent with relevant policies and strategies at both national and local levels. An assessment against the HCC District Plan is not provided, however the proposal generally appears to support objectives and policies.	None
k) Safety and Efficiency	Any changes over the relevant assessment period to the: a. Predicted level of personal risk to individuals (safety) using the network. b. Levels of service (efficiency) of the network Consideration of whether the desirable levels of service set out in the notes below can or should be maintained.	Included in appraisal of transport effects. Some effect on efficiency, considered acceptable. Potential effect on safety, mitigation measures included.	Recommend improvements at Sir Tristram Ave/ Te Rapa Road as soon as access provided to Sir Tristram Ave

Item description	Details to be included [2]	Review of information provided in ITA	Recommendations
	This should also recognise the pre-proposal levels of service and whether other benefits accrue that could have the potential to offset or otherwise support a lesser level of service. For example, longer traffic delays resulting in slower speeds may support pedestrian-friendly land use environment in the Central City.		
l) Discussion and conclusions	An assessment of effects and conclusion of effects. **Confirmation of the suitability of the location of the proposal**	Included in Section 9 of ITA.	None
m) Recommendations	Proposed conditions (if any)	Recommendations provided in ITA	None.

APPENDIX 2: HCC TRAFFIC BYLAW EXTRACTS

One Way Roads

The following roads or parts of roads are one way.

Road	Section/Part	Permitted direction of travel
Commerce Street	High Street to Lake Road	South West
Cook Street	Grey Street to Firth Street	East
Dey Street	Cassidy Street to Old Farm Road	North
Grantham Street	Tisdall Street to Victoria Street	South
Hillsborough Terrace	Grantham Street and Tisdall Street	South
Kent Street	For a distance of 28 metres from the intersection of Norton Road	South
Nisbet Street	For a distance of 133 metres north east from the intersection of Tristram Street	North-easterly
Tasman Road	Starting at a point 141m south of Chalmers Road and progressing 80m to the south	North
Tawa Street	Kahikatea Drive to #15 Tawa Street	South-Westerly
Te Rapa Road (Service Lane Only)	Vardon Road to Sir Tristram Avenue	North
Wairere Drive (Off ramp)	Wairere Drive to Carrs Road	South
Wairere Drive (On ramp)	Tramway Road to Wairere Drive	North

Figure 12 HCC Traffic Bylaw - One Way Roads

Part 3: U Turns

Vehicles and bicycles are prohibited from making the following U turns. This restriction applies 24 hours, Seven days per week.

Location	Description
Anglesea Street	•Anglesea Street (southbound) at Ward Street
River Road	•River Road (south bound) 44m south of Harrowfield Drive •River Road (south bound) at Harrowfield Drive
Ruakura Road	•Ruakura Road (west bound) just west of Wairere Drive
Te Rapa Road	•Te Rapa Road (north and south bound) between Pukete Road and Wairere Drive •Te Rapa Road (northbound) at Pukete Road •Te Rapa Road (north bound slip lane) at Sir Tristram Avenue •Te Rapa Road (south bound) at Home Straight •Te Rapa Road (south bound) at Mahana Road •Te Rapa Road (south bound) at Sir Tristram Avenue •Te Rapa Road (south bound) Euclid Avenue •Tristam Street (north bound and south bound) at Clarence Street

Figure 13 HCC traffic bylaw - U turns

APPENDIX 3: SUMMARY OF TRANSPORT RELATED SUBMISSIONS

Submitters

	Submitter
1	McMac Properties Limited
2	Fire and Emergency New Zealand
3	Fonterra Limited
4	Metlifecare Ltd.
5	Murray J. V. Bindon, Lanza International Ltd
6	Chartwell Investments Ltd
7	Takanini Rentors
8	Ecostream Irrigation
9	Shane Burnett Housley
10	Denise Allen – Ecostream Irrigation
11	Derek Fleet, Purewater Products
12	Scott Brocket, Custom Utes
13	Angela Fisher, NTB Racing
14	Jason and Melanie Trethowen, Green Ladder Construction Ltd. Trading as Ideal Buildings
15	Mordie Myburgh, Ehome Building Centre
16	Brent Shadbolt, Miller Electrical Ltd
17	Greg Roberts, Archery Direct
18	Alan Day, A.L. Day trading as Keyport
19	Neil Fernworth, Fernworth Investments Ltd
20	Graham and Janice Lewis
21	Douglas Bruce John Hopkins
22	Gordon Finlay, Katja Hart
23	Gill Adshead, Kereru Partnership
24	Kāinga Ora
25	Stephen Lyons
26	Phillip Robinson

Further Submissions

We have reviewed the further submission received from EnviroWaste which supported the original transport related submissions from Submitters 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23.

Summary of Submissions

Sub N°	Submitter name(s)	Sub Point	Subject	Oppose/ Support	Summary of Submission	Relief/Decision Sought	HCC Response (reference to transport review letter dated 16 May 2023
1	McMac Properties Limited	1.5 (same as Sub, 6.8,24.2, 24.4)	Transportation	Oppose	Intersection of Garnett Avenue and Te Rapa Road is already not fit for purpose and will not cope. Where will the cars park who presently use Ken Brown Drive.	Investigation of major upgrades of road intersections at Garnett Avenue/Te Rapa Road and Sir Tristram Avenue/Te Rapa Road in conjunction with all of Te Rapa Straight. Houses and roading systems to provide for adequate parking.	Reject submission. Refer discussion at Section 6.3, Section 7.2, Section 7.4
2	Fire and Emergency New Zealand	2.3 (Same as 6.7,6.8,1.5)	Transportation	Support in part	Vehicular roading and access widths, surface and gradients should support the operational requirements of Fire and Emergency appliances. Support the no parking restriction being introduced along the northbound lane of Ken Browne Drive which would result in the full carriageway width being trafficable at all times for emergency service vehicles. The same approach should be taken for Sir Tristram Avenue. The trafficable carriageway of 6m should not be reduced or used to accommodate parking. The typical cross section provided in Figure 20 and 21 of the Integrated Transport Assessment (ITA) is supported on that basis. Fire and Emergency support the private rear-lanes being constructed to a minimum carriageway	1. Fire and Emergency suggest that Council consider introducing a 4m vertical clearance requirement for all transport corridors within the Te Rapa Racecourse Medium Density Residential Precinct. 2. No parking on Sir Tristram Avenue.	Accept in part Height restrictions on rear lanes addressed as part of PC12 Enabling Housing Supply. Agree that removal of parking is required to maintain the movement function of Sir Tristram Avenue

Sub N°	Submitter name(s)	Sub Point	Subject	Oppose/ Support	Summary of Submission	Relief/Decision Sought	HCC Response (reference to transport review letter dated 16 May 2023
					width of 5.5m as shown in Figure 22 of the ITA on the basis that no off street parking will be provided along the rear lanes. Care should be given to roadside landscaping. Further support these rear-lanes being designed as through roads creating crossroad intersections with the local roads which will avoid the need for turning circles and reverse maneuvering. Support new Rule 23.7.9 specific to the Te Rapa Racecourse Medium-Density Residential Precinct that requires all subdivision to comply with the minimum widths as specified in the ITA, and on the basis that the development will be subject to the minimum carriageway widths as specified in Appendix 15 Table 15- 6aii of the district plan. Council should consider the effects of the potential for increased demand on off-street parking given there is no requirement by the developer to provide onsite parking.		
6	Chartwell Investments Ltd	6.7 (Same as Sub 24.3)	Transportation	Oppose	Increased traffic on Ken Brown Drive will cause congestion, particularly given the width of the road formation in this location.	Decline the plan change or: 1. Require the applicant to comprehensively evaluate under s32 the consequential effects of the plan change on adjoining Industrial Zone sites in terms of additional restrictions on activities and site development opportunities. 2.Require the applicant to provide an evidence-based land supply analysis to justify the proposed residential land use over other options such as industrial. 3. Amend Policy 4.2.16d, Rule 4.8.2, Rule 4.5.4, 4.8.12, 4.11 a) xxii), and Provision 1.3.3 P - Te Rapa Racecourse Medium Density Residential Precinct to better address reverse sensitively Matters. 4.Increase the buffer to 60m and ensure adjoining industrial zoned sites are not disadvantaged by the consequential impacts on development potential. Alternatively provide an industrial zoning in the area identified as the Noise Sensitive Area on the precinct plan to safeguard the adjoining industrial land. Allow for an "Amenity Protection Overlay" to be established on the new industrial area to manage the residential/industrial interface. The submitter prefers the former option. 5. Impose a no-complaints covenant on the record of title associated with any new residential unit.	Accept in part. Removal of parking is required to maintain the movement function of Sir Tristram Avenue Refer to Sections 7.4-7.6
		6.8 (Same as Sub 24.4)	Transportation	Oppose	Insufficient parking for the number of houses proposed. Ken Brown Drive will be used for residential parking which will reduce availability for customers and staff of businesses in the area.		Accept in part. On-street parking will be removed to manage the movement function of the roads. On-street parking will be managed in accordance with HCC's parking Policy. Refer to Section 7.2
		6.9 (Same as Sub 24.6)	Transportation/ General	Oppose	The development may lead to an increase in crime and pedestrians may take short cuts through adjoining industrial sites due to limited connectivity.		Reject submission. Pedestrian connectivity is considered appropriate. Refer to Section 7.3
7	Takanini Rentors (Same Subs for transport from 7-22)	7.7	Transportation	Oppose	Increased traffic on Sir Tristram Way will cause congestion at the intersection of Te Rapa Road and make it more difficult for traffic existing the service lane.	Decline the plan change or: 1. Require the applicant to comprehensively evaluate under s32 the consequential effects of the plan change on adjoining Industrial Zone sites in terms of additional restrictions on activities and site development opportunities. 2.Require the applicant to provide an evidence-based land supply analysis to justify the proposed residential land use over other options such as industrial. 3. Amend Policy 4.2.16d, Rule 4.8.2, Rule 4.5.4, 4.8.12, 4.11 a) xxii), and Provision 1.3.3 P - Te Rapa Racecourse Medium Density Residential Precinct to better address reverse sensitively Matters. 4.Increase the buffer to 60m and ensure adjoining industrial zoned sites are not disadvantaged by the consequential impacts on development potential. Alternatively provide an industrial zoning in the area identified as the Noise Sensitive Area on the precinct plan to safeguard the adjoining industrial land. Allow for an "Amenity Protection Overlay" to be established on the new industrial area to manage the residential/industrial interface. The submitter prefers the former option. 5. Impose a no-complaints covenant on the record of title associated with any new residential unit.	Accept in part. The proposed intersection layout is considered acceptable. Refer to Section 7.6
		7.8	Transportation	Oppose	Insufficient parking for the number of houses proposed. The service lane could be used for overflow parking and reduce the availability for customers and staff.		Accept in part. On-street parking will be removed to manage the movement function of the roads. On-street parking will be managed in accordance with HCC's parking Policy. Refer to Section 7.2
		7.9	Transportation/ General	Oppose	The development may lead to an increase in crime and pedestrians may take short cuts through adjoining industrial sites due to limited connectivity.		Reject submission. Pedestrian connectivity is considered appropriate. Refer to Section 7.3
8	Ecostream Irrigation	8.7	Transportation	Oppose	Increased traffic on Sir Tristram Way will cause congestion at the intersection of Te Rapa Road and make it more difficult for traffic existing the service lane.	Decline the plan change or: 1. Require the applicant to comprehensively evaluate under s32 the consequential effects of the plan change on adjoining Industrial Zone sites in terms of additional restrictions on activities and site development opportunities. 2.Require the applicant to provide an evidence-based land supply analysis to justify the proposed residential land use over other options such as industrial. 3. Amend Policy 4.2.16d, Rule 4.8.2, Rule 4.5.4, 4.8.12, 4.11 a) xxii), and Provision 1.3.3 P - Te Rapa Racecourse Medium Density Residential Precinct to better address reverse sensitively Matters. 4.Increase the buffer to 60m and ensure adjoining industrial zoned sites are not disadvantaged by the consequential impacts on development potential. Alternatively provide an industrial zoning in the area identified as the Noise Sensitive Area on the precinct plan to safeguard the adjoining industrial land. Allow for an "Amenity Protection Overlay" to be established on the new industrial area to manage the residential/industrial interface. The submitter prefers the former option. 5. Impose a no-complaints covenant on the record of title associated with any new residential unit.	Accept in part. The proposed intersection layout is considered acceptable. Refer to Section 7.6
		8.8	Transportation	Oppose	Insufficient parking for the number of houses proposed. The service lane could be used for overflow parking and reduce the availability for customers and staff.		Accept in part. On-street parking will be removed to manage the movement function of the roads. On-street parking will be managed in accordance with HCC's parking Policy. Refer to Section 7.2
		8.9	Transportation/ General	Oppose	The development may lead to an increase in crime and pedestrians may take short cuts through adjoining industrial sites due to limited connectivity.		Reject submission. Pedestrian connectivity is considered appropriate. Refer to Section 7.3
9	Shane Burnett Housley	9.4	Transportation	Oppose	The proposal could cause traffic congestion at the intersection of Sir Tristram Way and Te Rapa Road making it difficult to exit the service lane.		Accept in part. The proposed intersection layout is considered acceptable. Refer to Section 7.6
		9.5	Transportation	Oppose	A lack on on-site parking may result in residents parking on the service lane reducing the availability of spaces for customers and staff of the businesses.		Accept in part. On-street parking will be removed to manage the movement function of the roads. On-street parking will be managed in accordance with HCC's parking Policy. Refer to Section 7.2
		9.6	Transportation/ General	Oppose	There is potential of increased crime and pedestrians taking short cuts due to the development lacking connectivity.		Reject submission. Pedestrian connectivity is considered appropriate. Refer to Section 7.3
10	Denise Allen – Ecostream Irrigation	10.4	Transportation	Oppose	The proposal could cause traffic congestion at the intersection of Sir Tristram Way and Te Rapa Road making it difficult to exit the service lane.		Accept in part. The proposed intersection layout is considered acceptable. Refer to Section 7.6
		10.5	Transportation	Oppose	A lack on on-site parking may result in residents parking on the service lane reducing the availability of spaces for customers and staff of the businesses.		Accept in part. On-street parking will be removed to manage the movement function of the roads. On-street parking will be managed in accordance with HCC's parking Policy. Refer to Section 7.2

Sub N°	Submitter name(s)	Sub Point	Subject	Oppose/ Support	Summary of Submission	Relief/Decision Sought	HCC Response (reference to transport review letter dated 16 May 2023
		10.6	Transportation/ General	Oppose	There is potential of increased crime and pedestrians taking short cuts due to the development lacking connectivity.		Reject submission. Pedestrian connectivity is considered appropriate. Refer to Section 7.3
11	Derek Fleet, Purewater Products	11.4	Transportation	Oppose	The proposal could cause traffic congestion at the intersection of Sir Tristram Way and Te Rapa Road making it difficult to exit the service lane.		Accept in part. The proposed intersection layout is considered acceptable. Refer to Section 7.6
		11.5	Transportation	Oppose	A lack on on-site parking may result in residents parking on the service lane reducing the availability of spaces for customers and staff of the businesses.		Accept in part. On-street parking will be removed to manage the movement function of the roads. On-street parking will be managed in accordance with HCC's parking Policy. Refer to Section 7.2
		11.6	Transportation/ General	Oppose	There is potential of increased crime and pedestrians taking short cuts due to the development lacking connectivity.		Reject submission. Pedestrian connectivity is considered appropriate. Refer to Section 7.3
12	Scott Brocket, Custom Utes	12.4	Transportation	Oppose	The proposal could cause traffic congestion at the intersection of Sir Tristram Way and Te Rapa Road making it difficult to exit the service lane.		Accept in part. The proposed intersection layout is considered acceptable. Refer to Section 7.6
		12.5	Transportation	Oppose	A lack on on-site parking may result in residents parking on the service lane reducing the availability of spaces for customers and staff of the businesses.		Accept in part. On-street parking will be removed to manage the movement function of the roads. On-street parking will be managed in accordance with HCC's parking Policy. Refer to Section 7.2
		12.6	Transportation/ General	Oppose	There is potential of increased crime and pedestrians taking short cuts due to the development lacking connectivity.		Reject submission. Pedestrian connectivity is considered appropriate. Refer to Section 7.3
13	Angela Fisher, NTB Racing	13.4	Transportation	Oppose	The proposal could cause traffic congestion at the intersection of Sir Tristram Way and Te Rapa Road making it difficult to exit the service lane.		Accept in part. The proposed intersection layout is considered acceptable. Refer to Section 7.6
		13.5	Transportation	Oppose	A lack on on-site parking may result in residents parking on the service lane reducing the availability of spaces for customers and staff of the businesses.		Accept in part. On-street parking will be removed to manage the movement function of the roads. On-street parking will be managed in accordance with HCC's parking Policy. Refer to Section 7.2
		13.6	Transportation/ General	Oppose	There is potential of increased crime and pedestrians taking short cuts due to the development lacking connectivity.		Reject submission. Pedestrian connectivity is considered appropriate. Refer to Section 7.3
14	Jason and Melanie Trethowen, Green Ladder Construction Ltd. Trading as Ideal Buildings	14.4	Transportation	Oppose	The proposal could cause traffic congestion at the intersection of Sir Tristram Way and Te Rapa Road making it difficult to exit the service lane.		Accept in part. The proposed intersection layout is considered acceptable. Refer to Section 7.6
		14.5	Transportation	Oppose	A lack on on-site parking may result in residents parking on the service lane reducing the availability of spaces for customers and staff of the businesses.		Accept in part. On-street parking will be removed to manage the movement function of the roads. On-street parking will be managed in accordance with HCC's parking Policy. Refer to Section 7.2
		14.6	Transportation/ General	Oppose	There is potential of increased crime and pedestrians taking short cuts due to the development lacking connectivity.		Reject submission. Pedestrian connectivity is considered appropriate. Refer to Section 7.3
15	Mordie Myburgh, Ehome Building Centre	15.4	Transportation	Oppose	The proposal could cause traffic congestion at the intersection of Sir Tristram Way and Te Rapa Road making it difficult to exit the service lane.		Accept in part. The proposed intersection layout is considered acceptable. Refer to Section 7.6
		15.5	Transportation	Oppose	A lack on on-site parking may result in residents parking on the service lane reducing the availability of spaces for customers and staff of the businesses.		Accept in part. On-street parking will be removed to manage the movement function of the roads. On-street parking will be managed in accordance with HCC's parking Policy. Refer to Section 7.2
		15.6	Transportation/ General	Oppose	There is potential of increased crime and pedestrians taking short cuts due to the development lacking connectivity.		Reject submission. Pedestrian connectivity is considered appropriate. Refer to Section 7.3
16	Brent Shadbolt, Miller Electrical Ltd	16.4	Transportation	Oppose	The proposal could cause traffic congestion at the intersection of Sir Tristram Way and Te Rapa Road making it difficult to exit the service lane.		Accept in part. The proposed intersection layout is considered acceptable. Refer to Section 7.6
		16.5	Transportation	Oppose	A lack on on-site parking may result in residents parking on the service lane reducing the availability of spaces for customers and staff of the businesses.		Accept in part. On-street parking will be removed to manage the movement function of the roads. On-street parking will be managed in accordance with HCC's parking Policy. Refer to Section 7.2
		16.6	Transportation/ General	Oppose	There is potential of increased crime and pedestrians taking short cuts due to the development lacking connectivity.		Reject submission. Pedestrian connectivity is considered appropriate. Refer to Section 7.3
17	Greg Roberts, Archery Direct	17.4	Transportation	Oppose	The proposal could cause traffic congestion at the intersection of Sir Tristram Way and Te Rapa Road making it difficult to exit the service lane.		Accept in part. The proposed intersection layout is considered acceptable. Refer to Section 7.6
		17.5	Transportation	Oppose	A lack on on-site parking may result in residents parking on the service lane reducing the availability of spaces for customers and staff of the businesses.		Accept in part. On-street parking will be removed to manage the movement function of the roads. On-street parking will be managed in accordance with HCC's parking Policy. Refer to Section 7.2
		17.6	Transportation/ General	Oppose	There is potential of increased crime and pedestrians taking short cuts due to the development lacking connectivity.		Reject submission. Pedestrian connectivity is considered appropriate. Refer to Section 7.3
18	Alan Day, A.L. Day trading as Keyport	18.4	Transportation	Oppose	The proposal could cause traffic congestion at the intersection of Sir Tristram Way and Te Rapa Road making it difficult to exit the service lane.		Accept in part. The proposed intersection layout is considered acceptable. Refer to Section 7.6

Sub N°	Submitter name(s)	Sub Point	Subject	Oppose/ Support	Summary of Submission	Relief/Decision Sought	HCC Response (reference to transport review letter dated 16 May 2023
		18.5	Transportation	Oppose	A lack on on-site parking may result in residents parking on the service lane reducing the availability of spaces for customers and staff of the businesses.		Accept in part. On-street parking will be removed to manage the movement function of the roads. On-street parking will be managed in accordance with HCC's parking Policy. Refer to Section 7.2
		18.6	Transportation/ General	Oppose	There is potential of increased crime and pedestrians taking short cuts due to the development lacking connectivity.		Reject submission. Pedestrian connectivity is considered appropriate. Refer to Section 7.3
19	Neil Fernworth, Fernworth Investments Ltd	19.4	Transportation	Oppose	The proposal could cause traffic congestion at the intersection of Sir Tristram Way and Te Rapa Road making it difficult to exit the service lane.		Accept in part. The proposed intersection layout is considered acceptable. Refer to Section 7.6
		19.5	Transportation	Oppose	A lack on on-site parking may result in residents parking on the service lane reducing the availability of spaces for customers and staff of the businesses.		Accept in part. On-street parking will be removed to manage the movement function of the roads. On-street parking will be managed in accordance with HCC's parking Policy. Refer to Section 7.2
		19.6	Transportation/ General	Oppose	There is potential of increased crime and pedestrians taking short cuts due to the development lacking connectivity.		Reject submission. Pedestrian connectivity is considered appropriate. Refer to Section 7.3
20	Graham and Janice Lewis	20.4	Transportation	Oppose	The proposal could cause traffic congestion at the intersection of Sir Tristram Way and Te Rapa Road making it difficult to exit the service lane.		Accept in part. The proposed intersection layout is considered acceptable. Refer to Section 7.6
		20.5	Transportation	Oppose	A lack on on-site parking may result in residents parking on the service lane reducing the availability of spaces for customers and staff of the businesses.		Accept in part. On-street parking will be removed to manage the movement function of the roads. On-street parking will be managed in accordance with HCC's parking Policy. Refer to Section 7.2
		20.6	Transportation/ General	Oppose	There is potential of increased crime and pedestrians taking short cuts due to the development lacking connectivity.		Reject submission. Pedestrian connectivity is considered appropriate. Refer to Section 7.3
21	Douglas Bruce John Hopkins	21.4	Transportation	Oppose	The proposal could cause traffic congestion at the intersection of Sir Tristram Way and Te Rapa Road making it difficult to exit the service lane.		Accept in part. The proposed intersection layout is considered acceptable. Refer to Section 7.6
		21.5	Transportation	Oppose	A lack on on-site parking may result in residents parking on the service lane reducing the availability of spaces for customers and staff of the businesses.		Accept in part. On-street parking will be removed to manage the movement function of the roads. On-street parking will be managed in accordance with HCC's parking Policy. Refer to Section 7.2
		21.6	Transportation/ General	Oppose	There is potential of increased crime and pedestrians taking short cuts due to the development lacking connectivity.		Reject submission. Pedestrian connectivity is considered appropriate. Refer to Section 7.3
22	Gordon Finlay, Katja Hart	22.4	Transportation	Oppose	The proposal could cause traffic congestion at the intersection of Sir Tristram Way and Te Rapa Road making it difficult to exit the service lane.		Accept in part. The proposed intersection layout is considered acceptable. Refer to Section 7.6
		22.5	Transportation	Oppose	A lack on on-site parking may result in residents parking on the service lane reducing the availability of spaces for customers and staff of the businesses.		Accept in part. On-street parking will be removed to manage the movement function of the roads. On-street parking will be managed in accordance with HCC's parking Policy. Refer to Section 7.2
		22.6	Transportation/ General	Oppose	There is potential of increased crime and pedestrians taking short cuts due to the development lacking connectivity.		Reject submission. Pedestrian connectivity is considered appropriate. Refer to Section 7.3
23	Gill Adshead, Kereru Partnership	23.4	Transportation	Oppose	The proposal could cause traffic congestion at the intersection of Sir Tristram Way and Te Rapa Road making it difficult to exit the service lane.		Accept in part. The proposed intersection layout is considered acceptable. Refer to Section 7.6
		23.5	Transportation	Oppose	A lack on on-site parking may result in residents parking on the service lane reducing the availability of spaces for customers and staff of the businesses.		Accept in part. On-street parking will be removed to manage the movement function of the roads. On-street parking will be managed in accordance with HCC's parking Policy. Refer to Section 7.2
		23.6	Transportation/ General	Oppose	There is potential of increased crime and pedestrians taking short cuts due to the development lacking connectivity.		Reject submission. Pedestrian connectivity is considered appropriate. Refer to Section 7.3
25	Stephen Lyons	25.2	Transportation	Oppose	Car parks should be provided for every dwelling off-street and sufficient numbers to have no on-street parking/		Accept in part. On-street parking will be removed to manage the movement function of the roads. On-street parking will be managed in accordance with HCC's parking Policy. Refer to Section 7.2
		25.3	Transportation	Oppose	Increased traffic on Ken Brown Drive and use of these roads as a short cut will increase the risk of accidents at peak hours.		Accept in part. The risk of short-cuts can be addressed through design of the corridors within the development. including speed management Refer to Section 7.5
		25.4	Transportation	Oppose	Removal of parking from Ken Brown Drive will mean these carparks will park elsewhere as there is insufficient parking in this area.		Accept in part. On-street parking will be removed to manage the movement function of the roads. On-street parking will be managed in accordance with HCC's parking Policy. Refer to Sections 7.2 and 7.5
		25.6	Transportation/ Social	Oppose	Risks to elderly residents from increased traffic and crime.		Accept in part. Recommend that the location and timing of pedestrian improvements is included within the plan change provisions. Refer to Section 7.7

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Hamilton City Council
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11 July 2023

Attention: Laura Galt

Dear Laura

Te Rapa Racecourse Private Plan Change - Review of Stormwater and Wastewater

Background

A private plan change is proposed to re-zone approximately 6.48ha of the Te Rapa Racecourse site currently zoned 'Major Facilities Zone' into Medium Density Residential Zone for subsequent medium density residential development. The area is proposed to be developed with a variety of dwelling styles as well as associated road and reserve areas.

The Sub-catchment Integrated Catchment Management Plan (ICMP) prepared by Wainui Environmental Ltd forms a key part of the Plan Change application. It outlines the proposed strategies and solutions for three waters demand management within the development areas. The objective of the ICMP is to present feasible three waters management options to confirm that the site is suitable for residential development without resulting in adverse effects on the downstream HCC networks and ultimate natural receiving environment.

In 2018 HCC engaged Beca Ltd (Beca) to review the ICMP and provide specialist technical and planning advice relating to the proposed three waters design aspects of the draft ICMP. We reviewed the proposed ICMP and raised several issues for the developer to clarify, address and respond to which was concluded in August 2022.

HCC has now commissioned Beca to assess stormwater and wastewater components of the proposed Plan Change based on the latest version of the ICMP prepared by Wainui Environmental dated 13 September 2022 and consider the submissions received. Assessment of water supply and related submissions is being undertaken by others.

Updated ICMP - Summary

The updated ICMP (13 September 2022**)** includes a summary of the measures which should be accommodated as part of the future design for the proposed development so that adverse effects are avoided, remedied or mitigated.

Stormwater and flood issues are proposed to be managed by the following measures (as shown in the Residential Precinct Plan Figure 4.5-1 in Appendix A – Schedule 1: Proposed Amendments to Operative District Plan):

1. structuring and arranging the plan layout of the development around identified Low Flood Hazard areas;

2. diversion of the overland flow path down a specific corridor (over roads and open spaces) that does not have new buildings within the flow path. The flow path alignment maintains connectivity for runoff crossing the development boundary;
3. addressing flood impacts by providing 100 year ARI peak flow attenuation in a proposed stormwater wetland and offsetting the existing flood areas being filled by the development;
4. management of water quality issues at a scale that can accommodate the expected future development; and,
5. providing attenuation of 2 and 10 year ARI storm peak runoff to address the impact on the piped drainage network downstream

The ICMP further recommends the following items:

Stormwater

1. *Detailed geotechnical assessment of the site should include a detailed assessment of site soakage capacity to assist in identification of areas where discharge to ground soakage may be able to be incorporated as part of the site stormwater management strategy contributing to reduced post development discharge loading on the downstream HCC stormwater network and to achieve the HCC district plan water efficiency design requirements;*
2. *Detailed flood modelling of the post development flood scenario to ensure that pre-development flood storage volumes are maintained, and accurate flood floor level freeboards are established to inform future building design;*
3. *Upgrade and realignment of the existing stormwater network within the site to achieve a 10-year ARI (average recurrence interval) design level of service in line with the Regional Infrastructure Technical Specifications (RITS) standards and to provide a primary reticulation network maintained within the public road corridor thus avoiding potential for build-over conflicts and providing an accessible stormwater system for on-going maintenance;*
4. *Secondary overland flow paths for flood flows up to the 100-year ARI rainfall event contained within the public road corridor and reserve areas;*
5. *Provision of a centralised stormwater wetland device designed for provision of the stormwater management objectives in accordance with the RITS standards for the development catchment area: Water quality treatment; Peak flow attenuation to pre-development levels for the 2- and 10-year ARI events and to 80% of the pre-development 100-year ARI event flow rates. Early engagement with HCC to determine and negotiate the need for the proposed stormwater management wetland to provide retro-fit treatment and attenuation for up-catchment stormwater flows;*
6. *Engagement with Waikato Regional Council (WRC) and Tangata Whenua to confirm their support to the proposed stormwater management strategy and to determine any potential resource consent requirements for the site development activities under the Waikato Regional Plan.*

Wastewater

1. *There is existing wastewater reticulation extending through the proposed re-development area. Anticipated wastewater flows from the planned development have been estimated along with available capacity with the downstream reticulation network. This assessment has determined available capacity within the existing wastewater network to accommodate flows from the planned development activities.*
2. *The proposed development layout shows building areas located over the existing wastewater reticulation running through the Racecourse Redevelopment site. Consideration should be given to*

diverting the wastewater pipes around the proposed buildings to avoid build-overs where possible. Alternatively, the development layout could be altered at detailed design time so that the proposed roads or open space areas are located over the existing wastewater reticulation.

Submission Assessment

Beca's review of the submissions concluded there are no submissions relating to wastewater and two submissions relating to stormwater as follows:

Submission 1 – McMac Properties Limited – Item 1.4 Stormwater

Summary –

McMac Properties: Concerns about additional load on the stormwater system and need for upgrades.

Beca Response: The proposed wetland will provide storage and attenuation so that the post development flow rate will be less than or equal to the existing scenario and not have any adverse impact on downstream catchments. The impact of additional runoff volume will need to be confirmed in detailed modelling at resource consent stage to determine the final design of the wetland.

McMac Properties: Concerned that the overland flow path and low flood hazard area will vest in Council.

Beca Response: The overland flow path will connect to the proposed wetland, and it is appropriate for this to be vested in Council for maintenance purposes and to preserve its functionality.

McMac Properties: Concerns about building near a flood hazard area.

Beca Response; As prescribed by RITS and the Building Code, the designer of the development will need to demonstrate that the proposed floor levels have the prescribed clearance above the 100-year ARI top water level. . The hazard (i.e., combination of depth and velocity) associated with the flow path will need to be confirmed in future modelling and this could influence the final layout of development.

Relief/Decision Sought –

McMac Properties: Extensive upgrade of stormwater system.

Beca Response; The proposed wetland will provide storage and attenuation so that the post development flow rate will be less than or equal to the existing scenario. Confirmation of its performance will be provided at the Resource Consent Stage.

McMac Properties: No build within a reasonable distance of the overland flow path.

Beca Response; Development will be in accordance with the RITS and Building Code which sets clearances to flooding in terms of freeboard (height) and while we are not aware of a requirement for lateral offset in RITS /District Plan, the modelling for the resource consent will show the proximity of features to flood hazard (again, the depth velocity combination) and issues of safe access/egress in difference hazard areas would need to be addressed at that stage.

McMac Properties: No build within the low flood hazard area.

Beca Response; We are not aware of a rule/requirement to be clear of building in a low hazard zone, however, given it is a low hazard then it is reasonable that appropriate design can address/mitigate this issue. Similar to the above, the detailed flood hazard and measures to address this will come out of modelling for a future resource consent.

Submission 26 - Phillip Robinson – Item 26.1 Stormwater

Summary –

Phillip Robinson: Concerns about the overland flow path and low flood hazard area and potential for flooding on the submitter's property.

Beca Response: The proposed wetland will provide storage and attenuation so that the post development flow rate will be less than or equal to the existing scenario, the submitter has also identified that filling of ponded floodwater will need to be offset however, increased runoff volume (i.e., not just peak flow) remains to be addressed (will be as part of future detailed modelling) where the difference between existing and post development can be evidenced and performance of proposed mitigation evidenced (i.e., show no significant adverse impact).

Relief/Decision Sought –

Phillip Robinson: A more in-depth mitigation plan to prevent surface flooding towards 6 Ken Brown Drive. Extend the wetland south-east.

Beca Response: The proposed wetland will provide storage and attenuation so that the post development flow rate will be less than or equal to the existing scenario. Evidence of final performance will be needed as part of a future Resource Consent application.

Beca Findings

The stormwater mitigation and design measures proposed and outlined above are in line with industry practice for addressing stormwater and flood issues including those of concern raised by the submitters. In general, these are: drainage network capacity, flood impacts, overland flow path routing, flood hazard and water quality effects.

The provision of a specific corridor for the overland flow path and a wetland for attenuation and flood offsetting are acceptable measures for managing and mitigating flood impacts from the development. The wetland will also address water quality and increased demands on the downstream Council drainage network.

However, the final demonstration of efficacy, as noted in the ICMP itself, will require more detailed modelling as part of a future resource consent application and design development. It is appropriate this modelling is done at the resource consenting stage so to match the development of the design and as part of an assessment of effects to support the consents. We also note HCC is currently completing a detailed flood model of the St Andrews catchment, and this will be available to inform the future design and evidence that the proposed development delivers the required flood mitigation.

In addition to the ICMP recommendations listed above, the previous Beca review of the ICMP identified the items which needed to be addressed as part of the Plan Change and those that can be done as part of a future resource consent application. This process was a documented collaboration between HCC, Beca and Wainui Environmental (and finished in 2022 prior to the ICMP being finalised) and confirms that the proposed framework for the stormwater design will provide outcomes that manage stormwater and flood effects.

Stormwater effects will be further considered at the resource consenting stage pursuant to District Plan Rule 25.13.4.1.

We note that the future design must be consistent with the Residential Precinct Plan Figure 4.5-1 and comply with HCC's and WRC technical requirements set out in HCC's District Plan, RITS and the Waikato Stormwater Management Guideline. These provide the stormwater and flood design levels of service, management practices and the hierarchy of mitigation measures.

For wastewater, if feasible we support the recommended realignment of existing wastewater pipes around the proposed buildings to avoid build-overs. Alternatively, the development layout could be altered at detailed design time so that the proposed roads or open space areas are located over the existing wastewater reticulation.

Overall, we consider the proposed solutions for stormwater and wastewater provided in the ICMP are fit for purpose and will address effects of the development subject to more detailed analysis, modelling and design at part of a future resource consent stage.

Yours sincerely

Greg Cumming

Senior Associate - Land Development Engineering

on behalf of

Beca Limited

Phone Number: +6479600356
Email: Greg.Cumming@beca.com

Copy
Kylie O'Dwyer, Tonkin+Taylor

Lauren Patterson

From: Isaac McIntyre
Sent: Tuesday, 20 June 2023 10:19 am
To: Kylie O'Dwyer
Subject: FENZ Submission

Hi Kylie,

FENZ have noted the Water Modelling undertaken in 2017 showed sufficient capacity within the existing network for the proposal and included sufficient supply for firefighting purposes.

FENZ have sought relief for updated modelling given the most recent modelling is 6 years old and confirmation of whether or not the 2017 findings are still accurate.

FENZ notes that at the time a subdivision application is lodged then a Water Impact Assessment (WIA) in accordance with Rule 25.13.4.6 of the District Plan would be required.

HCC considers that the modelling work completed in 2017 is still fit for purpose when compared to HCC Future Water Demand assumptions. The HCC assumptions modelled for water demand, subject to the plan change, up to the year 2031 show an increase of 535 people. This number is also used in the 2017 Modelling Work produced by Mott McDonald. The HCC modelled assumptions do not show the need for any upgrades to HCC infrastructure as the additional 535 people would not require water pressure upgrades. Therefore, additional modelling is not expected to show vastly different results and therefore not considered necessary for this Plan Change.

HCC draws attention to Rule 25.13.4.4d. This states "*A reticulation system shall be provided which is adequate for fire-fighting purposes and for estimated domestic and commercial consumption.*
Rule 25.13.4.4d refers to Note 2 *Acceptable means of compliance for the provision, design and construction of water infrastructure is contained within the Hamilton City Infrastructure Technical Specification.* The RITS requires a water supply network to comply with SNZ PAS 4509:2008 with the network designed to meet FW2 in residential areas.

FENZ has stated that the RITS documents are non-statutory with compliance for these requirements not being mandatory or enforceable by Council as the Regulator. However, Rule 25.13.4.4d requires a reticulation system that is adequate for firefighting purposes. If a subdivision consent is granted within the area subject to PC13, HCC would impose the following conditions:

1. The development shall be provided with fire protection via a fire hydrant system. The design of the water network shall conform to the Code of Practice for Fire Fighting Water Supplies (SNZ PAS 4509). (Residential)

2. The development shall be provided with fire protection system in accordance with SNZ PAS 4509. Where higher level of service is required (eg above FW#), a private system shall be designed and installed to comply with the requirements of the Code of Practice for Firefighting Water Supplies (SNZ PAS 4509) at the cost of the consent holder. (Industrial)

Condition 1 has been used for numerous large scale residential developments within the city which results in compliance with SNZ PAS 4509:2008, conditions of consent are enforceable by Council as a regulator.

In any event, at the time of resource consent application to support development, modelling is likely to be required, and any system upgrades needed to meet the necessary standards funded by the developer

HCC are not aware of any capacity restraints right now but a thorough assessment would need to be undertaken at development stage rather than at this stage of a plan change for zoning. As stated above, there are provisions in the plan that will enable consideration of the availability of capacity at the time of development

Regards

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Hamilton City Council
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17 August 2017

Attention: Paul Ryan

Dear Paul

Specialist Geotechnical Advice - Te Rapa Racecourse Plan Change

1 Introduction

This letter sets out our peer review of the geotechnical information supplied by the applicant in support of the proposed Te Rapa Racecourse Plan Change to enable the change of 6.48 ha of land currently zoned as "Major Facilities" to "General Residential.

The purpose of the review is to assist Hamilton City Council (HCC) in achieving an outcome that promotes sustainable management of the environment and that is consistent with other statutory requirements and HCC's strategies, policies and plans.

2 Technical Review

2.1 Reports

This review is of the report titled "*Geotechnical Investigation Report Te Rapa Racecourse Redevelopment, Ken Browne Drive, Hamilton*", prepared by CMW Geosciences for Te Rapa Waikato Racing Club, Ref. HAM2016_0109AB Rev.0, dated 21 July 2017. The brief to CMW by Te Rapa Waikato Racing Club has not been sighted.

The report is based on high-level site investigations and assessment carried out in May 2017. The report considers the Sketch / Concept Plans for land use prepared by ChowHill Architects, dated 10 May 2017 and appended to the report.

I have also viewed:

- Appendix 6 Figure 6.4 of the Hamilton City Partly Operative District Plan which shows the area to be immediately adjacent to the Te Rapa Corridor.
- Appendix 17 Maps 25A, 26A and 36A of the Hamilton City Partly Operative District Plan which shows the proposed area of development to be currently a Major Facilities Zone.
- Chapter 13 of the Waikato Regional Policy Statement "Natural Hazard Risk Management Approach" which requires in particular that new development is managed to reduce the risks from natural hazards to acceptable or tolerable levels by ensuring risk is assessed for proposed activities, reducing the risks associated with existing use and development where these risks are intolerable, avoiding intolerable risk in any new use or development and minimising any increase in vulnerability due to residual risk. This

specifically requires avoidance of new structures within identified high risk flood zones and control of development of structures within primary hazard zones.

- Chapter 4 of the Hamilton City Partly Operative District Plan, which controls residential zones and seeks to balance meeting the density targets of the Regional Policy Statement, with protecting the amenity of residential zones. This chapter sets out that the building form in General Residential zones is likely to be low (one or two-storey) single dwellings with a high ratio of on-site open space to building. The rules do not automatically provide for duplex dwellings or apartments in General Residential zones, which are noted to be Restricted Discretionary and Discretionary activities, respectively.
- Chapter 9 of the Hamilton City Partly Operative District Plan, which controls Industrial activities and seeks to ensure they are able to establish and operate within the zone in an efficient and effective manner. The Te Rapa corridor is a confined overlay that recognises and allows for the continued activity of existing office and retail activities which have been lawfully established under the previous planning regime.
- Chapter 22 of the Hamilton City Partly Operative District Plan, which controls subdivision, use and development to ensure they do not create or exacerbate natural hazard risks and that they consider the vulnerability of the activity to the effects of natural hazards and the potential for adverse effects on the wider local and/or regional community.

2.2 Findings

2.2.1 Existing Ground Conditions

The proposed development site is currently part of the Te Rapa Racecourse. The site is relatively flat, ranging from 32.5 mRL to 35 mRL and is located 1.2 km west of the Waikato River.

The site is reported to be underlain by Hinuera Formation comprising fluvially reworked pumiceous sands and sensitive clays, with some localised peat. Review of McCraw, 2011 indicates that the Te Rapa Channel, a paleo overflow channel of the Waikato River, may run through the eastern part of the site.

Generally the site investigation indicates medium dense to dense sands with interbeds of firm to very stiff silt and clay. Two CPTs (CPT02 and CPT04) indicated the presence of organics; the location of these CPTs correlates to the inferred extent of the Te Rapa Channel. CMW infer that the presence of organics may indicate “backfilling” of the channel. This could indicate the potential for rapid lateral changes in geology in this area.

The Waikato Regional Council GIS viewer shows a “river” running through the site; there is no discussion of a “river” in the report and review of the publically available aerial photographs does indicate a flowing river. The mapped location does coincide with mapped stormwater and sewer lines, and with the inferred extent of the Te Rapa Channel which may indicate there was previously an open channel here that has been culverted.

Groundwater levels are reported to be typically 1.5 m to 2.8 m bgl. Groundwater levels (where encountered) were measured in open holes and CMW considers that the levels are likely elevated as a result of several significant rainfall events in the preceding weeks and months. In the absence of any on-going groundwater level monitoring it is not possible to verify this assumption and confirm that the levels are indicative of peak winter conditions. The understanding of winter groundwater levels is critical for confirming the feasibility of the proposed on-site stormwater disposal. It is also noted that a groundwater level of 1.5 m (if confirmed to be peak) may indicate soakage is marginal.

A higher groundwater level, at the current ground surface, was identified in the centre of the existing race track.

No specific discussion of hazards has been provided however CMW has identified the risk of seismicity (refer to comments in subsequent section).

Question 1: *Please provide further information (i.e. correlation with monitoring records from adjacent piezometers) to support the conclusion that the measured water levels are indicative of elevated conditions.*

In-situ permeability testing was undertaken in selected hand auger holes to allow an assessment of suitability for the site for soakage. CMW note that lower permeability values have been attributed to "*silt migration from the upper portion of the boreholes causing "caking" of the sides and base during testing*". This would imply the holes were not properly developed before testing and hence the results may not be indicative of actual soil response. It is also not clear what the reference to lower values applies to i.e. does this relate to test results not reported or simply to the lower permeability inferred at late stages in the test. If this relates to the late stage data from testing in a developed hole, then this may actually be most representative of saturated soil conditions, that is $k_h = 10^{-6}$ m/s which will need to also be factored to cover clogging in the long term).

Question 2: *Please confirm that the ground is suitable for stormwater soakage using a factored low end permeability.*

2.2.2 Proposal

The proposed development comprises mixed use residential housing (duplex, terraced housing and apartments) and associated roads and infrastructure, requiring bulk cuts and filling of expected nominal 1 m depth.

CMW consider that conventional stormwater trenches or soakholes are a practical solution for disposal of groundwater. CMW has indicated that the original proposal of an attenuation pond in the centre of the racetrack is not feasible due to the elevated groundwater levels in this area.

Question 3: *In the absence of an attenuation pond is it expected that all stormwater will be disposed of to the ground? Given the proposed small lot size, is it practical to expect that the lots can accommodate suitably sized systems?*

2.2.3 Engineering Evaluation

No specific discussion of hazards has been provided however CMW has identified the risk of seismicity resulting in liquefaction and associated settlements and of static settlements resulting from foundations. A preliminary assessment of settlements has been provided to inform concept foundation designs, noting these would be finalised at Building Consent Stage. We have not therefore checked these analyses as part of this review.

We note though that the risk of differential settlement has been calculated using CPT01 and CPT04 which are 250 m apart. The greatest risk of differential settlement is more likely to occur in the vicinity of the inferred Te Rapa Channel. Organic materials were identified in this area and CMW has recommended that the extent of these soils be confirmed and that they be considered "unsuitable" and removed from site.

CMW considers that slope stability is unlikely to be a significant concern given the relatively flat topography and minor cut and fill (< 1 m) proposed, but that quantitative analyses may be required at Building Consent stage subject to final design levels.

We generally agree with the assessment but would add that lowering of groundwater levels, should cutting below the summer water table be needed, could also contribute to settlement and may require consideration at a later date.

Subject to completion of earthworks and that foundation preparation follows the recommendations of the report, CMW consider that shallow strop or pad footings may be suitable.

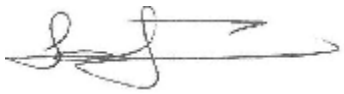
As noted above we consider that further information will be required to support progressing disposal as a viable option for managing stormwater.

2.2.4 Summary

Overall CMW consider that the site is geotechnically suitable for the proposed development and recommend further testing and analysis. We concur with the recommendations for future work (in particular the need for additional site investigation and groundwater level monitoring. It is recommended that this future investigation should also target better constraining the extent of any infill material (man-made or natural) associated with the Te Rapa Channel

Yours sincerely

Prepared by



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on behalf of

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