BEFORE THE INDEPENDENT HEARING PANEL ON PROPOSED PRIVATE PLAN CHANGE 13 TO THE OPERATIVE HAMILTON CITY DISTRICT PLAN

IN THE MATTER of the Resource Management Act 1991 (the Act)

AND

IN THE MATTER of proposed Private Plan Change 13 to the Hamilton City District Plan

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Statement of rebuttal evidence of Sivakumaran Balachandran on behalf of the Waikato Racing Club Incorporated
Dated: 17 August 2023

MAY IT PLEASE THE INDEPENDENT HEARING PANEL

INTRODUCTION

1. My name is Sivakumaran Balachandran. I have previously given a statement of evidence in relation to the above matter, dated 26 July 2023.

CODE OF CONDUCT

2. I re-confirm that I will abide by the code of conduct for expert witnesses, as set out in the Environment Court's Practice Note 2023.

PURPOSE AND SCOPE OF EVIDENCE

3. This statement of rebuttal evidence responds to the evidence filed on behalf of Chartwell Investments Ltd ("CIL"), Takanini Rentors Ltd ("TRL") and Ecostream Irrigation Ltd ("EIL") by Mr Michael Turner Hall of CKL NZ Limited dated 9 August 2023.

4. The fact that this rebuttal statement does not respond to every matter raised in Mr Hall's statement of evidence within my area of expertise should not be taken as acceptance or agreement with the matters raised. I have focussed this rebuttal statement on the key points of difference that warrant a response.

5. My rebuttal evidence generally follows the format of Mr Hall's statement of evidence for ease of reference.

Sir Tristram Avenue

6. Mr Hall states in paragraph 16 of his evidence that my Primary Statement of Evidence ("primary evidence") suggests that parking would be prohibited on both sides of Sir Tristram Avenue. Figure 17 from my primary evidence presents a typical section of Sir Tristram Avenue with

the proposed infrastructure changes such as the footpath extension on the northern side and the shared path on the southern side of the road.

7. I recommend a no-parking restriction to be introduced on only one side of Sir Tristram Avenue, as stated in paragraphs 19.a.i. and 138 of my primary evidence.

8. Mr Hall also mentions that he measured the width of Sir Tristram Avenue to be 8 m (from face of kerb to face of kerb) and is not able to confirm the reason for the difference in width stated in the Integrated Transport Assessment ("ITA") and my primary evidence. The ITA and my primary evidence refer to a sealed carriageway width of 7.4 m which is the effective width of the carriageway, excluding the kerb and channel. Including the width of the concrete channel on both sides of the road (approximately 0.3 m wide each) would result in a carriageway width of 8 m which is the measurement undertaken by Mr Hall.

9. It is my opinion that paragraphs 17 to 20 of Mr Hall's evidence were written based on the assumption that no-parking restrictions are proposed on both sides of Sir Tristram Avenue. As clarified in paragraph 7 of this rebuttal evidence, I recommend a no-parking restriction to be introduced on one side of Sir Tristram Avenue. It is not necessary at this early stage to determine that the restriction should be on the southern side of Sir Tristram Avenue. It is my opinion that the location of the restriction should be confirmed as part of future subdivision consents.

Te Rapa Road

10. Mr Hall states in paragraph 22 of his evidence that the raised safety platform pedestrian crossing (zebra) across the Te Rapa Road service lane is proposed to be signalised. The raised zebra crossing across the service lane is not proposed to be signalised, as shown in Figure 19 and

Attachment 2 of my primary evidence and also confirmed in multiple places within my primary evidence.

11. Mr Hall identifies that an 8 m gap currently exists on the northern side of the service lane between the on-street parking spaces. I disagree with Mr Hall that a raised safety platform ("RSP") can be added within this 8 m gap without removing any car parking spaces for the following reasons:

(a) The width of a RSP is approximately 7.25 m (with a flat section of 5 m) in accordance with the Regional Infrastructure Technical Specifications ("RITS"). This would mean that if the RSP is installed within the identified 8 m gap, the limit line prior to the zebra crossing will be positioned across an existing parking space on the northern side of the service lane. Parking is not permitted within 6m of a zebra crossing so this space will have to be removed.

(b) No-stopping lines are also required to be marked for a minimum distance of 6 m prior to a zebra crossing. This is not shown in the concept drawings attached to the ITA or my primary evidence but will be required at detailed design stage.

12. I have provided a comparison inFigure 1 and Figure 2 which illustrate Mr Hall's suggested solution (i.e. RSP within the 8 m gap) and the concept design in my primary evidence respectively. This effectively shows that there is no difference in the number of parking spaces (i.e., two) that must be removed to accommodate the RSP.

13. Therefore, I disagree that a RSP can fit within the existing 8 m gap without removing any parking spaces. PC13 proposes to remove approximately four parking spaces along the service lane: two near the intersection with Sir Tristram Avenue and two directly in front of Signature Homes. In my opinion, the benefits of removing these four car park spaces to achieve the proposed safety upgrades at the Te Rapa Road / Sir Tristram Avenue

intersection and to provide a safe crossing location across the service lane for pedestrians and cyclists to access the proposed signal crossings on Te Rapa Road outweighs the disadvantages to the public of losing four car park spaces on the service lane.

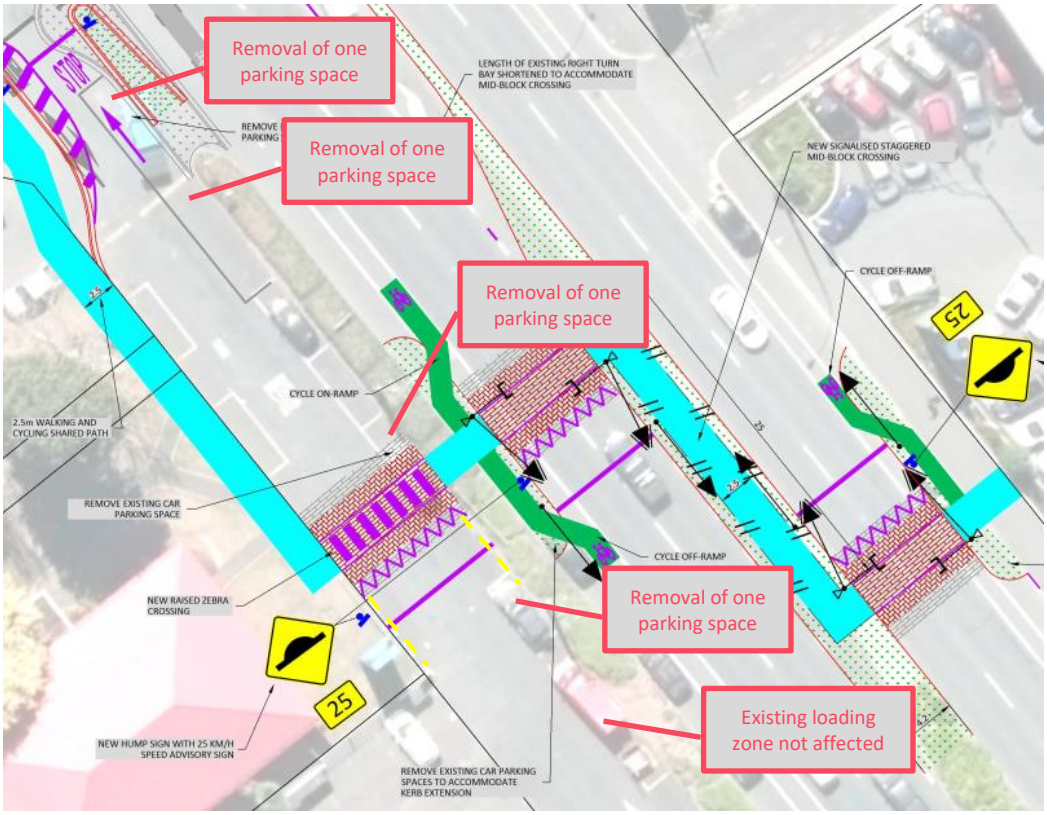

Figure 1: Proposed Design – Removal of Parking Spaces on Te Rapa Road Service Lane

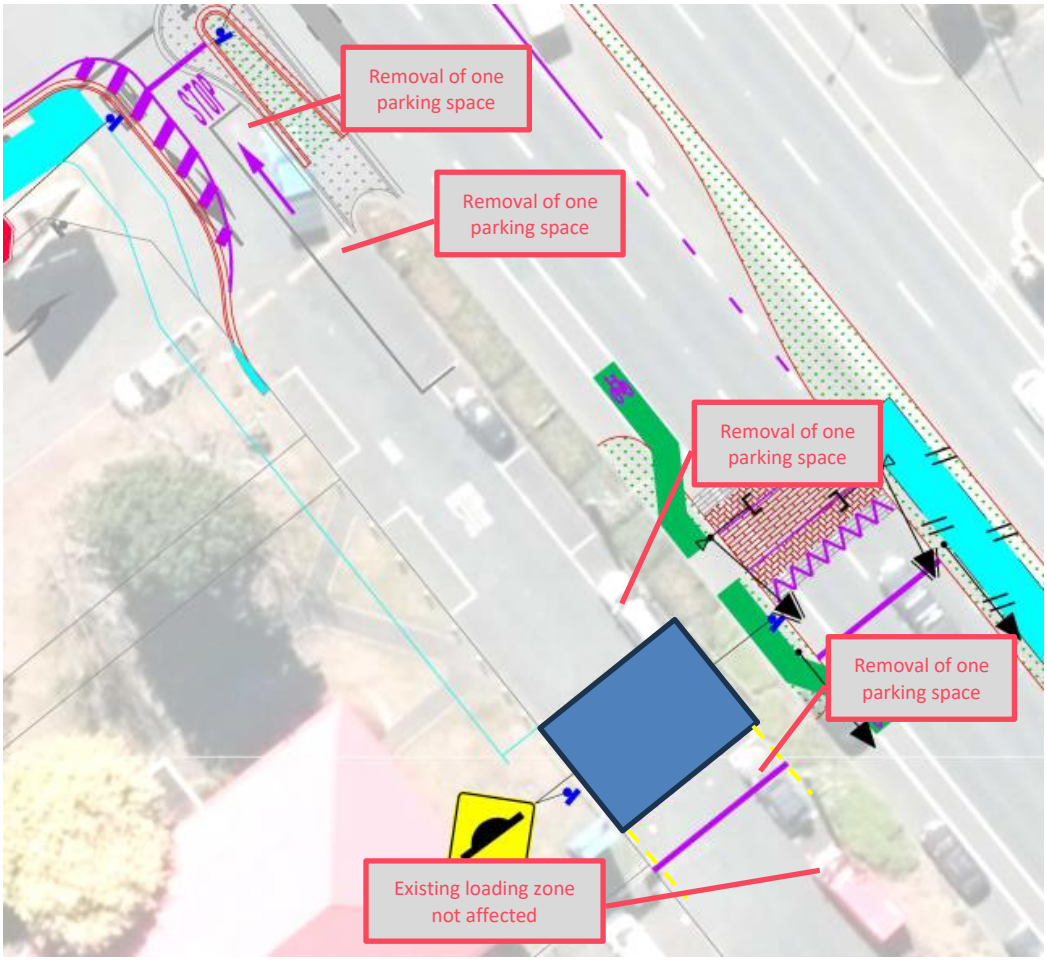

Figure 2: Mr Hall's Proposal – Removal of Parking Spaces on Te Rapa Road Service Lane

14. Mr Hall recommends prohibiting the right turn into Sir Tristram Avenue to reduce the complexity of the intersection and improve road safety. He suggests that there are other access options available for PC13, the racecourse and other vehicles that park on Sir Tristram Avenue which includes Mainstreet Place. I will address Mr Hall's recommendation in the paragraphs 32 to 34 below which also discusses the closure of Mainstreet Place access.

15. I agree with Mr Hall that no capacity assessment has been undertaken to assess the effect of incorporating a signalised mid-block crossing on Te Rapa Road (paragraph 27 of Mr Hall's evidence). However, in my opinion, effects of adding a signalised mid-block crossing need not be assessed at this Plan Change stage for the following reasons:

(a) Improving safety for vulnerable road users and improving accessibility to walking, cycling and public transport to provide more transport options are all priorities over maintaining traffic efficiency under the current Government Policy Statement on Land Transport. A signalised mid-block crossing on raised safety platforms is a recognised primary safe system treatment and the proposed residential plan change is the necessary catalyst to justify the new pedestrian crossing.

(b) The proposed two-stage signalised crossing is the most efficient form to minimise traffic delays on Te Rapa Road as the overall crossing distance is split in two enabling much shorter clearance times (the time delay required at the end of the pedestrian phase to allow a pedestrian to exit the crossing before traffic phase starts). This proposed pedestrian crossing is supported by Ms Ravenscroft and Mr Black of Gray Matter in their Transportation Review (Issue 5).

(c) Delays to traffic on Te Rapa Road can be further minimised through coordination and optimisation of the traffic signal times on the transport corridor which will include the intersection with Home Straight and the intersection with Vardon Road.

16. Through his evidence, Mr Hall has identified an error with the modelling undertaken for Te Rapa Road / Sir Tristram Avenue intersection. I have since updated the modelling of this intersection such that stop-line delay for right turning movements from Te Rapa Road to Sir Tristram Avenue and the critical gap parameters for the right turning movement from Sir Tristram Avenue to Te Rapa Road has now been assessed correctly. The updated capacity assessment results are summarised in the following paragraphs with full SIDRA outputs for the Te Rapa Road / Sir Tristram Avenue intersection provided in **Attachment 1**.

Table No. 1

Te Rapa Rd / Sir Tristram Avenue Intersection Performance (Updated)									
Scenario		Peak	Intersection Average			Worst Movements (in terms of delay)			
			V/C	Delay (s)	LOS	Movement	Delay (s)	Queue (m)	LOS
1	Baseline 2021	AM	0.43	5	N/A	RT from Sir Tristram Avenue	20	7	C
		PM	0.50	5	N/A	RT from Sir Tristram Avenue	31	13	D
2	Baseline 2021 + Development	AM	0.47	5	N/A	U Turn from Te Rapa Rd (Southeast)	21	2	C
		PM	0.50	5	N/A	U Turn from Te Rapa Rd (Southeast)	33	2	D
3	Baseline 2031	AM	0.56	6	N/A	RT from Sir Tristram Avenue	26	9	D
		PM	0.69	6	N/A	RT from Sir Tristram Avenue	53	20	F
4	Baseline 2031 + Development	AM	0.61	6	N/A	U Turn from Te Rapa Rd (Southeast)	40	4	E
		PM	0.61	5	N/A	U Turn from Te Rapa Rd (Southeast)	69	5	F

17. The baseline 2021 model results indicate that the existing right turning movement out of Sir Tristram Avenue is performing at level of service ("LOS") D, with an average delay of approximately 31 seconds during the PM peak hour. The performance of this movement only gets worse for the baseline 2031 model achieving an average delay of 53 seconds. When the right turning movement out of Sir Tristram Avenue is prohibited and the trips generated by PC13 are added onto the adjoining road network, the Sir Tristram Avenue approach (i.e. left turn movement only) performs satisfactorily at LOS A (i.e. both in 2021 and 2031) with an average delay of 5 to 6 seconds.

18. The updated results, as shown in Table 1, indicate that the northbound U-turn movement on Te Rapa Road performs at LOS E and F with the

proposed safety upgrades and PC13 traffic included at the intersection (i.e. Scenario 4 in the ITA) during peak periods. It is to be noted that these results for the U-turn movement remain consistent even during the baseline scenario (i.e. Scenario 3 in the ITA) when no PC13 traffic is added to the intersection with a 7 second increase in average delay for the the movement during the AM peak period and no increase in average delay during the PM peak period.

19. Table 2 summarises the updated modelling results for the southbound right turn movement from Te Rapa Road to Sir Tristram Avenue (which is the movement Mr Hall raised concerns about). The figures in red represent the superseded results that were presented in the ITA and my primary evidence.

Table No. 2

Te Rapa Rd / Sir Tristram Avenue Intersection Performance (Updated)					
Scenario		Peak	RT and U-turn Movement from Te Rapa Rd to Sir Tristram Ave		
			Lane Average Delay (s)	Lane 95th Percentile Queue (m)	Lane LOS
1	Baseline 2021	AM	17 (previously 4.6s)	15 (previously 0 m)	C (previously A)
		PM	13 (previously 4.6s)	5 (previously 0 m)	B (previously A)
2	Baseline 2021 + Development	AM	18 (previously 4.6s)	17 (previously 0 m)	C (previously A)
		PM	14 (previously 4.6s)	4 (previously 0 m)	B (previously A)
3	Baseline 2031	AM	21 (previously 4.6s)	22 (previously 0 m)	C (previously A)
		PM	15 (previously 4.6s)	6 (previously 0 m)	B (previously A)
4	Baseline 2031 + Development	AM	23 (previously 4.6s)	25 (previously 0 m)	C (previously A)
		PM	16 (previously 4.6s)	8 (previously 0 m)	C (previously A)

20. As presented in Table 2, when the right turning movement out of Sir Tristram Avenue is prohibited and the trips generated by PC13 are added onto the adjoining road network (i.e. Scenarios 2 and 4 in the ITA), the average delay achieved by the right turning and U-turning lane increases

by 1 – 2 seconds compared to the baseline scenarios. The 95th percentile queue length achieved at the lane increases by 2 m to 3 m compared to the baseline scenarios. The existing right turn bay is approximately 30 m in length. Therefore, I disagree with Mr Hall that the existing right turn bay may not be sufficient to accommodate the increase in demands for right turning traffic at this intersection and that delays may become too excessive.

21. The Te Rapa Road / Home Straight signalised intersection further south creates longer gaps in the northbound opposing flow on Te Rapa Road, allowing right turning / U-turning vehicles from Te Rapa Road to Sir Tristram Avenue to experience less delay as compared to the opposite direction (i.e., northbound right turning / U-turning vehicles) where opposing traffic is unmetered due to the upstream Te Rapa Road / Sunshine Avenue / Bryant Road roundabout.

22. The updated modelling results also indicate that the proposed safety upgrades to the Te Rapa Road / Sir Tristram Avenue layout can adequately accommodate the additional development traffic volumes during race days.

23. Therefore, I can safely say that the conclusions made in my primary evidence and ITA remain unchanged.

Ken Browne Drive

24. Mr Hall states in paragraph 31 of his evidence that the existing on-street parking on Ken Browne Drive does not need to be removed based on his assessment. He also mentions that the calculation in my primary evidence uses average parking demand rates for their activities and that some activities will generate more or less parking demand than these values.

25. I agree with Mr Hall that an average parking demand rate had been used in my calculations. I also agree that Ken Browne Drive could accommodate two-way vehicle movement with the existing on-street parking on the south-western side of the road. It does so at present.

26. However, PC13 is predicted to increase traffic volume on Ken Browne Drive by approximately 975 vpd to 1,200 vpd (65% to 80% of the total trips per day generated by PC13) based on the trip distribution assumptions discussed in Section 6 of the ITA. Therefore, it is my opinion that to improve road safety due to the increase in traffic, a no-parking restriction should be introduced along the south-western side of the road.

27. This recommendation is supported by the submission from Fire and Emergency New Zealand. It is noted that the provision of long stay / commuter parking on street is the lowest priority parking of all areas (central city, commercial, residential and employment) in the Hamilton City Council's ("HCC") Parking Policy (August 2022).

28. Ms Ravenscroft and Mr Black in their Transport Review (Issue 5) also consider that it is necessary to remove some on-street parking to ensure that the movement and place functions of Ken Browne Drive is maintained. They suggest that the level of on-street parking needs to balance the need for two-way vehicle movement against the potential for higher vehicle speeds.

29. The proposed RSP crossing over Ken Browne Drive will provide a speed calming effect, hence in my opinion, on-street parking can be removed to accommodate the increase in traffic volumes. As for the provision of on-street parking, I agree with Ms Ravenscroft and Mr Black that it should be reviewed at the time of subdivision and as stated in paragraph 139 of my primary evidence the timing of no-parking restrictions can also be considered before the internal road network is connected to the respective roads (i.e., Ken Browne Drive or Sir Tristram Avenue).

30. Mr Hall also adds that it is possible that the PC13 would not include dedicated parking and therefore increase the demand for on-street parking. As stated in paragraph 136 of my primary evidence, the District Plan no longer includes a minimum on-site car parking requirements so none can be specified as part of PC13. However, the residential lots within PC13 area are expected to be able to accommodate their own parking needs on-site.

31. Pockets of recessed parallel parking bays will be provided at certain sections of the internal local roads as shown indicatively in Figure 20 of the ITA. The number of on-street parking spaces within the PC13 area will be confirmed as part of detailed design for future subdivision consents.

Mainstreet Place

32. Mr Hall recommends that the existing sealed extension of Mainstreet Place should not be closed, and it would enable a future connection to either the racecourse and / or future development within PC13. He adds that the Te Rapa Road / Sunshine Avenue roundabout which provides access to Mainstreet Place is a safer option for access in comparison to the proposed Te Rapa Road / Sir Tristram Avenue. With access via Mainstreet Place, he suggests that a vehicular connection to Sir Tristram Avenue may not be necessary which enables the right turning movement from Te Rapa Road to Sir Tristram Avenue be prohibited (refer to paragraph 14).

33. I do not support Mr Hall's recommendation of providing a connection to PC13 via Mainstreet Place due to the following reasons:

(a) Road Safety:

(i) Based on Waka Kotahi Crash Analysis System ("CAS"), 29 crashes were identified at the Te Rapa Road / Sunshine Avenue / Bryant Road roundabout with eight minor injury crashes and one fatal crash involving a cyclist and a truck. Having access off Mainstreet Place and adding turning traffic from PC13 to this roundabout

will only increase the frequency and likelihood of crashes. Compared to this roundabout, there are only three crashes recorded at Te Rapa Road / Sir Tristram Avenue in its current form. Therefore, in my opinion the upgrades proposed to the Te Rapa Road / Sir Tristram Avenue intersection (i.e. removing the right turn out of Sir Tristram Avenue) will only make the intersection safer than its current layout.

(ii) The average daily traffic on Sunshine Avenue is approximately 4,500 vpd (with 6% of heavy vehicles) as per MobileRoad website. CAS also indicates eight crashes have been recorded along Sunshine Avenue between Te Rapa Road and Mainstreet Place. Accommodating the proposed residential traffic through an industrial area, and on wide industrial roads with a larger volume of heavy vehicles than Sir Tristram Avenue is likely to only exacerbate the road safety risks by increasing the exposure, frequency and potentially the severity of crashes.

(b) Capacity

(i) An intersection count survey and capacity assessment undertaken by me back in 2019 for the Te Rapa Road / Sunshine Avenue / Bryant Road roundabout indicated that the right turning movement from Sunshine Avenue was the worst performing movement during the afternoon peak period with an average delay of 86 seconds and 95th percentile queue distance of approximately 139 m. In my opinion, this situation would have only worsened since then considering that the northbound volume on Te Rapa Road has increased approximately 7% based on 2021 survey counts presented in the ITA. Therefore, in my opinion, adding PC13 traffic to the right turning movement from Sunshine Avenue will exacerbate the current problem and possibly encourage undesirable driver behaviour at the roundabout (i.e. finding shorter gaps).

(c) Directness

(i) In my opinion, Sir Tristram Avenue, a public road, provides a much more direct connection to the PC13 area (approximately 600 m from Te Rapa Road / Sunshine Avenue / Bryant Road roundabout) compared to the access via Mainstreet Place which in my opinion is a convoluted and indirect route to the PC13 area (approximately 1 km from Te Rapa Road / Sunshine Avenue / Bryant Road roundabout).

34. Mr Hall also makes the statement that adopting this alternative solution of using Mainstreet Place as access to PC13 area will be an additional reason for not removing on-street parking on Sir Tristram Avenue. I have already clarified in paragraph 7 that the recommended no-parking restriction relates only to one side of Sir Tristram Avenue.

Garnett Avenue

35. Mr Hall comments that the solution presented in the ITA and my primary evidence to mitigate the effects of the increase in delay for right turning traffic from Garnett Avenue, is for traffic to find alternative routes such as Dalgliesh Avenue, Storey Avenue and Forest Lake Road. He adds that this would result in traffic having to turn onto Te Rapa Road at priority-controlled intersections or other intersections which is likely to already accommodate high traffic volumes. He considers reliance on other priority-controlled intersections to be an unsafe alternative given that vehicles will be turning across multiple lanes of traffic.

36. The ITA and my primary evidence did not indicate a reliance on alternative routes as the solution to mitigate the increase in delays and queues at the Te Rapa Road / Garnett Avenue / Vardon Road signalised intersection which is currently operating near capacity. In my opinion, the main solution to limiting impacts on the performance of the intersection, is to provide infrastructure to promote and increase the use of alternative

modes of transport. This aligns with HCC's priorities for transport in the city.

37. I do accept that drivers might potentially seek alternative routes to avoid delay at the signal intersection. As stated in the ITA, a fundamental issue is that there is no easy solution to increase the Te Rapa Road / Garnett Avenue / Vardon Road intersection capacity without creating additional lanes. The performance of the left turn movement from Garnett Avenue into Te Rapa Road justifies this movement being exclusive without the through traffic to Vardon Road added.

38. However, incorporating additional lanes will require significant re-design and upgrade of the intersection considering the proximity of the northbound service lane on Te Rapa Road. Ms Ravenscroft and Mr Black, in their Transport Review (Issue 5), agreed that any improvements to the intersection within the existing boundary are not practical.

39. In my opinion, the solution to limiting impacts on the performance of the intersection, is to provide infrastructure to promote and increase the use of alternative modes of transport. Therefore, I do not consider it necessary to provide capacity assessments of each of these alternative routes / intersections. It is to be noted that Ms Ravenscroft and Mr Black considered the use of these alternative routes as acceptable.

40. Mr Hall raises concern that there are notable effects on other approaches of the Te Rapa Road / Garnett Avenue / Vardon Road signalised intersection. These effects (i.e., more than 50 seconds increase in average delay on Vardon Road and more than 150 m increase in the 95th percentile queue distance on the southbound Te Rapa Road approach) are observed in the 2031 scenario. These effects are due to the fact that the intersection is currently operating at capacity and any future traffic growth from population and employment increase in Hamilton will only

increase congestion at this intersection, unless people start using public transport and walking and cycling more for short trips.

41. Mr Hall adds that due to the performance of the Te Rapa Road / Garnett Avenue / Vardon Road intersection, the use of Mainstreet Place as access should be re-considered. It is unclear to me how the use of Mainstreet Place as access to PC13 area instead of Sir Tristram Avenue would mitigate the effects at the Te Rapa Road / Garnett Avenue / Vardon Road signalised intersection when the increase in right turning traffic at Garnett Avenue is due to traffic departing the PC13 area via the proposed Ken Browne Drive access.

Conclusion

42. I do not agree that it is not necessary to remove the existing on-street parking on Sir Tristram Avenue and Ken Browne Drive. I maintain my recommendation that a no-parking restriction be introduced on one side of Sir Tristram Avenue and both sides of Ken Browne Drive.
43. I do not agree that no spaces will have to be removed from the Te Rapa service lane to incorporate the RSP. PC13 proposes to remove approximately four parking spaces along the service lane.
44. The error identified by Mr Hall in my modelling of Te Rapa Road / Sir Tristram Avenue intersection has been addressed and the results continue to demonstrate that the existing right turn bay is suitable and will continue to operate well with the expected PC13 traffic added. On that basis, I disagree that right turns from Te Rapa Road to Sir Trsitram Avenue should be banned at this location. In my opinion, such a ban might result in undesirable U-turn movements further south or adding right turn flow into Garnett Avenue making the Te Rapa Road / Garnett Avenue / Vardon Road intersection performance worse.
45. I do not support Mainstreet Place to be used as a primary connection to PC13 area as that is an industrial road providing access to a busy industrial area of Te Rapa. Aside from the capacity and safety issues that would

result, forcing residential traffic through an industrial area is contrary to good transport planning practice.

Sivakumaran Balachandran
17 August 2023

ATTACHMENT 1