
In the Matter of:

The Resource Management Act
1991

and

In the Matter of:

of a submission and further
submission by Tabby Tiger Limited
on an application by Titanium Park
Limited and Rukuhia Properties
Limited for a Private Plan Change
20 – Airport Northern Precinct
Extension

Statement of Evidence (Transportation) of

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7 March 2023

Introduction

1. My full name is Judith Victoria Makinson. I am the Transportation Engineering Manager for CKL.
2. I hold a Bachelor's degree in civil engineering and a Master's degree in transportation engineering and planning from the University of Salford (UK). I am a Chartered Professional Engineer and am a Chartered Member of Engineering New Zealand. I am also a Chartered Engineer in the United Kingdom and a Member of the Institution of Civil Engineers. I have over 20 years' experience working as a transportation engineer in both New Zealand and the United Kingdom with Arup, WSP Group, Gifford, TDG, Stantec and CKL. I am also qualified as an Independent Hearing Commissioner and have experience considering the effects of major infrastructure through notice of requirement processes as well as individual resource consent applications.
3. I confirm that I have read and am familiar with the Code of Conduct for Expert Witnesses in the current (2023) Environment Court Practice Note. I agree to comply with this Code of Conduct in giving evidence to this hearing and have done so in preparing this written brief. The evidence I am giving is within my area of expertise, except where I state I am relying on the opinion or evidence of other witnesses. I have not omitted to consider material facts known to me that might alter or detract from the opinions expressed. I understand it is my duty to assist the hearing committee impartially on relevant matters within my area of expertise and that I am not an advocate for the party which has engaged me.
4. I have taken part in expert witness conferencing in relation to transportation and planning topics on 10th and 15th February 2023. I have signed the Joint Witness Statements ("JWS") prepared on both days, noting any instances where I have a specific opinion that was not held by all participants.

Scope of Evidence

5. I have been engaged by Tabby Tiger Ltd to present transportation evidence in relation to its submission and further submission on Plan Change 20 ("PC20"). I understand that Mr Mark Chrisp has addressed the narrowed scope of Tabby Tiger's submissions

in his evidence in chief and confirm that I will therefore be limiting my evidence to the following topics:

- (i) Support for the rezoning of land from Rural Zone to Airport Business Zone as proposed in PC20; and
- (ii) The need to ensure that the provision of infrastructure, particularly roading, is designed and constructed to provide for the development of land uses in the vicinity of the airport beyond that which will occur as a result of PC20 being approved.

Appropriateness of PC20

6. It is clear from the *Hamilton-Waikato Metropolitan Spatial Plan* (“the MS Plan”) Hamilton Airport (“the Airport”) has been identified as a future hub for industrial activity. Section 3.3 Of the MS Plan discusses the need to provide for rapid and frequent public transport facilities that align with employment opportunities and makes best use of existing and planned road infrastructure. This is summarised well in Figure 7 of the MS Plan which identified the Airport as a key frequent public transport enabled hub. The aim of the frequent public transport network is to:

“ensure that residents have access to jobs, commercial, social and recreational needs within 30 minutes of their homes.”¹

7. Figure 7 shows a clear link between the Airport and the Peacocke area which is a major residential growth cell within Hamilton City, with onwards links via the frequent public transport network to Hamilton CBD and beyond. In my opinion, PC20 supports this aim and is an enabler of achieving this outcome if appropriate provision for public transport is made not only on site by the applicant, but also through wider network planning by the relevant road controlling authorities (Hamilton City Council, Waipa District Council, Waka Kotahi NZ Transport Agency) and public transport service operators (Waikato Regional Council).
8. The second Transport focus of the MS Plan is to achieve an appropriately scaled freight and road network that is both convenient and reliable in order to support economic

¹ Waikato – Hamilton Metropolitan Metro Spatial Plan , Section 3.3 Transport paragraph 6

activity. Figure 8 of the MS Plan identifies State Highway 3 (“SH3”), State Highway 21 (“SH21”), State Highway 1 (“SH1”) and the proposed Southern Links project as forming part of the strategic transport network supporting economic growth. This network provides a direct link between the subject of PC20 by road as well as enabling smarter transportation options through connecting PC20 to the inland ports at Ruakura and Horotiu.

9. I note that delivery of the Southern Links network is currently under review by Waka Kotahi NZ Transport Agency. I assume that part of this review is not just in relation to traditional road traffic but also the potential function that Southern Links could provide in terms becoming a public transport and sustainable travel mode corridor. Whilst I do not consider that PC20 should be tied to the delivery of Southern Links, it is my opinion that the Southern Links project would provide significant benefit to the development of an employment hub within the PC20 land and adjoining lands.
10. Section 3.4 ‘Centres’ of the MS Plan identifies the Airport as a Business Centre, recognising this as both its existing status and its future opportunity. It states that:

“The Airport is home to significant industrial precinct which has a logistics focus. There are further stages of land to be developed in the area. Access to frequent public transport will strengthen the role of the airport business centre.”
11. In my opinion, this underlines the importance of planning for future transport needs and demonstrates the interdependence of development and transport infrastructure and services, not only for PC20, but also for further development opportunities.
12. Table 4 of the MS Plan ‘Tier 1 Implementation Initiatives’ places the delivery of a range of different investigations and studies relating to the delivery of the MS Plan key transport initiatives as being in the short to medium term. This includes:
 - (i) Supporting and enabling road and rail networks to a variety of locations including the Airport; and
 - (ii) Reviewing the Hamilton Middle Ring Route (Southern Links) for the next round of the National Land Transport Funding.
13. The onus is placed on all FutureProof partners to support delivery of these considerations.

14. In my opinion, the above confirms the suitability of PC20 from a transportation perspective, in supporting the stated aims of the MS Plan.

Infrastructure Planning and Provision for Growth

15. Through the JWS, I have expressed my opinion in relation to the need for walking, cycling and public transport links between PC20 and the Peacockes growth cell to form a fundamental strand of the transport network connecting people with employment. I have also expressed my opinion in relation to the need for such links to be direct and commuter focused. I support the work that BBO has undertaken in relation to identifying suitable road network connections to support PC20 and the additional provisions agreed in relation to also ensuring that the walking, cycling and public transport modal connections are given equal consideration.
16. In his evidence, Mr Chrisp has voiced his concerns in relation to piecemeal development and planning in the past. The main issue with adopting a piecemeal approach is that everybody is focused on their little piece of the puzzle and nobody is looking at the bigger picture that it is forming I understand that Mr Chrisp has suggested adding an advice note to the PC20 plan provisions at Rule 10.4.2.13A in order to promote future joined up thinking. This is on the basis of analysis I supervised identifying a solution at the SH21 / Raynes Road intersection that would allow for other development in future. I have attached the technical memo I shared with the transportation and planning experts following the expert conferencing rather than repeating the content here.
17. The point of this exercise is to demonstrate that with some forethought, the big picture can remain in view without burdening the current applicants with assessing and mitigating the transportation effects of future development that is not yet 'in the system' but that can be reasonably anticipated. In my opinion, BBO has adopted the same principle in relation to allowing for Southern Links; the designation for that project may be in place, but its future is not assured.

Conclusions

18. Overall, I support the proposed rezoning through PC20 from a transportation perspective and consider that it aligns with, and enables, the MS Plan transport initiatives. I also consider that the advice note to accompany Rule 10.4.2.13A of the Waipa District Plan supports a

more joined up approach to transport infrastructure provision without placing the burden of assessing and mitigating associated transportation effects of as yet un-defined development on the PC20 applicant.

A handwritten signature in black ink, appearing to read 'Judith Makinson', written in a cursive style.

Judith Makinson

CKL

7 March 2023

Annexure A – SH21 / Raynes Road 4 Arm Roundabout



Planning | Surveying | Engineering | Environmental

B22200 –Private Plan Change 20

Tabby Tiger Limited

Document Control

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Author Andrew Noh – Transportation Engineer



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Authorised By Judith Makinson – Transportation Engineering Manager



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1 Introduction

This memo has been prepared following transportation and planning expert witness conferencing held on Friday 10th and Wednesday 15th February 2023. The information shared within this memo is in presented in relation to the submission by Tabby Tiger Limited (TTL) in support of Private Plan Change 20 (PPC20). This memo addresses the submission point in relation to the importance of network planning for the future, with a focus on the SH21 / Raynes Road intersection and the suitability of a four-arm roundabout to unlock potential future development to the east of SH21.

2 Assessment Methodology

The extent of future potential development to the east of SH21 has been assumed to be 32ha, in line with the relief sought through the TTL submission. Trip generation rates and development density assumptions have been carried forward from the BBO ITA prepared for PPC20. Future development traffic has been assigned to the road network based on a manual gravity model which considered the BBO base traffic from Appendix D of the ITA and population data from the 2018 Census in relation to Cambridge, Te Awamutu and Hamilton as the main population centres. To get a more accurate model and therefore split of demand likely to use SH3 and SH1 to access Raynes Road and SH21, Hamilton was split into Hamilton West and Hamilton East. Census 2018 population data is shown in Table 1 below. Figure 1 below shows the anticipated main travel routes between these population centres and the SH21 / Raynes Road intersection.

TABLE 1: GRAVITY MODEL OF SUBJECT SITE

Town	Population	Distance (km)	Attraction (%)	Peak Hour Trips
Hamilton West	100000	14.1	43.7	263
Hamilton East	79900	12.2	46.7	281
Cambridge	19430	15.9	6.7	40
Te Awamutu	13550	20.1	2.9	18
TOTAL				602

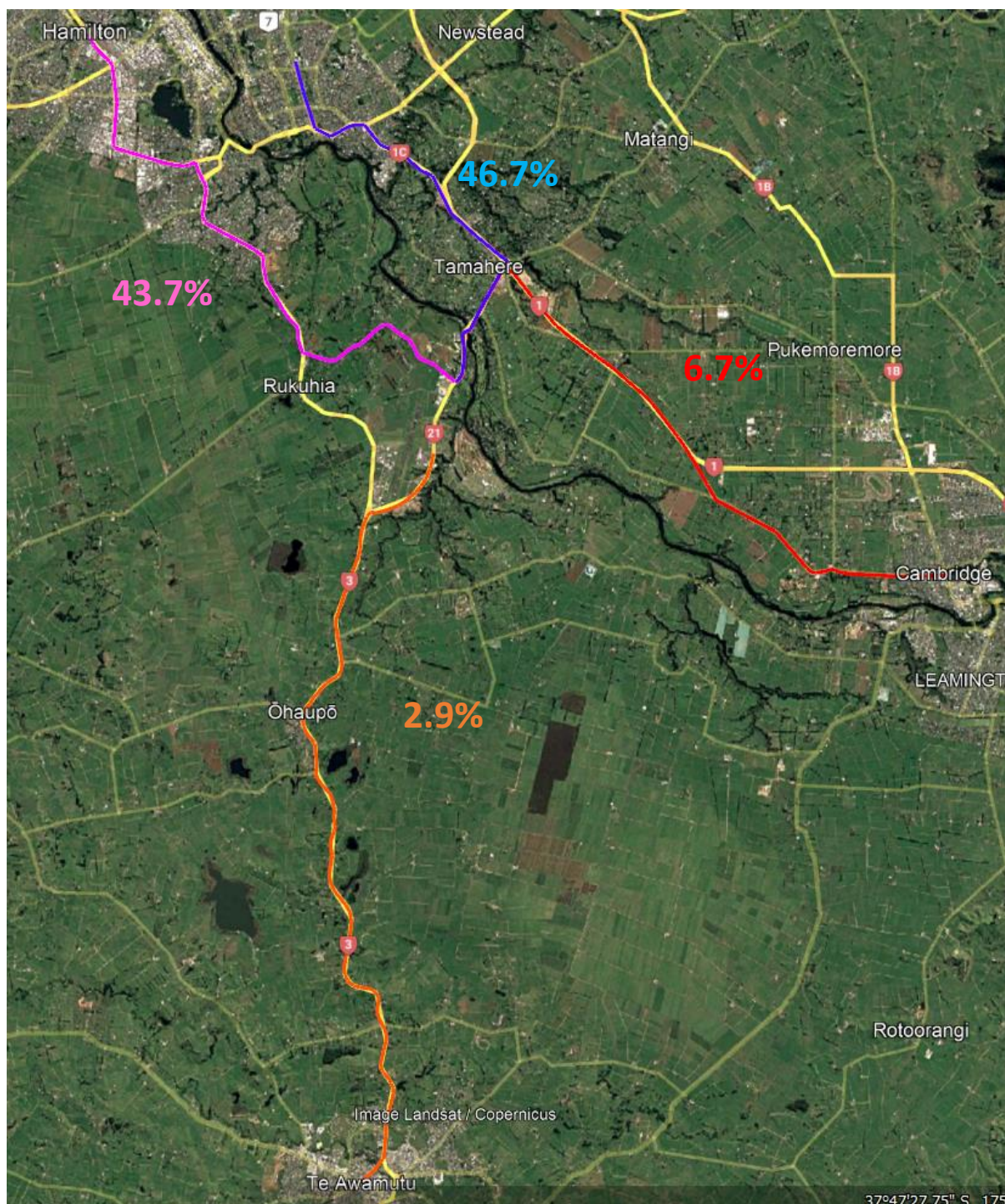


FIGURE 1: ANTICIPATED TRAVEL PATH FOR CATCHMENT AREA

Based on the travel path from Figure 1, it was considered likely that all trips from Hamilton West, Hamilton East and Cambridge would access the TTL submission land through SH21/Raynes Road. Trips from Te Awamutu would access the TTL submission land through Lochiel Road. The SH21 / Raynes Road intersection analysis therefore only considers 97% of the anticipated total traffic generation that could be associated with the TTL submission land.

SIDRA intersection analysis has been undertaken to identify the base and ‘with development’ operations of the potential four-arm roundabout at the SH21 / Raynes Road intersection. To give a basis for comparison without replicating WRTM modelling, ‘base’ scenario models for the BBO three-arm roundabout shown in Figure 2 were created by applying the movement demand information from the

BBO SIDRA output models as input data for the CKL analysis. It is accepted that this is a 'rough and ready' approach, however the point of the exercise is to demonstrate possibilities with a reasonable degree of certainty and not to identify an absolute intersection design or specific effects. The CKL 'base' scenario includes the PPC20 development traffic as per the BBO ITA.

However, the BBO intersection analysis uses SIDRA 9.0. CKL operates on SIDRA 9.1 which leads to some differences between the two models. The lack of clarity around critical parameters such as gap acceptance and approach / exit speeds have also contributed to this. Therefore, in order to create a common basis for comparison, a number of model parameters within the CKL SIDRA modelling have been amended so as to replicate as closely as possible to the outputs presented by BBO. These amendments were as follows:

- The approach/exit speeds for all arms of the roundabout were changed to 60km/h;
- The northeast arm (SH21) gap acceptance to 3.0sec;
- The northwest arm (Raynes Road) gap acceptance to 3.5sec.

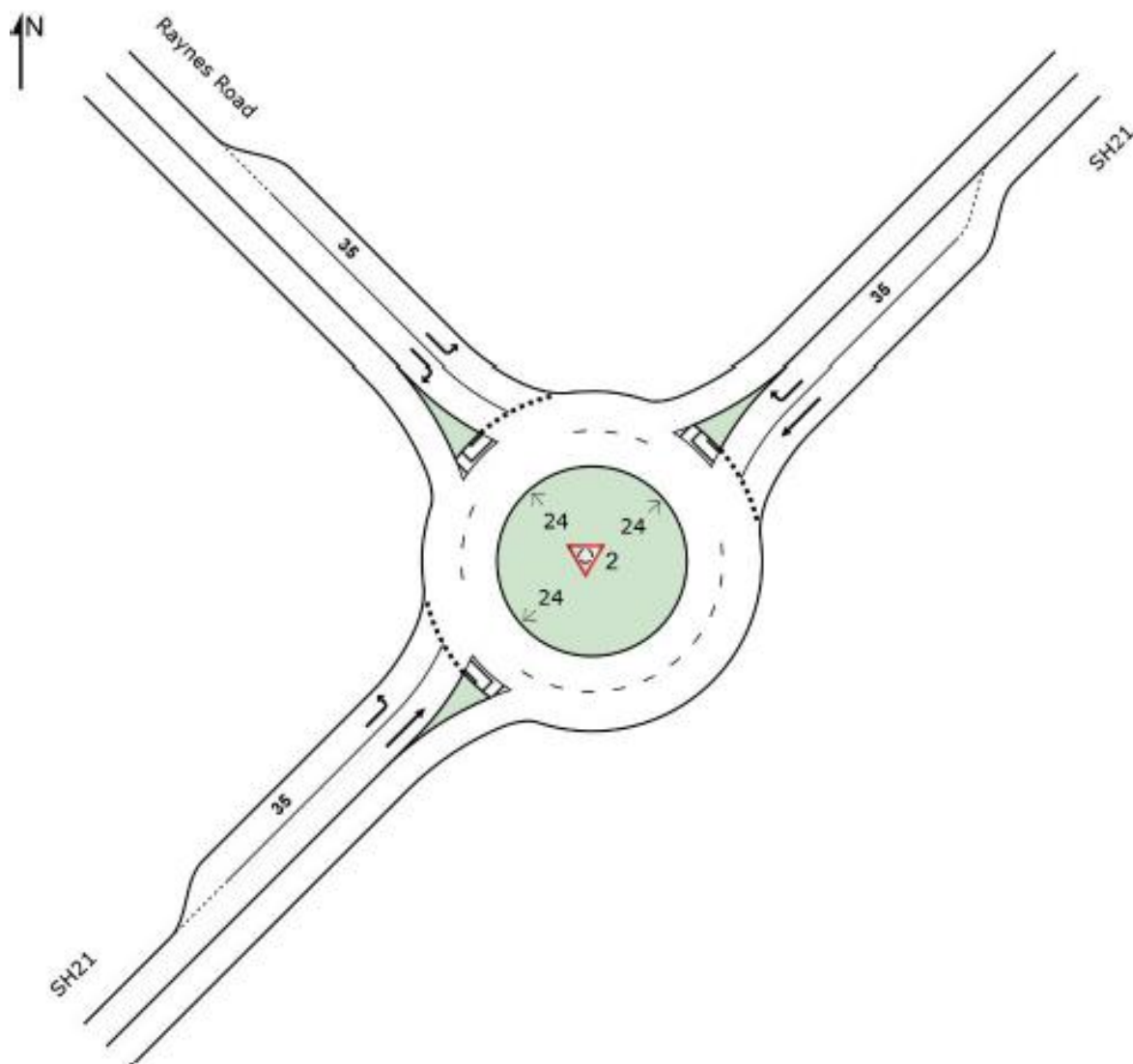


FIGURE 2: BASE BBO DESIGN 3 ARM ROUNDABOUT SH21/RAYNES RD

The three-arm design was then amended to a four-arm option as shown in Figure 3 and Appendix A to assess the suitability of this scale of intersection to accommodate not only the originally proposed PPC20 lands but also a potential future development of up to 32ha on to the east side of SH21. These amendments include:

- Dual lane approach on the southeast leg (site access), which includes a 35m short diverge lane through and left turn movement;
- Dual lane exits on the southwest leg (SH21), which includes a 60m short merge lane;
- Dual lane exits on the northeast leg (SH21), which includes a 120m short merge lane;
- Redesigned the northeast (SH21) approach by reallocating and lengthen the short diverge lane to 40m.

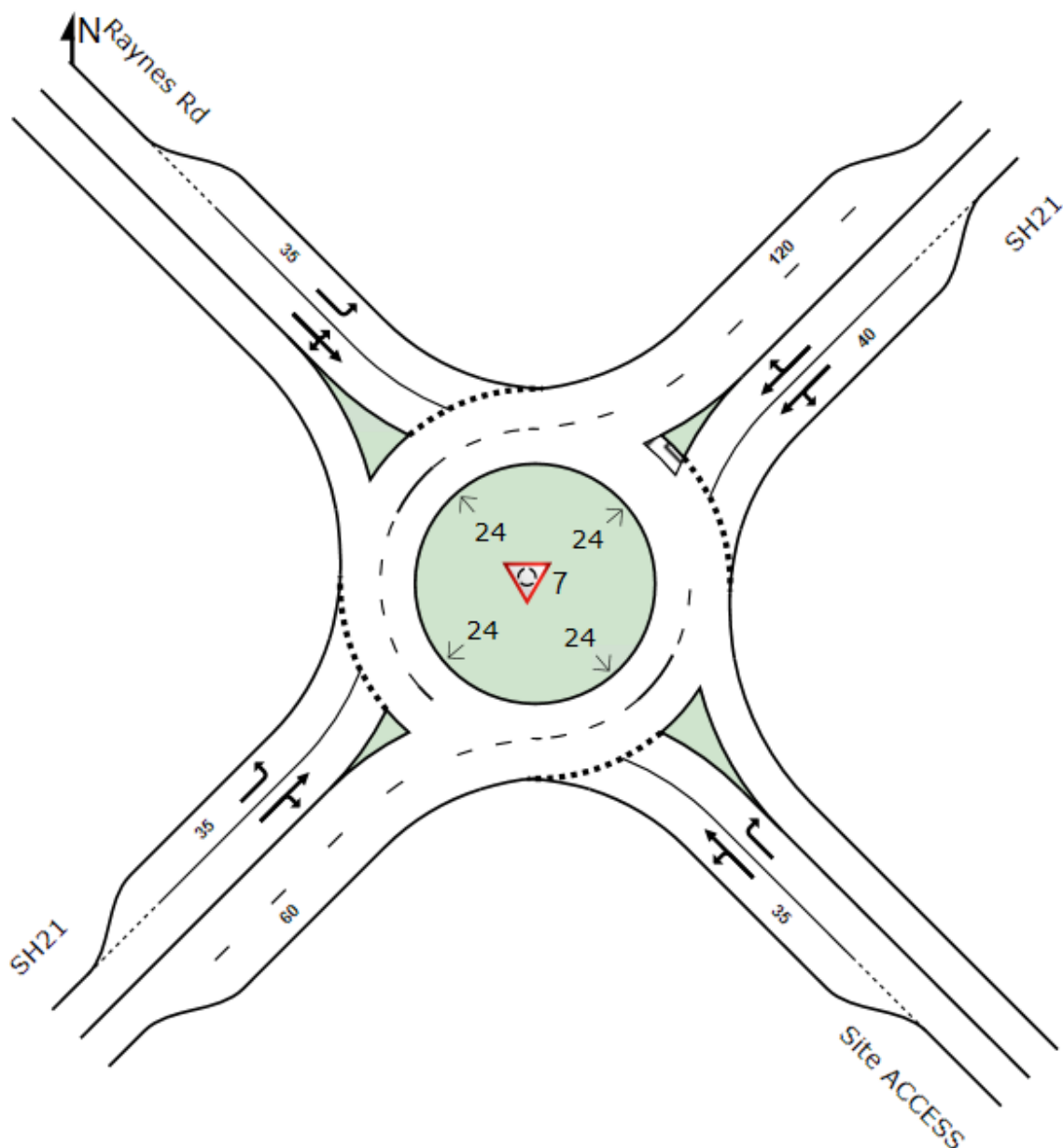


FIGURE 3: DESIGN OF 4 ARM ROUNDABOUT SH21/RAYNES RD

Table 2 and Table 3 below show the movement summary comparison of BBO's three-arm roundabout design and the potential 4 four-arm roundabout to allow access to TTL submission land.

TABLE 2: SH21 / RAYNES RD AM ROUNDABOUT COMPARISONS

Approach	Movement	AM BBO 3-LEGGED			AM 4-LEGGED		
		Ave Delay (s)	LOS	95% Q (m)	Ave Delay (s)	LOS	95% Q (m)
NorthEast: SH21	Left	-	-	-	5.5	A	21.6
	Through	5.3	A	23.1	12.1	B	224.6
	Right	10.0	A	41.4	26.4	C	224.6
NorthWest: Raynes Rd	Left	5.2	A	15.0	5.4	A	18.3
	Through	-	-	-	4.9	A	18.3
	Right	9.9	A	6.7	10.5	B	18.3
SouthWest: SH21	Left	13.5	B	17.7	13.8	B	21.9
	Through	11.6	B	20.9	13.3	B	28.2
	Right	-	-	-	17.7	B	28.2
SouthEast: Site Access	Left	-	-	-	16.5	B	8.4
	Through	-	-	-	16.2	B	8.4
	Right	-	-	-	19.3	B	8.6
All Vehicles		8.7	A	41.4	15.3	B	224.6

TABLE 3: SH21 / RAYNES RD PM ROUNDABOUT COMPARISONS

Approach	Movement	PM BBO 3-LEGGED			PM 4-LEGGED		
		Ave Delay (s)	LOS	95% Q (m)	Ave Delay (s)	LOS	95% Q (m)
NorthEast: SH21	Left	-	-	-	4.1	A	5.9
	Through	4.1	A	10.9	4.2	A	16.1
	Right	9.2	A	7.9	9.4	A	16.1
NorthWest: Raynes Rd	Left	15.1	B	88.4	26.0	C	107.8
	Through	-	-	-	31.2	C	107.8
	Right	12.0	B	2.9	37.0	D	107.8
SouthWest: SH21	Left	6.8	A	10.3	10.5	B	14.7
	Through	5.7	A	27.1	11.9	B	49.4
	Right	-	-	-	15.5	B	49.4
SouthEast: Site Access	Left	-	-	-	6.8	A	8.4
	Through	-	-	-	6.6	A	8.4
	Right	-	-	-	13.2	B	9.3
All Vehicles		9.2	A	88.4	14.5	B	107.8

All movements of the potential four-arm roundabout are within or below the LOS D threshold of a roundabout and it is expected from the SIDRA analysis undertaken that there would likely be minimal effects on the surrounding transport network if additional land to the east of SH21 were to be developed in the future.

3 Conclusions

Based on the initial modelling presented here, it is assessed that there is potential to zone additional industrial land to the east of SH21 and that transport network planning through PPC20 should not preclude this from occurring. It is acknowledged that multi-party cooperation and cost sharing of infrastructure provision would be entirely appropriate to unlock future industrial zoned land.

CKL

Appendix A

