

**BEFORE AN INDEPENDENT COMMISSIONER**

**UNDER** the Resource Management Act 1991 (**RMA**)

**IN THE MATTER OF** an application by Industre Property Rua Limited for resource consent for a light industrial development at 16A Wickham Street, Hamilton (application number LU/0038/23)

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**STATEMENT OF EVIDENCE OF JUDITH MAKINSON FOR INDUSTRIE  
PROPERTY RUA LIMITED**

**TRAFFIC**

**DATED 8 NOVEMBER 2023**

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## MAY IT PLEASE THE COMMISSIONER

### INTRODUCTION

1. My full name is Judith Victoria Makinson. I am a Director at CKL specialising in Transportation Engineering.
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.
3. I am 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.
4. I have read and am familiar with the Environment Court's Code of Conduct for Expert Witnesses, contained in the Environment Court Practice Note 2023, and agree to comply with it. My qualifications as an expert are set out above. Other than where I state that I am relying on the advice of another person, I confirm that the issues addressed in this statement of evidence are within my area of expertise. I have not omitted to consider material facts known to me that might alter or detract from the opinions that I express. I understand it is my duty to assist the hearing commissioner impartially on relevant matters within my area of expertise and that I am not an advocate for the party which has engaged me.
5. I supervised the preparation of the Integrated Transport Assessment (**ITA**) and Draft Travel Management Plan (**TMP**) reports for the resource consent application by Industrie Property Rua Limited (**Industre**), which included an assessment of the traffic effects of the

proposed light industrial development at 16A Wickham Street, Hamilton (**Site**).

6. My evidence that follows presents an overview of the key findings of the ITA, and responds to submissions. The structure of my evidence is as follows:
  - i. Summary of Evidence
  - ii. Existing Environment
  - iii. Crash Records and Road Safety Environment
  - iv. Proposed Development
  - v. Proposed Development Traffic
  - vi. Traffic Management Plan
  - vii. Traffic Effects
  - viii. Road Safety Effects
  - ix. Site Access Controls
  - x. Submissions
  - xi. Section 42A Report
  - xii. Draft Conditions
  - xiii. Conclusions

## **SUMMARY OF EVIDENCE**

7. I have assessed the transportation effects of the proposed development in terms of both road network capacity and safety.
8. In relation to traffic generation, I consider that the development is likely to generate some 23 vehicles per hour (**vph**) and 167 vehicles per day (**vpd**) based on the Institute of Transport Engineers (**ITE**) database industry standard trip rates. I have also considered a sensitivity test case using 85<sup>th</sup> percentile trip rates obtained from Waka Kotahi Research Report 453: 'Trips and Parking Related to Land Use' (**RR453**) preferred by submitters which would result in a potential traffic generation from the development to 90vph and 215vpd. In neither assessment case does this take into account the existing site generated traffic of approximately 20vph and 62vpd. Nor does the level of daily traffic generation trigger the need for an ITA to be

prepared under either the Hamilton City Council (**HCC**) Operative District Plan (**ODP**) or the Waipa District Council (**WDC**) District Plan (**DP**).

9. I acknowledge that the road safety record at the Kahikatea Drive / SH1C intersection is currently poor and that this would be classed as a high risk intersection. I note that this is also a known and existing issue. A Draft TMP for Stage 1 of the development has been prepared and offered as part of the consenting process, with the primary function of this document being to restrict operational traffic (i.e., commercial vehicles, staff and visitors) to left in and left out turns only at this intersection. The Draft TMP also proposes to restrict right turns for development traffic at the Duke Street / SH1C intersection for site related traffic and offers a range of compliance monitoring actions and reporting to WDC, HCC and Waka Kotahi (**WK**). The Draft TMP outlines potential disciplinary actions for non-complying staff and together with a specific consent condition requiring compliance with the TMP, provides a mechanism to ensure compliance and appropriately manage road safety risks.
10. Under my assessment case based on ITE trip generation rates, and allowing for existing site generated traffic, the degree of change as a result of the development is negligible with up to 2vph being added to any turning movements on the network in question as a maximum. Under the sensitivity test scenario, the maximum increase in turning demands has been assessed as being 35vph at the Higgins Road / Kahikatea Drive intersection and some 6vph – 24vph elsewhere. I consider this to be a negligible level of change and is unlikely to have a discernible effect on road network capacity. I also note that existing site generated traffic is not subject to any right turn restrictions and therefore future development traffic operations would represent an improvement in this regard.
11. In terms of traffic demands, I have assessed the degree of change to be some 0.6% on State Highway 1C (**SH1C**) to 0.95% on Killarney Road. I consider this level of change to be negligible given the rule of

thumb day to day variation in traffic volume on the road network is around 5%.

12. I have considered road safety effects in depth. I prefer the Crash Estimation Compendium (**CEC**) product of flow model over the conflicting flow model, given the cautionary note in the CEC in relation to use of the conflicting flow model. I have assessed that using crash prediction models, the resulting increase in traffic may, at worst, result in one additional injury crash every 55 - 80 years at the Kahikatea Drive / SH1C intersection. My assessment takes account of the fact that the intersection is currently experiencing a higher than would be expected injury crash rate and is also robust as I assume that all Site traffic uses this intersection, regardless of likely directional distribution of trips to the network.
13. Additional CEC crash prediction modelling for the intersections of Kahikatea Drive / Higgins Road and Higgins Road / Killarney Road also indicates that the effect of the proposed development would reasonably be expected to result in a worst case scenario of one additional injury crash every 169 - 312 years.
14. I have assessed that sufficient analysis has been undertaken via additional trip generation, distribution and crash estimation modelling to demonstrate that the proposed development traffic effects would result in a less than minor risk to the continued operation of the road network and its users.
15. Additional controls to the existing shared access serving the Site to define priority movements and provide effective management of non-priority traffic is also presented and detailed. In my opinion, this addresses matters raised by submitters and can be controlled by appropriate consent conditions.
16. Overall, it is my opinion that whilst there are existing capacity and safety issues that need addressing at the Kahikatea Drive / SH1C intersection, the effect of the proposed development on the capacity

and safety of the road network is at worst, less than minor and no mitigation of effects is warranted.

## EXISTING ENVIRONMENT

17. The Site is located at 16A Wickham Street as shown in



Figure 1. The Site lies within the jurisdiction of WDC but is accessed via a road network and right of way at the southern end of Wickham Street within the jurisdiction of HCC. The right of way also provides access to Enviro NZ and the Waste Management recycling centre. The area surrounding Wickham Street is zoned Industrial under the HCC ODP with the Site itself being zoned Rural under the WDC DP.



FIGURE 1: SITE LOCATION

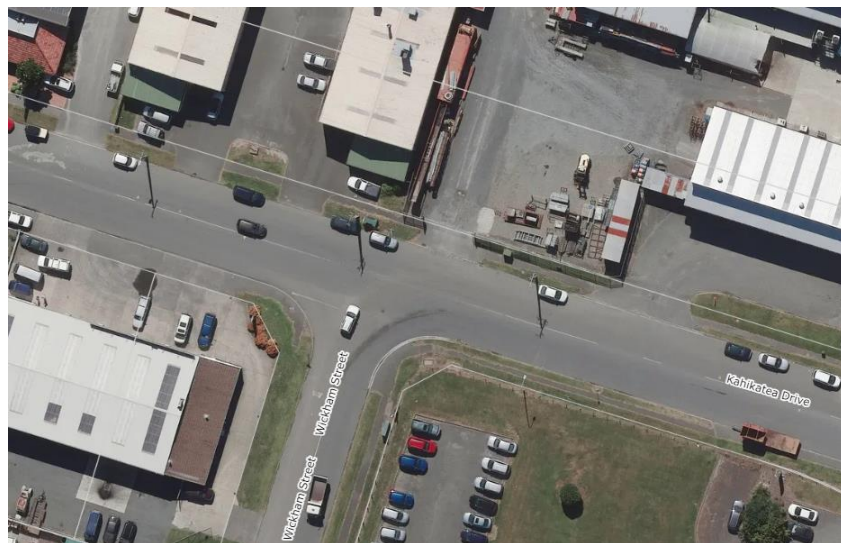
18. The surrounding road network is described below. Road classifications have been sourced from the HCC ODP and One Network Framework (**ONF**). The ONF is a tool to help establish transport network function, performance measures, operating gaps and potential interventions for each road and street type. It is also intended to provide national consistency of road function definition, with roads being classified based on movement and place function. All roads discussed below operate under a 50km/h speed limit unless otherwise noted.
19. Wickham Street is defined as a local road under Appendix 15-4 of the HCC ODP and as a local street under the ONF. The ONF defines the

function of a local street as a road which has the function of providing a quiet and safe access for all ages and abilities. The function of this road is to primarily provide access to the surrounding industrial properties. It is a no-exit road approximately 225m in length. The carriageway is unmarked but is of sufficient width to allow two-way traffic movement and support on-street parking. A footpath extends along the majority of the eastern side of Wickham Street. The cross section of Wickham Street is shown in Figure 2



**FIGURE 2: TYPICAL CROSS-SECTION OF WICKHAM STREET LOOKING NORTH**

20. Wickham Street is accessed via the priority-controlled T-intersection with Kahikatea Drive as shown in Figure 3.



**FIGURE 3: WICKHAM STREET / KAHIKATEA DRIVE INTERSECTION (SOURCE: GRIP)**



21. This section of Kahikatea Drive is classified as a collector road under the HCC ODP and as an urban connector under the ONF. The ONF defines the function of an urban connector as a road which provides safe, reliable and efficient movement of people and goods between regions and strategic centres and mitigate the impact on adjacent communities. It provides property access and through traffic functions and connects SH1C in the east with Higgins Road in the west. It is a two-way, two-lane road with centre line markings. On-street parking is generally permitted and there are footpaths to both sides of the carriageway. The typical cross section of Kahikatea Drive is shown in Figure 4.



FIGURE 4: KAHIKATEA DRIVE TYPICAL CROSS-SECTION

22. Higgins Road is defined as a local road under the HCC ODP and as an urban connector under the ONF. The function of an urban connector is as described earlier. Higgins Road forms a boundary between the industrial activities to the east and the residential activities further west. The carriageway is approximately 10m wide and on-street parking is generally permitted on both sides of the road. The cross section of Higgins Road is shown below in Figure 5.



FIGURE 5: HIGGINS ROAD TYPICAL CROSS-SECTION LOOKING SOUTH

23. The Higgins Road / Kahikatea Drive intersection is a give way priority crossroad intersection as shown in Figure 6. Higgins Road has priority over Kahikatea Drive, however the southern section of Higgins Road is no exit only and the predominant traffic movement is between the northern section of Higgins Road and the eastern section of Kahikatea Drive.



FIGURE 6: KAHIKATEA DRIVE / HIGGINS ROAD INTERSECTION (SOURCE: GRIP)

24. SH1C is classed as a major arterial road under the HCC ODP. Under the ONF, it is classed as a transit corridor north of the Kahikatea Drive intersection which has the function of providing for the fast and efficient long-distance movement of people and goods within the urban realm. To the east of the intersection, under the ONF, it is classified as an urban connector with the function as described earlier. SH1C is also identified as part of both the Strategic Network and the Sensitive Transport Network for Hamilton City.
25. SH1C is a two lane, two-way road and has a carriageway approximately 14m wide with a 1.5m wide cycle lane in the northbound direction. The traffic lanes are separated by a 4m wide flush median and there is no parking permitted on either side. This section of SH1C operates under a 60kph speed limit. The typical cross-section is shown in Figure 7.



**FIGURE 7: SH1C TYPICAL CROSS-SECTION LOOKING NORTH**

26. To facilitate right hand turns through the SH1C / Kahikatea Drive intersection the intersection has a right turn bay for southbound vehicles. Vehicles exiting Kahikatea Drive have a left turn slip lane separated by a splitter island from those vehicles turning right to head south along SH1C and within Kahikatea Drive there is a raised 1.8m wide central median, separating vehicles entering and exiting Kahikatea Drive. There is an off-road shared path for pedestrians and cyclists along the western side of SH1C as well as on-road cycle lanes.

Parking is prohibited along both sides of the carriageway. The SH1C / Kahikatea Drive intersection is shown in Figure 8.



FIGURE 8: SH1C / KAHIKATEA DRIVE INTERSECTION (SOURCE: GRIP)

27. Killarney Road further to the north is classified under the HCC ODP as a minor arterial road and as an urban connector under the ONF. The function of an urban connector road is as described earlier. Killarney Road, in the vicinity of the Higgins Road intersection, has two lanes separated by a flush median which includes a right turn bay to facilitate right hand turns at the Killarney Road / Higgins Road intersection. Parking is prohibited along this section of Killarney Road and footpaths are provided to both sides of the road. The cross section of Killarney Road is shown in Figure 9 .



**FIGURE 9: KILLARNEY ROAD CROSS-SECTION**

28. The Killarney Road / Higgins Road intersection is a priority t-intersection with right turn lanes being provided on Killarney Road. The intersection layout is shown in Figure 10.



**FIGURE 10: KILLARNEY ROAD / HIGGINS ROAD INTERSECTION (SOURCE: GRIP)**

29. Immediately east of this intersection, the single eastbound lane approach to the Killarney Road / SH1C intersection splits into a left turn, right turn and straight through lane configuration on approach to the Killarney Road / SH1C signalised crossroad intersection.

30. As outlined within section 3.4 of the ITA, Wickham Street, Kahikatea Drive and Higgins Road all form part of identified freight routes under the draft Network Operating Framework (**NOF**). An NOF is a mechanism to consider the wider function of the road network and take a whole of system approach to management and assign different user group priorities to different roads. As such, use by industrial traffic is an expected outcome.
31. It is noted that Waka Kotahi is the road controlling authority (**RCA**) for SH1C. The designation for SH1C includes the SH1C / Kahikatea Drive intersection and also extends to the Killarney Road / Higgins Road intersection. Traffic volumes were obtained from Waka Kotahi website MapHub for each of the surrounding roads and are presented below in Table 1. Peak hour rates are not typically provided as part of traffic counts for non-state highway roads and are typically assumed to represent around 10% of the Average Daily Traffic (**ADT**) volumes.

**TABLE 1: EXISTING TRAFFIC VOLUMES - SURROUNDING ROAD NETWORK**

Road	Average Daily Traffic (ADT)	Calculated peak hour volumes (vph)	Heavy commercial vehicles (HCV)
Wickham Street	247	25	16% or 40 HCVs
Kahikatea Drive	5,020	502	3% or 151 HCVs
Higgins Road	4,180	418	3% or 125 HCVs
Killarney Road	16,100	1,610	3% or 483 HCVs
SH1C	25,753	2,575	9% or 2,318 HCVs

32. A traffic survey has been undertaken on Friday 3<sup>rd</sup> November 2023 at the Site access to identify the number of traffic movements generated by the existing activities on site. The survey was undertaken from 7am – 6pm in order to identify peak hour and daily traffic volumes. The survey identified the traffic volumes to be 62vpd and 20vph. This represents approximately 1.2% of traffic already on Kahikatea Drive, 0.38% of traffic on Killarney Road and 0.24% of traffic on SH1C.

## CRASH RECORDS AND ROAD SAFETY ENVIRONMENT

33. I supervised an updated crash analysis assessment, conducted on 27<sup>th</sup> October 2023, of the surrounding road network using the Waka Kotahi Crash Analysis System (**CAS**). The assessment identified all reported crashes along the routes shown in Figure 9 for the previous full five years, from 2018 and 2023 year to date.

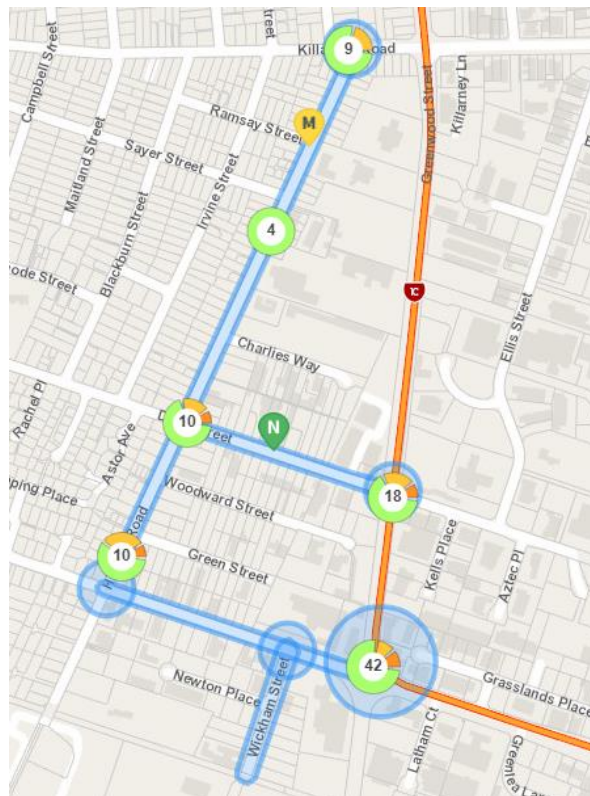


FIGURE 11: CRASH ANALYSIS AREA 2018-2023

34. The search found a total of 93 crashes had been reported within the study area, of which nine resulted in serious injuries, 16 resulted in minor injuries and the remaining 68 were recorded as non-injury. There have been no reported fatalities.
35. The occurrence of crashes at the SH1C / Kahikatea Drive, Kahikatea Drive / Higgins Road, Higgins Road / Killarney Road intersections are shown in Figure 12, Figure 13, Figure 14 and Figure 15 respectively.



FIGURE 12: CRASH RESULTS SH1C / KAHIKATEA DRIVE 2018 – 2023 (37 TOTAL)

36. I note that of the crashes shown in Figure 12 at the SH1C / Kahikatea Drive intersection, approximately one third occurred outside of normal working hours. I also note that around 47% involved right turn out from Kahikatea Drive to SH1C and that of these 18 crashes, 5 resulted in minor injuries and 1 resulted in serious injury.
37. I also note that the speed limit along SH1C was reduced from 80km/h to 60km/h in December 2021. When considering crash rates before and after this date, there were 28 crashes between 2018 and the end of 2021 of which three resulted in serious injury. This equates to approximately two crashes per month and one serious injury crash every 16 months. In the 22 months following the speed reduction, from the beginning of 2022 to 1<sup>st</sup> November 2023, there have been eight reported crashes, or approximately one crash every three months of which one has resulted in serious injuries. This is a significant reduction with the current total crash rate following the reduction in the speed limit being just 16% of the previous crash rate and the incidence of serious injury crashes being some 73% of the pre-speed reduction rate. I therefore conclude that in the time since the speed reduction, there has been a marked reduction in the crash rates at the SH1C /



Kahikatea Drive intersection in the short term and in my opinion, there is no reason to expect a reversal of this positive change.



FIGURE 13: CRASH RESULTS WICKHAM STREET / KAHIKATEA DRIVE 2018 – 2023 (1 TOTAL)

38. As shown in Figure 13 there have been no injury crashes at the Wickham Street / Kahikatea Drive intersection reported during the 2018 to 2023 analysis period.



FIGURE 14: CRASH RESULTS KAHIKATEA DRIVE / HIGGINS ROAD 2018 – 2023 (6 TOTAL)

39. I note that the serious injury crash recorded at the Higgins Road / Killarney Road intersection shown in Figure 14 occurred when the eastbound driver on Kahikatea Drive failed to give way, with the driver being under the influence of alcohol.



FIGURE 15: CRASH RESULTS HIGGINS ROAD / KILLARNEY ROAD 2018 – 2023 (9 TOTAL)

40. At the Higgins Road / Killarney Road intersection shown in Figure 15, there have been no serious injury crashes and two minor injury crashes. I note no particular crash type trends within the injury crashes.
41. The Safe System approach to road safety focuses on reducing death and serious injury (**DSI**) crashes. It recognises that drivers make mistakes and seeks to create a road environment that reduced the consequences of those mistakes. The Road to Zero campaign has a similar goal to reduce DSI crashes on New Zealand roads by up to 40% by the year 2030. I have therefore considered DSI crashes in more detail.
42. Serious injury crashes have occurred at the SH1C / Kahikatea Drive and the Kahikatea Drive / Higgins Road intersections.

43. The five reported serious injury crashes at the SH1C / Kahikatea Drive intersection are summarised below:
- i. July 2018: single vehicle crash which occurred at 6am, involved a northbound driver on SH1C with excessive speed cutting the corner and losing control. Crash report indicates alcohol and drugs suspected;
  - ii. June 2020: two vehicle collision that occurred at 5:30pm and involved a northbound motorcycle on Kahikatea Drive colliding with a ute failing to give way while turning right onto Kahikatea Drive;
  - iii. July 2020: single vehicle crash which occurred at 8:30pm and involved a southbound car on SH1C losing control and swinging wide on the bend after a suspected medical event and excessive speed and struck a pole;
  - iv. May 2022: three vehicle crash which occurred at 6am and involved a southbound vehicle on SH1C with excessive speed swinging wide, side-swiping a truck and colliding with a northbound vehicle head-on;
  - v. January 2023: crash occurred at 11:30pm and the report details two motorcyclists westbound on Kahikatea Drive at excessive speed and evading law enforcement collided with each other. One rider managed to evade police while the other rider had serious injuries.
44. The serious injury crash that occurred at the Kahikatea Drive / Higgins Road intersection occurred in April 2023 and involved an eastbound SUV on Kahikatea Drive that failed to give way to an oncoming car. The crash report also notes alcohol suspected.
45. The last remaining serious injury crash occurred at the Duke Street / Higgins Road intersection in February 2019. This crash occurred when a motorcycle southbound on Higgins Road was hit by a car northbound

on Duke Street which failed to give way. The crash report also notes alcohol suspected on the motorcyclist.

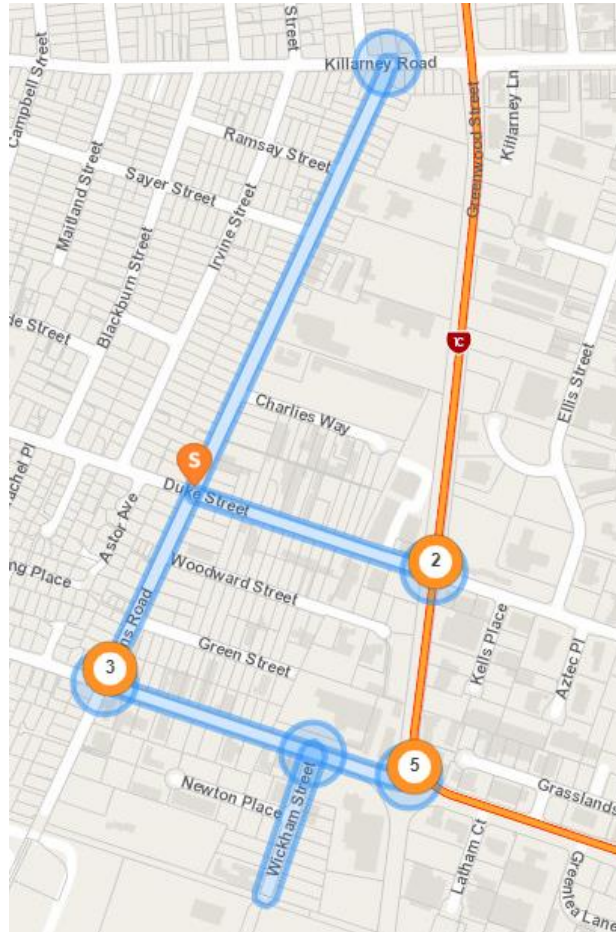
46. Analysis of the personal and collective risk ratings has also been undertaken using the Waka Kotahi NZTA MegaMaps website for all the surrounding road corridors that form part of the intended development traffic routes. These results are summarised below in Table 2.

**TABLE 2: MEGA MAPS PERSONAL AND COLLECTIVE RISK ASSESSMENT – ROAD CORRIDORS**

Road	Personal Risk	Collective Risk
Kahikatea Drive	Low	Low
SH1C (nth Kahikatea Dr int)	Medium	Medium
SH1C (sth Kahikatea Dr int)	Medium	Low-Medium
Wickham Street	Low	Low
Higgins Road	Medium	Low-Medium
Killarney Road	Medium	Medium

47. Collective risk reflects the overall chance of a crash occurring at a given intersection or along a stretch of road. Personal risk is classed as the risk to the individual of being killed or seriously injured in a crash and is calculated using both traffic volumes and DSI crash equivalents. Personal risk therefore decreases as traffic volumes increase. Collective risk is based on DSI crashes and can either be observed or equivalent crashes.
48. As stated in the High Risk Intersection Guide (**HRIG**) section 4.2.1, when using reported DSI crashes to determine if an intersection should be classified as high risk there must be either:
- i. Three or more DSI reported crashes in five years; or
  - ii. Five or more DSI reported crashes in 10 years
49. Based on the above analysis using the CAS records for the last five years, I assess that the SH1C / Kahikatea Drive intersection is the only intersection that meets this criterion and I conclude that it should be considered as a high risk intersection.
50. To determine if any of the remaining intersections meet the HRIG definition of high risk based on observed DSI crash rates, further CAS

analysis was undertaken for the previous 10 years from 2013 to 2023 year to date, for serious and fatal injuries. It was determined that none of the other intersections met the HRIG definition criteria to be labelled as high risk as shown in Figure 16.



**FIGURE 16: CAS ANALYSIS FOR FATAL AND SERIOUS INJURIES 2013 – 2023**

51. Where reported DSI crashes are few, collective and personal risk can also be assessed based on DSI equivalents. This takes in to account lower order injury crashes for the previous full 5- year period as set out in section 4.2 and Appendix 3 of the HRIG.
52. Calculation of collective risk identifies the number of reported injury crashes, with each crash mechanism having a preassigned risk value associated with it. For an intersection to be classified as high risk through the collective risk analysis, the sum total of these values for all injury crashes must exceed 1.1.

53. Calculation of personal risk also uses the calculated DSI equivalents from the collective risk, however as this matrix looks at how likely a crash it to happen to an individual, it also takes into account traffic volumes. An intersection with a score of more than 16 DSI equivalents per 100 million vehicle kilometres travelled is also classed as being high risk.
54. Using the DSI equivalents method, Table 3 below, shows that upon analysis, only of the SH1C / Kahikatea Drive intersection is considered to be high risk (black) in both the collective and personal risk ratings. The Kahikatea Drive / Higgins Road, Higgins Road / Duke Street and Duke Street / SH1C intersections have a medium – high (red) personal risk coupled with medium (orange) or low-medium (yellow) collective risks. This means that at those intersections, the overall risk of an injury crash occurring is relatively low, but due to lower numbers of vehicles passing through the intersection, the risk of a given individual being involved is higher.

**TABLE 3: DSI EQUIVALENTS CALCULATIONS**

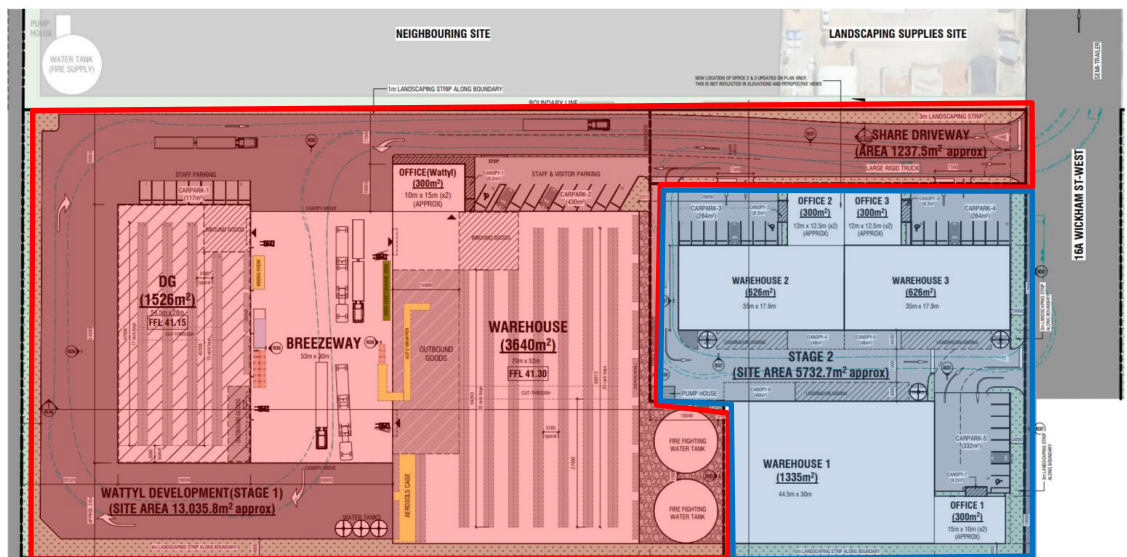
Intersection	Collective	Personal
SH1C / Kahikatea	1.87	46
Kahikatea / Higgins	0.33	19
Higgins / Duke	0.51	22
Higgins / Killarney	0.29	7
Duke / SH1C	1.08	23

55. Whilst acknowledging that the risk to the individual may be high, given the low risk of an injury crash occurring at all at the Kahikatea Drive / Higgins Road and Higgins Road / Duke Street intersections, and the focus of the Safe System and Vision Zero road safety strategies, I consider that the degree of road safety risk is typical for the mixed urban environment.
56. I acknowledge that the Duke Street / SH1C intersection presents an area of concern as is evidenced by the recorded crash record and HRIG assessment. However, I conclude that as right turns at the unsignalised intersections along SH1C are not permitted within the

TMP and proposed consent conditions, any road safety risk associated with this intersection is not relevant to the proposals. I also conclude that the proposed restrictions on these right turns for Site traffic is an improvement over the existing situation where traffic from the Site is not restricted in any way.

**PROPOSED DEVELOPMENT**

- 57. The development is proposed to occur over two stages with a total development gross floor area (GFA) of some 8,953m<sup>2</sup>.
- 58. Stage one is proposed to be 5,466m<sup>2</sup> in total and includes 3,640m<sup>2</sup> warehousing, 1,526m<sup>2</sup> dangerous goods store and 300m<sup>2</sup> office activities. The intended tenant for Stage 1 is Wattyl.
- 59. Stage two comprises the establishment of three warehouses totalling 2,587m<sup>2</sup> and three ancillary 300m<sup>2</sup> offices with as of yet unknown tenants for a total development area of 3,487m<sup>2</sup>.
- 60. The stage 1 and 2 development site plan layout is shown below in Figure 17 with stage 1 outlined red and stage 2 outlined blue. A larger plan is provided in Appendix A.



**FIGURE 17: PROPOSED DEVELOPMENT SITE PLAN - STAGES 1 AND 2**

- 61. Two access points to the development from the right of way serving the Site are proposed. The first serves Stage 1 with all traffic entering

and leaving the site at this point. Heavy Commercial Vehicles (**HCVs**) are expected to circulate around the site in a clockwise direction. Car access to Warehouses 2 and 3 in Stage 2 is also proposed to be via the first access point, with HCVs being expected to enter via this crossing and exit via the second access point. Access to Warehouse 1 in Stage 2 will be via the second access point only.

62. Each warehouse unit will be provided with parking as follows:
- i. Stage 1: 19 car parks including one accessible car park;
  - ii. Stage 2 warehouse 1: 8 car parks including one accessible car park;
  - iii. Stage 2 warehouse 2: 8 car parks including one accessible car park; and
  - iv. Stage 2 warehouse 3: 8 car parks including one accessible car park
63. The Stage 1 development has a breezeway for loading and unloading HCVs. The Stage 2 warehouses all have canopy areas parallel to the buildings from which loading and unloading will occur.

#### **PROPOSED DEVELOPMENT TRAFFIC**

64. As outlined within section 6 of the ITA, the proposed stage one development traffic was originally estimated using data supplied by WattyI based on similar activity levels at similar sites. Trip generation for stage one of the development was assessed as being 11vph and 44vpd including staff, commercial visitor and HCV movements.
65. Trip generation for stage two of the development was assessed using rates from the ITE to provide a guide based on gross floor area (**GFA**) and expected land use activity. Using the land use code 150 Warehousing, this gives a peak hour rate of 0.25vph / 100 sqm and 1.86vpd / 100 sqm. When applied for the total development area of 3,487m<sup>2</sup> for stage 2 this results in peak hour traffic generation of 9vph and a daily traffic generation of 65vpd.



66. Following submissions from Waka Kotahi<sup>1</sup> and HCC<sup>2</sup> and a subsequent meeting on 10<sup>th</sup> October 2023, I have undertaken additional sensitivity analysis. I have applied the ITE and RR453 trip rates to the full development as shown in Table 4, Table 5 and Table 6.

**TABLE 4: ITE TRIP GENERATION VALUES**

Development Stage	Peak Hour		Daily	
	Trip Rate (vph)	Trips (vph)	Trip Rate (vpd)	Trips (vpd)
Stage 1 (5,466m <sup>2</sup> )	0.25 / 100m <sup>2</sup>	14	1.86 / 100m <sup>2</sup>	102
Stage 2 (3,487m <sup>2</sup> )		9		65
Total	-	23	-	167

**TABLE 5: RR453 TRIP GENERATION VALUES – AVERAGE**

Development Stage	Peak Hour		Daily	
	Trip Rate (vph)	Trips (vph)	Trip Rate (vpd)	Trips (vpd)
Stage 1 (5,466m <sup>2</sup> )	0.9 / 100m <sup>2</sup>	49	2.1 / 100m <sup>2</sup>	115
Stage 2 (3,487m <sup>2</sup> )		31		73
Total	-	80	-	188

**TABLE 6: RR453 TRIP GENERATION VALUES – 85TH PERCENTILE**

Development Stage	Peak Hour		Daily	
	Trip Rate (vph)	Trips (vph)	Trip Rate (vpd)	Trips (vpd)
Stage 1 (5,466m <sup>2</sup> )	1.0 / 100m <sup>2</sup>	55	2.4 / 100m <sup>2</sup>	131
Stage 2 (3,487m <sup>2</sup> )		35		84
Total	-	90	-	215

67. In my opinion, daily traffic demands based on the average ITE and RR453 trip rates are consistent, however there is significant variation in the peak hour trip rates. I note that the trip generation data provided by Wattyl and as used in the ITA aligns more closely with the ITE trip rates. However, for robustness, I will consider traffic effects based on both the ITE and RR453 85<sup>th</sup> percentile trip rates going forwards.
68. The traffic count survey discussed earlier identified existing vehicular movements of 62vpd and 20vph associated with the Sites existing

<sup>1</sup> Waka Kotahi submission letter dated 7<sup>th</sup> August 2023

<sup>2</sup> Hamilton City Council submission letter dated 7<sup>th</sup> August 2023

activities. I therefore assess the increase in future traffic volumes to the road network to be as shown in Table 7.

**TABLE 7: NET TRAFFIC VOLUME CHANGE TO SURROUNDING ROAD NETWORK**

Trip Generation Source	Net Traffic Volume from Existing	
	Peak Hour (vph)	Daily (vpd)
ITE	3	105
RR453 (Average)	60	126
RR453 (85 <sup>th</sup> percentile)	70	153

### **DRAFT TRAFFIC MANAGEMENT PLAN (TMP)**

69. As part of the application, I also supervised the proposed Draft TMP for the Stage 1 (Wattyl) development which outlined the movement restrictions of vehicles associated with the development and provided recommendations on enforcement and monitoring. The Draft TMP has been provided to both HCC and WK for feedback and has been amended following discussions to reflect this. I have included the revised TMP as Appendix B.
70. The Draft TMP outlines movement restrictions to avoid right turns at the Kahikatea Drive / SH1C and SH1C / Duke Street intersections as shown in FIGURE 18. It is proposed that these restrictions are to remain in place until such time as the intersections are upgraded as intended as part of the Southern Links project or until such time that other safety upgrades are undertaken by the RCA to address existing road safety concerns. For completeness, I note that I was involved in the preparation of the TMP for the Waste Management site and that the same restrictions applied to operational traffic. Members of the public are advised to also use the preferred vehicle routing. I am unaware as to whether the Enviro NZ site operates under the same restrictions.



FIGURE 18: PROPOSED INTERSECTION MOVEMENT RESTRICTIONS

71. The Draft TMP also sets out the monitoring and reviews procedures to ensure compliance, as follows:
- i. A complaints page to be included on the Wattyl company website. This complaints page is to contain the name and contact details of a person within Wattyl NZ who will follow up on any complaints received;
  - ii. Complaints are to be addressed within 24hrs and appropriate action taken in accordance with Wattyl NZ Health and Safety policies and disciplinary procedures;
  - iii. HCC, WK and WDC must be informed of all complaints raised in relation to the TMP;
  - iv. Spot checks on compliance with the TMP in terms of right turn bans are to be undertaken within one month of occupation of the building and on a monthly basis until such time that compliance with the TMP has been confirmed. The results of the spot checks are to be provided to both HCC and WK as the RCAs and WDC as the consenting authority within one month of completion;
  - v. Once compliance with the TMP has been demonstrated, spot checks will be continued on an approximately 6 -monthly basis unless complaints have been received, until such time that the SH1C / Kahikatea Drive and / or Duke Street / SH1C intersection is upgraded. Any complaint received will trigger the need for a spot check to be undertaken within one month;
  - vi. Enforcement of the TMP including disciplinary action on any drivers is to be the responsibility of Wattyl NZ in accordance with prescribed disciplinary procedures. These procedures may include, but are not limited to, verbal and written warnings;
  - vii. Wattyl NZ will consult with HCC, WK and WDC to discuss the findings of spot check reports and on an as needed basis

regarding any disciplinary action resulting from driver behaviour complaints.

72. It is proposed that consent conditions require a TMP to be prepared for tenants within Stage 2 of the development.
73. I discuss how the TMP and proposed conditions of resource consent provide a robust control mechanism in relation to potential traffic effects later in my evidence.
74. I also note that whilst the existing activities on site might not generate particularly large volumes of traffic, the traffic associated with these activities is currently uncontrolled. In my opinion, the proposed TMP control on right turns at the SH1C / Kahikatea Drive and Duke Street / SH1C intersections provide an improvement over existing conditions.

#### **TRAFFIC EFFECTS**

75. In terms of daily traffic demands, and regardless of whether ITE or RR453 trip rate data is used to assess traffic generation, the volume of traffic likely to be generated by the proposed development is less than 215vpd in the worst-case scenario and taking no account of the existing 62vpd generated by activities on site. This is therefore below the lowest threshold for requiring an ITA under either the HCC ODP Rule 25.14.4.3 which states an ITA is not required where trip generation for a development is under 500vpd or WDC DP Rule 16.4.2.22 which states an ITA is not required where trip generation for a development is under 250vpd.
76. Notwithstanding that, I have assessed likely traffic effects on the surrounding road network from a capacity and road safety perspective.
77. In terms of assigning Site generated traffic to the road network, I have made the following assumptions:
  - i. All Site traffic demand is assumed to travel to and from the area equally from the north, south, east and west, with traffic to and from the east being assumed to approach from SH1C south of

the site due to the presence of Hamilton Lake and the CBD to the immediate east;

- ii. The Kahikatea Drive / SH1C intersection is restricted to left in / left out (**LILO**) movements only in recognition of the high risk safety rating at this intersection. This means that any traffic intending to head south or east must first head north along Higgins Road, turn right onto Killarney Road and then right onto SH1C; and
  - iii. AM peak hour Inbound / outbound development traffic split of 35% / 65% respectively with the reverse expected during the PM peak hour.
78. The assessed development traffic distribution using the above methodology based on the ITE and RR453 85<sup>th</sup> percentile trip generation rates for the AM and PM peak hours described above are demonstrated in Figure 19, Figure 20, Figure 21 and Figure 22 respectively. These figures allow for the existing traffic generated by activities on the site and reflect the likely degree of additional traffic on any given turning movement. It should be noted that there are currently no controls on where traffic from the Site can access SH1C and therefore it is reasonable to conclude that there are right turns currently occurring that would be banned in future.



FIGURE 19: PROJECTED AM PEAK HOUR TRIP DISTRIBUTION – ITE TRIP GENERATION



FIGURE 20: PROJECTED PM PEAK HOUR TRIP DISTRIBUTION – ITE TRIP GENERATION





FIGURE 21: PROJECTED AM PEAK HOUR TRIP DISTRIBUTION – RR453 85% TRIP GENERATION RATES



FIGURE 22: PROJECTED PM PEAK HOUR TRIP DISTRIBUTION – RR453 85% TRIP GENERATION RATES

79. When considering the ITE assessment case and allowing for existing traffic generated by activities on site, the degree of change is likely to be some 3vph overall, which is a negligible level of change. When considering the sensitivity testing using the 85<sup>th</sup> percentile RR453 rates, I assess that the highest increase in turning movements is likely to be some 35vph at the Higgins Road / Kahikatea Drive intersection. Turning volumes elsewhere on the network are likely to be some 6vph – 24vph. I consider the effect on the intersection capacity to be negligible and represent a very low level of change.
80. When assessing the impact to the existing road network, I have taken an extremely conservative assessment case of assuming that all generated daily traffic would use both Killarney Road and SH1C. For the worst case trip generation of 153vpd using the RR453 85<sup>th</sup> percentile trip rates and allowance for existing traffic from activities currently undertaken on the site, I assess the net level of change to traffic volumes of between 0.6% on SH1C and 0.95% on Killarney Road, well within daily network tolerances. In my opinion, this level of change is considered to represent a less than minor effect in network capacity terms.
81. It is my opinion that in terms of traffic generation and projected distribution, the effect of development traffic on the network capacity is negligible.

## **ROAD SAFETY EFFECTS**

82. I have assessed potential road safety effects arising from the proposed development using the CEC product of flow models. I have used these models to assess existing and future expected crash rates as they utilise daily traffic demands. The conflicting flow models can provide a more detailed assessment of crash effects for particular turning movements. Section 7.3 of the CEC provides the conflicting flow models for urban priority t-intersections operating at 80km/h or slower. I note that only two crash type (crossing vehicle turning and right turn against) models are available, both involving a right turn manoeuvre. Given the proposed consent conditions and Draft TMP ban the right

turn for development traffic and the advice given in the CEC that “*the predictions from these models should be treated with caution until further research explores in more detail the new design variables introduced in the design index*”, I prefer the product of flow models to assess overall crash risk changes.

83. For the intersections of interest, I have assessed the existing injury crash rates based on observed crashes, the expected future injury crash rate based on the CEC product of flow models and the expected future crash rate with the development in place. In considering the future crash rates, I have assumed that all daily traffic increase associated with the site will occur at each intersection. This means that I have made no allowance for the distribution of traffic to the network. In my opinion, this gives a highly robust assessment case. I also note that my assessment is a mathematical one assessing the degree of change in calculated risk and should not be taken as a prediction of when a crash will occur in a real world scenario.
84. Furthermore, where existing observed injury crash rates are higher than the CEC predictive injury crash rate models, I have identified the factor difference between observed and predicted models for the ‘existing’ case and applied this to the ‘with development’ CEC models. I have also made no allowance for the reduced crash rate at the SH1C / Kahikatea Drive intersection following the recent speed limit reduction as this would only give some 22 months of crash data. Although there is no reason to expect there to be a reversal of this positive change, in my opinion, it is not a sufficiently large data set on which to calculate injury crash rates as per the CEC models. Overall, in my opinion, my approach gives a highly robust assessment of development road safety effects. The various crash rates are presented in Table 8 with CEC calculations being presented in Appendix C.

TABLE 8: ROAD SAFETY EFFECTS ASSESSMENT

Intersection	Crash Rate from CAS	CEC Existing Expected Crash Rate	Estimate v Actual Factor	Assessment Case (ITE)			Sensitivity Test (RR453 85 <sup>th</sup> Percentile)	
				CEC 'With Development' Expected Crash Rate	Effect (injury crashes per year)	'With Development' Expected Crash Rate	Effect (injury crashes per year)	
Higgins Road / Killarney Road	0.34 <sup>3</sup>	0.4081	-	0.4121	0.004 or 1 additional injury crash every 250 years	0.4140	0.0059 or 1 additional injury crash every 169 years	
Higgins Road / Kahikatea Drive	0.17 <sup>4</sup>	0.1519	1.119	0.1548	0.0029 x 1.119 = 0.0032 or 1 additional injury crash every 312 years	0.1571	0.0052 x 1.119 = 0.0058 or 1 additional injury crash every 172 years	
Kahikatea Drive / SH1C	1.72 <sup>5</sup>	0.6049	2.843	0.6093	0.0044 x 2.843 = 0.0125 or 1 additional injury crash every 80 years	0.6113	0.0064 x 2.843 = 0.0182 or 1 additional injury crash every 55 years	

85. It is clear from Table 8 that the Higgins Road / Killarney Road intersection is experiencing slightly fewer injury crashes than would be expected. I have not applied a factor to reflect this. At the Higgins Road / Killarney Road, and Higgins Road / Kahikatea Drive intersections, I assess that the degree of change as a result of the proposed development would be one additional injury crash every 169 – 312 years, based on my robust case assessment. Similarly, I note that the expected injury crash rate increase at the SH1C / Kahikatea Drive intersection would be expected to be one additional injury crash every 55 – 80 years when factored to allow for the existing higher than expected crash occurrence. In my opinion all of these changes to crash risk are negligible.

86. Section 4.2 of HRIG identifies a high risk intersection as being one that experiences three or more DSI crashes in five years or 5 or more DSI crashes in 10 years. It is clear that even when assuming all development traffic passes through the Kahikatea Drive / SH1C intersection, the effect on the injury crash rate is negligible and would require a significant amount of time to elapse before an additional injury crash of any severity would be expected to occur.

<sup>3</sup> 2 crashes resulting in minor injuries in 5.8 years

<sup>4</sup> 1 crash resulting in a serious and a minor injury in 5.8 years

<sup>5</sup> 10 crashes resulting in 6 serious injuries and 7 minor injuries in 5.8 years

87. Notwithstanding the existing high risk nature of the SH1C / Kahikatea Drive intersection, overall, it is my opinion that the change in road safety risk as a result of development traffic is therefore negligible.

### SITE ACCESS CONTROLS

88. With respect to safety effects surrounding the access to the Site and to address concerns regarding continued safe operation of this in the HCC and Enviro NZ submissions<sup>6</sup>, I have considered options to provide for safe access management.
89. I recommend installing road markings that prioritise access to Waste Management. This is due to existing road formation and kerb lines which suggest it as being the higher order accessway, and also in recognition that members of the public access this site. Access to the proposed development and Enviro NZ can be controlled by give way or 'stop' marking as shown in Figure 23 below.

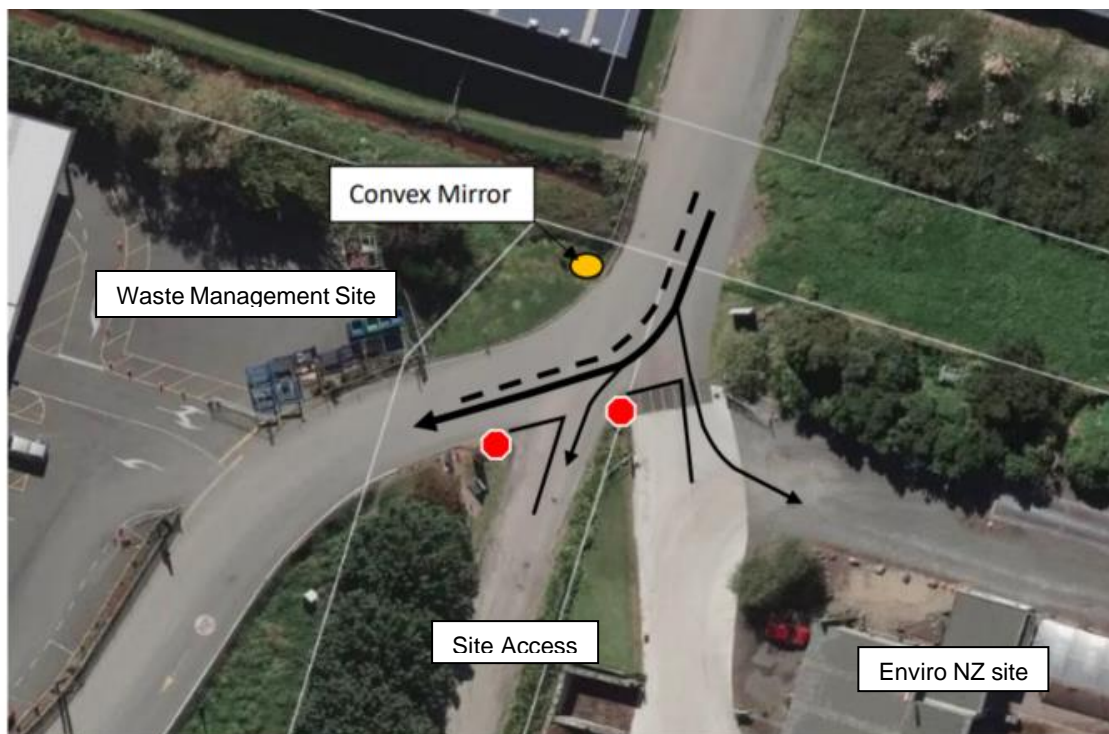


FIGURE 23: PREFERRED OPTION - PRIORITY TO WASTE MANAGEMENT SITE

<sup>6</sup> Enviro NZ submission letter dated 4<sup>th</sup> August 2023

90. This would also see measures of sightline preservation to the west being required at both the site access and Enviro NZ and this can be easily achieved by using permeable fencing, vegetation control and supplemented using a convex mirror.
91. I consider that these improvements to the site access are appropriate regardless of the proposed development. However, it is my recommendation that the works be required to be provided by Industrie as a consent condition.

### **SUBMISSIONS AND CONSULTATION**

92. Submissions relating to traffic and access matters have been received from HCC, WK and Enviro NZ.
93. The concerns raised within each of these submissions have been addressed throughout the preceding sections of this evidence. I note that Mr Prakash from Gray Matter is acting as expert advisor to both HCC and Waka Kotahi. I have undertaken informal consultation with Mr Prakash, HCC and Waka Kotahi in order to narrow the areas of discussion. For completeness, I have summarised the submission points raised, ongoing discussions and the responses provided within my evidence.
94. In terms of traffic generation, I have assessed network capacity effects using the RR453 trip rates preferred by Mr Prakash and concluded that even using these higher trip generation rates, the proposed development is likely to have a 0.6% – 0.95% increase in traffic demands on SH1C and Killarney Road respectively, and that the capacity effect of the proposed development is negligible.
95. In relation to road safety, I disagree with use of the CEC conflicting flow models to assess expected crash rates and road safety effects due to the clear caution outlined in the CEC itself. However, acknowledging the existing high risk nature of the SH1C / Kahikatea Drive intersection, the level of change in road safety risk arising from the proposed development in the robust assessment case of all development traffic using this intersection is for there to be one additional injury crash

every 55 - 80 years. I consider this level of change to be negligible, particularly when considering the robustness of the assessment undertaken. I also note that Mr Prakash identifies a 0.37% increase in potential injury crash rates as a result of the proposed development.<sup>7</sup> However, the conclusion of the assessment presented is that any change in crash risk at this intersection is unacceptable without there being transformational works at this intersection and potentially interventions at other intersections as well. I note that this is an existing issue and in my opinion is a matter that is the responsibility of the RCA to address.

96. In relation to land use activities, trip generation rates are typically based on observed data and therefore it is reasonable to expect them to include commercial visitors. A consent condition has also been offered to restrict activities on site to those that would not encourage public access. Information relating to managing commercial visitors has been added to the Draft TMP.
97. Concern has been raised as to the potential effectiveness of the Draft TMP. I have considered this in some detail. I consider compliance with the ban on right turns in to Kahikatea Drive at the SH1C / Kahikatea Drive intersection is likely to be high. There is a clear route choice benefit in turning right at the SH1C / Killarney Road intersection where this is governed by traffic lights. From there, all other manoeuvres are for a left turn until Wickham Street is reached. I therefore consider it unlikely that right turns for inbound traffic would occur at either Duke Street or Kahikatea Drive.
98. I have also considered the risk of right turn out compliance at the SH1C / Kahikatea Drive intersection. Some 12vph – 24vph might be expected to undertake this manoeuvre assuming 100% non-compliance with the TMP, which is highly conservative and in my opinion, unlikely to occur. At this level of non-compliance, this equates to one additional turning vehicle every 2.5 - 5 minutes on average., which I consider to be a less than minor level of change. I have already

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<sup>7</sup> Gray Matter letter to HCC and Waka Kotahi 24<sup>th</sup> October 2023



discussed road safety effects and have concluded that assuming all daily traffic used the SH1C / Kahikatea Drive intersection, that the increase in injury crash rate would be one every 55 – 80 years. As such, I have already considered the effects of potential non-compliance with the TMP and conclude that they are negligible.

99. In terms of right turns out at Duke Street, it would be illogical to travel north to Duke Street turn right there instead of at Kahikatea Drive. I therefore consider it unlikely that this behaviour would occur. Overall, I anticipate that there would be a high likelihood of compliance with TMP.
100. I also consider that the proposed consent conditions and the monitoring and review processes within the draft TMP itself provide a significant degree of control to WDC as consenting authority and HCC and WK as stakeholders, to manage potential future effects.
101. I also note that WK would prefer GPS data to be used for monitoring of TMP compliance. This has previously been agreed for the TMP for the adjacent Waste Management site, with which I was involved. In practice, use of GPS data has proved impractical for a number of reasons, and I consider that use of GPS or Bluetooth data to monitor the proposed development would not give the desired outcome:
  - i. GPS monitoring is only applicable for fleet vehicles. Given the degree of concern raised in relation to any additional right turn vehicle representing a risk, using GPS data will miss staff or commercial visitor trips;
  - ii. Non-Wattyl HCVs are likely to contain GPS tracking but this is not known, again potentially leading to a gap in information; and
  - iii. If Bluetooth data is used as an alternative, my understanding is that this cannot be linked to a specific user. This means that Bluetooth data cannot identify site traffic specifically and therefore cannot demonstrate compliance or otherwise with the TMP.

102. In my opinion, matching numberplates gives a more definite and directly attributable outcome. In my opinion, it also means that if there is non-compliance, there is direct, documentary evidence that can be shared with the person involved, making remedial actions easier to accept and handle. The proposed condition of consent also requires compliance, with the ability for WDC to take enforcement action.

### **SECTION 42A REPORT**

103. I have read the Council's s42A report and have concluded that the majority of the transportation matters raised within the s42A report are those reflected in the submissions from HCC, Waka Kotahi and Enviro NZ.
104. The only matter raised within the s42A report that is not included in the previous submissions relates to the condition of the existing access way.
105. As I have addressed above, as part of the development proposal it is proposed to introduce controls at the shared access to ensure it is clear how the access is to function. Included within these controls is delineation for either a stop or give way control upon exiting the Site. I note that the majority of the right of way serving the site is sealed, but that there are number of potholes present. In my opinion, on-going maintenance of the right of way is a matter for the users of it and given the length of seal and low likelihood of loose material being tracked on to the public road, it is not a consenting matter.

### **DRAFT CONDITIONS**

106. I have reviewed the proposed consent conditions that relate to transportation, access and parking.
107. I consider Conditions 9, 10 and 11 in relation to car parking design and construction to be appropriate.

108. I agree with proposed Condition 17 which limits activities on site to industrial and / or warehousing activities until such time that the SH1C / Kahikatea Drive intersection is upgraded. This condition has been offered to address concerns raised by submitters in relation to the ability of a TMP to manage public access to the site.
109. I agree with the principle of proposed Condition 18 in relation to the TMP but recommend amendments to the wording to reflect that WK is the relevant RCA for the intersections in question and not HCC. The proposed wording also expands the right turns in question from just those from Kahikatea Drive to SH1C to all those that have been discussed throughout my evidence.

*A Travel Management Plan shall be developed for each stage of development in consultation with ~~Hamilton City Council and Waka Kotahi NZ Transport Agency as Road Controlling Authority~~ and remain in place until such time as the State Highway 1C / Kahikatea Drive intersection is upgraded or ~~Hamilton City Council~~ ~~Waka Kotahi NZ Transport Agency~~ confirms in writing that it is no longer necessary. The Travel Management Plan is to include (but not be limited to) measures to avoid right turn demand manoeuvres at the following intersections:*

- *Kahikatea Drive / State Highway 1C*
- *Duke Street / State Highway 1C*

*The Traffic Management Plan shall ~~and~~ be generally in accordance with the draft Traffic Management Plan prepared by CKL dated ~~14-03-2023~~ 2 November 2023, and shall be in place one month prior to occupation of the relevant development stage.*

110. I understand that a specific condition requiring site occupier compliance with the TMP has been proposed as follows:

*All occupiers of the site and the consent holder must comply with the provisions of the Traffic Management Plan required under Condition 18.*

111. I support the addition of this consent condition and consider that it gives clear direction in relation to expectations of compliance with the TMP. It also provides a clear mechanism for addressing any non-compliances that arise from a regulatory perspective as well as through the monitoring and review processes included within the TMP itself.
112. I have also recommended the inclusion of a consent condition requiring the applicant to implement a white lining and signage scheme to control vehicles movements to the various properties at the end of Wickham Street, as follows:

*A road marking and signage scheme to control access to the site, and adjoining Waste Management and Enviro NZ vehicle crossings shall be prepared in consultation with HCC, Waste Management, Enviro NZ, [other land owners], and submitted to the Waipa District Council Roading Manager for approval. Once approved by Waipa District Council it shall be installed by the consent holder. The submitted scheme should include the following:*

- *Centre line markings to promote vehicle priority to the Waste Management site;*
- *Give way or stop markings on the Enviro NZ vehicle crossing and the vehicle crossing serving the right of way to the subject site;*
- *Details of any supporting signage required; and*
- *Details of how visibility is to be managed and maintained.*

113. Overall, I consider that the draft consent conditions and proposed amendments provide a robust framework to manage potential traffic effects and give certainty to submitters that any traffic effects that do arise can be appropriately addressed.

## **CONCLUSIONS**

114. Overall, I conclude that the proposed development traffic will have negligible to less than minor effects on the safe and efficient operation

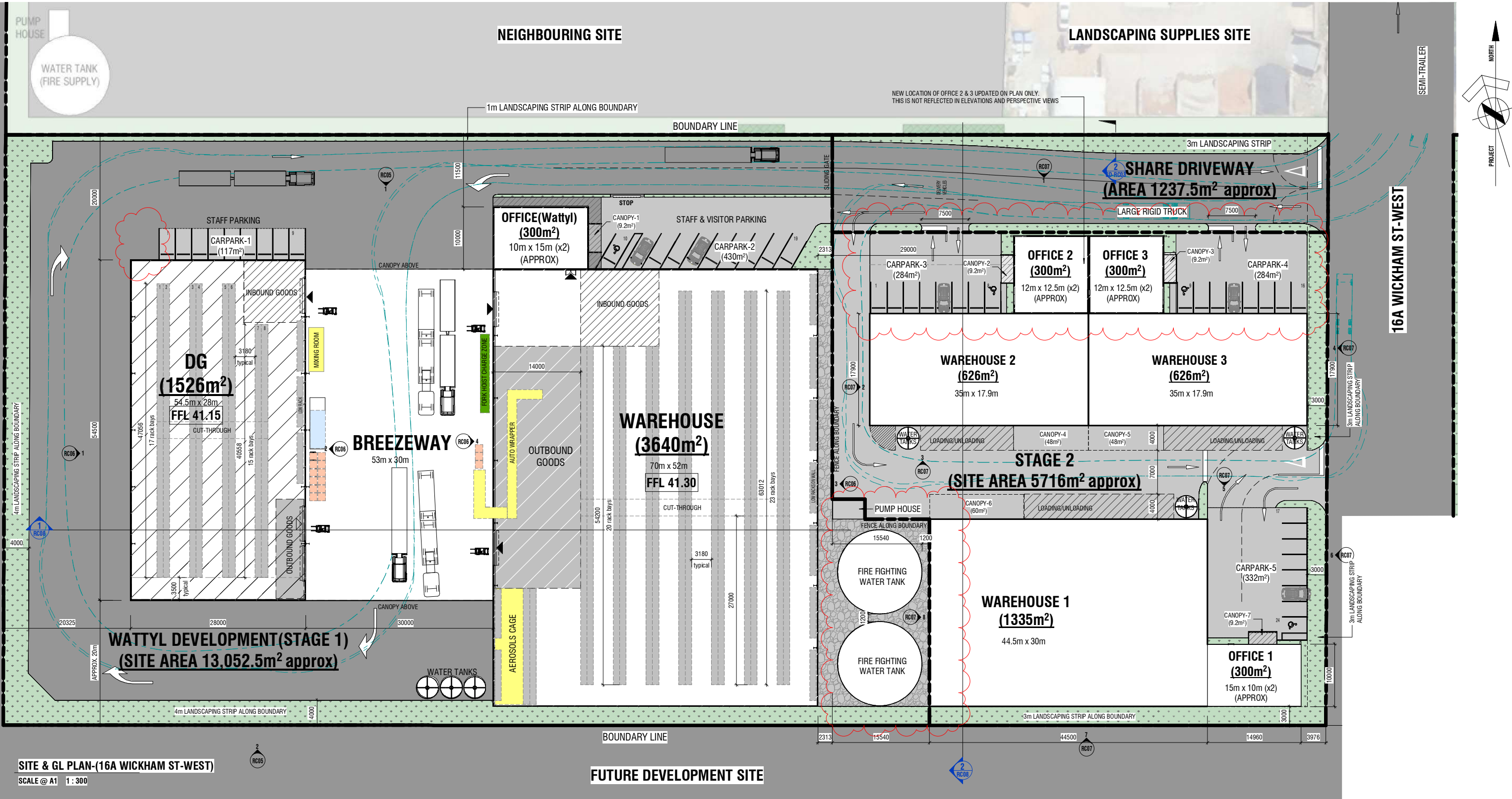
of Wickham Street and surrounding road network and neighbouring vehicle crossings. I also conclude that the draft conditions proposed by the applicant are suitable to mitigate the potential traffic and transportation effects of the proposed development.

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

**Judith Makinson**

8 November 2023

**APPENDIX A – SITE LAYOUT PLAN**



**SITE & GL PLAN-(16A WICKHAM ST-WEST)**

SCALE @ A1 1:300

**FUTURE DEVELOPMENT SITE**

<b>LOT DESCRIPTION</b>	
16A WICKHAM STREET-WEST, HAMILTON	
LOT 1 - DP 396081	
<b>SITE INFORMATION</b>	
TOTAL SITE AREA:	20,006.5 m <sup>2</sup>
AREA	SITE COVERAGE
TOTAL BUILDING AREA:	10,150.8m <sup>2</sup> (50.7%)
TOTAL IMPERMEABLE AREA:	7,691.7m <sup>2</sup> (38.5%)
TOTAL PERMEABLE AREA:	2,164m <sup>2</sup> (10.8%)

<b>WATTYL DEVELOPMENT (STAGE 1)</b>		
SITE AREA	13,052.5 m <sup>2</sup>	
<b>CARPARK SCHEDULE</b>		
CARPARK-1	9 SPACES	117m <sup>2</sup>
CARPARK-2	10 SPACES	430m <sup>2</sup>
<b>TOTAL CARPARKS</b>	<b>19</b>	<b>547m<sup>2</sup></b>
CANOPY 1	9.2m <sup>2</sup>	
BREEZEWAY	1590m <sup>2</sup>	
<b>GROSS FLOOR AREAS</b>		
WAREHOUSE	3,640m <sup>2</sup>	
OFFICE	300m <sup>2</sup>	
DANGEROUS GOODS	1,526m <sup>2</sup>	
PUMP HOUSE	15.0m <sup>2</sup>	
<b>TOTAL</b>	<b>5,481m<sup>2</sup></b>	

<b>STAGE 2</b>		
SITE AREA	5,716m <sup>2</sup>	
<b>CARPARK SCHEDULE</b>		
CARPARK-3	8 SPACES	284m <sup>2</sup>
CARPARK-4	8 SPACES	284m <sup>2</sup>
CARPARK-5	8 SPACES	332m <sup>2</sup>
<b>TOTAL CARPARKS</b>	<b>24 SPACES</b>	<b>900m<sup>2</sup></b>
CANOPY 2	9.2m <sup>2</sup>	
CANOPY 3	9.2m <sup>2</sup>	
CANOPY 4	48m <sup>2</sup>	
CANOPY 5	48m <sup>2</sup>	
CANOPY 6	60m <sup>2</sup>	
CANOPY 7	9.2m <sup>2</sup>	
<b>TOTAL</b>	<b>183.6m<sup>2</sup></b>	
<b>GROSS FLOOR AREAS</b>		
WAREHOUSE 1	1,335m <sup>2</sup>	
OFFICE 1	300m <sup>2</sup>	
<b>TOTAL</b>	<b>1,635m<sup>2</sup></b>	
WAREHOUSE 2	626m <sup>2</sup>	
OFFICE 2	300m <sup>2</sup>	
<b>TOTAL</b>	<b>926m<sup>2</sup></b>	
WAREHOUSE 3	626m <sup>2</sup>	
OFFICE 3	300m <sup>2</sup>	
<b>TOTAL</b>	<b>926m<sup>2</sup></b>	

<b>SHARE DRIVEWAY</b>	1237.5 m <sup>2</sup>
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2 03-11-2023 RC - Fire water tanks added, future development allocated offices  
 1 21-03-2023 Resource Consent

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PROJECT  
 PROPOSED DEVELOPMENT AT 16A WICKHAM STREET-WEST

FOR  
 STRIDE PROPERTY

DRAWING  
 PROPOSED SITE & GL PLAN-(16A WICKHAM ST-WEST)

CAD FILE 110368 - Stiffe - Watty Development Wickham DP Rev01 03/2023 - Watty Development - Wickham Street - Central - v02 - mixed 2023/01/04

JOB NO **10368**

SCALE AT A1 As indicated SHEET **RC03** REV **2**

SCALE AT A3

CONTRACTOR TO VERIFY ALL DIMENSIONS ON SITE BEFORE COMMENCING WORK  
 FIGURED DIMENSIONS TO BE TAKEN IN PREFERENCE TO SCALE  
 THIS DRAWING AND THE DESIGN IT COVERS ARE COPYRIGHT ©



**APPENDIX B – DRAFT TMP**







Planning | Surveying | Engineering | Environmental

## Travel Management Plan

Wattyl NZ

16A Wickham Street, Hamilton

## DOCUMENT CONTROL

<b>CKL REFERENCE</b>	B22188
<b>DOCUMENT STATUS</b>	Draft
<b>REVISION NO.</b>	2
<b>DATE</b>	2 November 2023
<b>FILE NAME</b>	
<b>AUTHOR</b>	Michael Hall Transportation Engineering Manager 
<b>REVIEWED BY</b>	Judith Makinson Director 
<b>VERIFIED BY</b>	.....
<b>APPROVED BY</b>	_____ Hamilton City Council .....
<b>OFFICE OF ORIGIN</b>	Hamilton

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## **1 Introduction**

- 1.1.1 This Travel Management Plan (TMP) relates to Watty! NZ's facility at 16A Wickham Street in Hamilton which was granted resource consent by Waipa District Council (WDC) on ##/##/## (Consent number ###). A condition of that consent states that a TMP is to be prepared in consultation with Waka Kotahi NZ Transport Agency (Wk) as the road controlling authority (RCA), to manage the traffic associated with the site.
- 1.1.2 This document has been prepared to comply with the above consent condition. It considers the movements by Watty! NZ's heavy vehicles and staff and commercial visitors. Consideration has also been given as to when any vehicle restrictions should apply, how information will be conveyed and when the TMP should be reviewed.

## **2 Purpose**

- 2.1.1 The purpose of this TMP is to promote safe and appropriate road access, avoiding the known issues of turning right at the State Highway 1C (SH1C) / Kahikatea Drive intersection and use of the Duke Street / SH1C intersection through using Watty! NZ's operational process to keep staff, commercial visitors and commercial drivers informed of the required routes to support their own Health and Safety and that of other road users.
- 2.1.2 This TMP remains in force until such time that either the Duke Street or Kahikatea Drive intersections with SH1C are improved such that right turns can be safely undertaken or are physically prohibited.

## **3 Vehicle Restrictions**

- 3.1.1 No right turns into or out of Kahikatea Drive will be permitted at any time for any Watty! NZ vehicles, including staff vehicles (private and work related), commercial visitors and Heavy Commercial Vehicles (HCVs).
- 3.1.2 Vehicles that are not able to turn right at the intersection due to the above restrictions are to use Higgins Road and Killarney Road to access SH1C. The signalised intersection at the SH1C / Killarney Road intersection will enable right turns to be made to and from SH1C in a safe manner. Similarly, right turns are not to be undertaken at the Duke Street / SH1C intersection until such time that appropriate safety upgrades have been delivered by the relevant RCA. Figure 1 below illustrates the route restrictions that apply to all Watty! NZ.

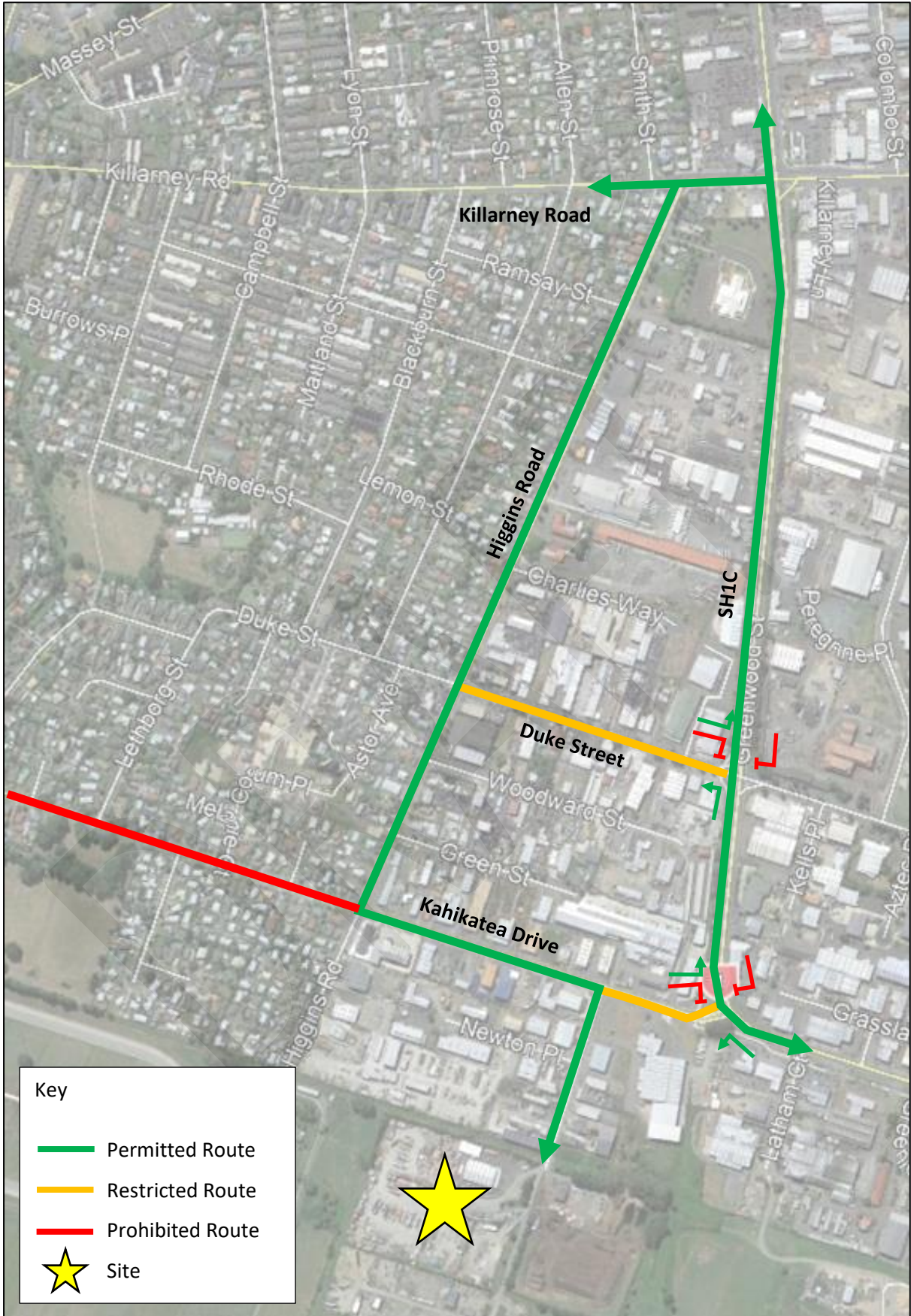


Figure 1: Traffic Restrictions - SH1C Intersection

3.1.3 Kahikatea Drive to the west of Higgins Road runs through a residential area. No HCVs will be permitted to use this at any time. Light vehicles will be able to use this route if desired and will not be restricted.

3.1.4 The Higgins Road / Killarney Road corridors will be used as the route by vehicles that are not permitted to use Kahikatea Drive to the west. This is illustrated in Figure 2.

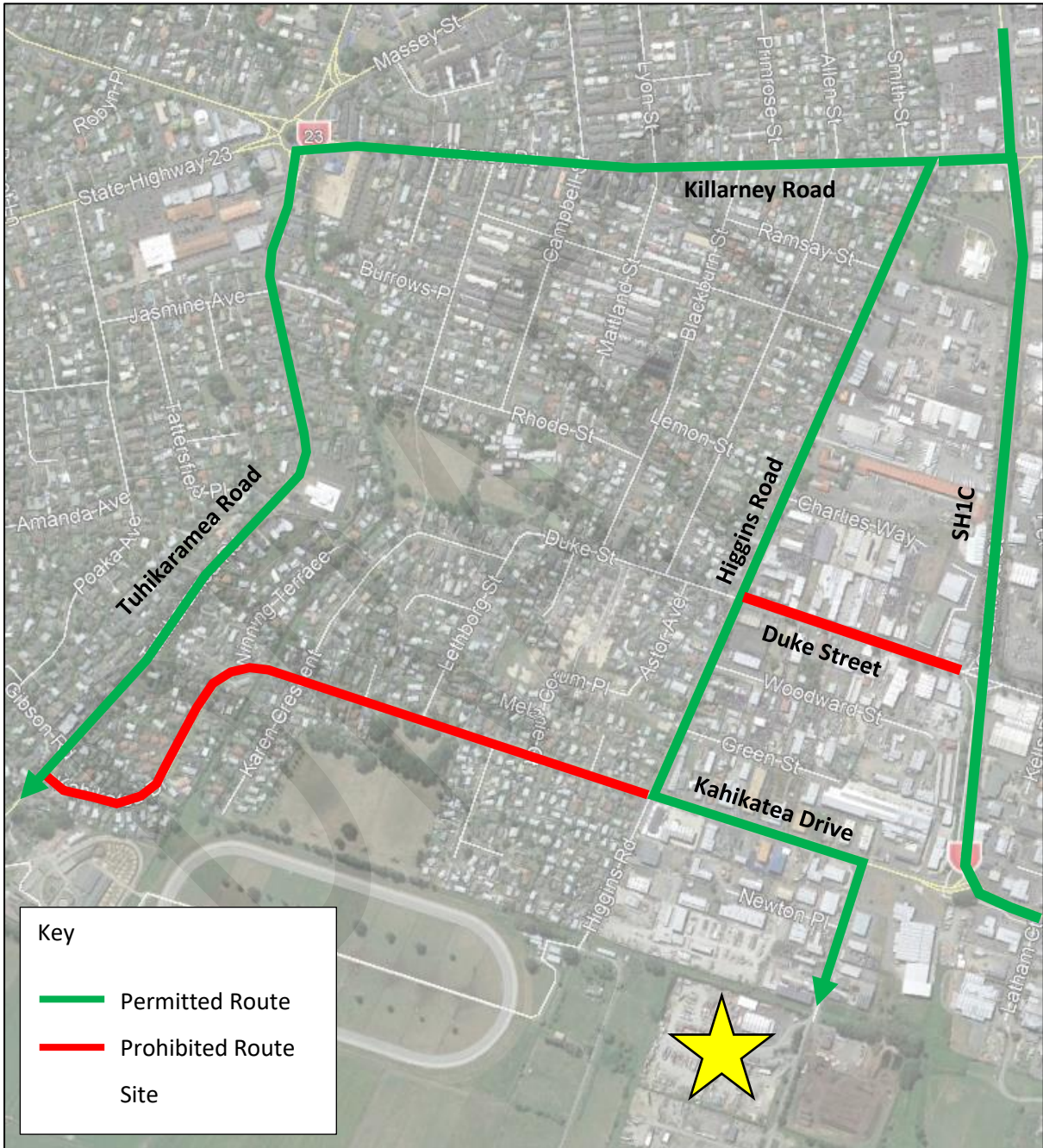


Figure 2: Heavy Vehicle Traffic Restrictions – Kahikatea Drive Extension

## 4 Briefings

- 4.1.1 As part of Watty NZ Health and Safety processes, drivers and staff will be informed and regularly reminded of the requirements and route restrictions outlined in this TMP.
- 4.1.2 This could include providing information about travel route restrictions as part of staff and contractor induction activities, staff training, staff meetings and routine HSE programmes. Appropriate examples of information to be provided include a map of the permitted and restricted routes (as shown in Figure 1 and Figure 2) to be kept in company and commercial vehicles that also details the enforcement measures that may be undertaken for non-compliance. Suitable examples of information may also include on-site signage showing the permitted, and safe routes for travel and through other physical and electronic means that are used to provide information to staff, contractors and visitors. This may include physical and digital notice boards, company website and appointment or meeting booking systems for commercial visitors.

## 5 Complaints Process

- 5.1.1 Any complaints received by Watty NZ from members of the public, HCC, WDC or WK in relation to Watty NZ driver behaviour will be investigated within 24 hours and appropriate action taken in accordance with Watty NZ Health and Safety policies and disciplinary processes.
- 5.1.2 All complainants will receive a response from Watty NZ confirming that the matter has been addressed. WDC, HCC and WK will also be kept informed of all complaints raised in relation to this TMP. There will be a named contact person and information on the Watty NZ website on how to register a complaint. This person will be XXXXX. Their contact details are as follows:
- Name
  - email
  - Phone

## 6 Compliance Monitoring and Review

6.1.1 Random spot checks of use of the Kahikatea Drive / SH1C and Duke Street / SH1C intersections will be undertaken by an independent and suitably qualified transportation engineer appointed by Watty NZ as follows, without any prior warning being given to staff and truck drivers:

- Within one month of the site becoming operational;
- Monthly thereafter until compliance with the TMP has been confirmed;
- Once compliance with the TMP has been demonstrated, spot checks will be continued on an approximately 6-monthly basis unless complaints have been received, until such time that the SH1C / Kahikatea Drive and /or Duke Street SH1C intersection is upgraded.
- Upon receipt of any complaint, a spot check will be undertaken within one month of the complaint being received.

6.1.2 The spot check will be undertaken either during the AM or PM peak hour and will involve a number plate survey of right turning vehicles at the intersections in question together with a number plate survey of vehicles entering the site. The date and time of the spot check is to be provided to WDC, HCC, and WK in advance and is to be agreed with those parties.

6.1.3 Non-complying staff drivers will be identified through the daily Health and Safety briefings and disciplinary action taken. It is anticipated that the following will apply, subject to confirmation of Watty NZs disciplinary processes and Health and Safety Policy:

- First and second non-compliance by a driver – reminder of the TMP requirements;
- Third non-compliance by a driver – verbal warning; and
- Fourth non-compliance by a driver – written warning.

6.1.4 Any commercial drivers who access the site and are not employed directly by Watty NZ will be required to acknowledge that they have received, understand and will comply with the route restrictions in the TMP. Drivers who fail to comply will be dealt with as follows:

- First and second non-compliance by a driver – reminder of the TMP requirements;



- Third non-compliance by a driver – written complaint to employer regarding non-compliance; and
- Fourth non-compliance by a driver – banned from site.

6.1.5 A copy of the Watty NZ Health and Safety Policy is to be provided as part of the TMP.

6.1.6 The results from the spot checks will be provided to WDC, HCC, and WK within one month of them being completed. This will include the number of vehicles accessing the site on the day of the spot check and how many were observed to turn right at Duke Street or Kahikatea Drive. Any repeat offenders will also be identified. Compliance reporting will also include a log of any complaints received by Watty NZ and how they have been addressed.

6.1.7 Following submission of the spot check report, Watty NZ will consult with WDC, HCC and WK and Waipa DC to discuss the findings.

6.1.8 It is intended that this TMP remains in force until such time there is a fundamental change to the on-site activities, or a change to the nearby road network (such as an upgrade to the Kahikatea Drive / SH1C intersection). At that time, the TMP shall be reviewed, and discontinued if appropriate through consultation with WK, Waipa DC and HCC. Any or all of this TMP may also be discontinued if all parties agree that it is no longer warranted.

CKL

**APPENDIX C – CRASH ESTIMATION COMPENDIUM CALCULATIONS**

## 6.1 Urban Priority and Signalised Cross roads and T-junctions 50-70km/h

The 'general' model is suitable for most urban cross roads (four leg) and T-junctions (three leg) types and uses two-way link volumes where the posted speed limit is 50-70km/h. Where a breakdown by crash type and road user type is required, or where the proportion of turning vehicles is high compared with through vehicles, then the appropriate conflicting flow models (in Section 7) should be used.

For urban intersections on the primary road network (excluding roundabouts), the typical crash rate (reported injury crashes per year) is calculated using:

$$A_T = b_0 \times Q_{\text{major}}^{b_1} \times Q_{\text{minor/side}}^{b_2}$$

where:  $Q_{\text{major}}$  is the highest two-way link volume (AADT) for cross roads and the primary road volume for T-junctions.  
 $Q_{\text{minor/side}}$  is the lowest of the daily two-way link volumes (AADT) for cross roads and the side road flow for T-junctions  
 $b_0$ ,  $b_1$  and  $b_2$  are given in Table 13.

**Table 13: General cross-road and T-junction urban intersections (50-70km/h) coefficients (reference 21)**

Intersection type	$b_0$	$b_1$	$b_2$
Uncontrolled - T	$2.19 \times 10^{-3}$	0.36	0.19
Priority - cross	$1.08 \times 10^{-3}$	0.21	0.51
Priority - T	$4.89 \times 10^{-5}$	0.76	0.20
Traffic signals - cross	$2.81 \times 10^{-3}$	0.46	0.14
Traffic signals - T	$1.31 \times 10^{-1}$	0.04	0.12

### Higgins Road / Killarney Road

Traffic volumes:

Scenario	$Q_{\text{Major}}$ Killarney Road ADT	$Q_{\text{Minor}}$ Higgins Road ADT
Existing	16,100	4,180
With Development (ITE)	16,205	4,285
With Development (RR453)	16,253	4,333

**CEC Calculations:**

Scenario	Calculation	Injury Crash Rate
Existing	$4.89 \times 10^{-5} \times 16,100^{0.76} \times 4,180^{0.2}$	0.4081
With Development (ITE)	$4.89 \times 10^{-5} \times 16,205^{0.76} \times 4,285^{0.2}$	0.4121
With Development (RR453)	$4.89 \times 10^{-5} \times 16,253^{0.76} \times 4,285^{0.2}$	0.4140

**Higgins Road / Kahikatea Drive****Traffic volumes:**

Scenario	Q <sub>Major</sub> Higgins Road ADT	Q <sub>Minor</sub> Kahikatea Drive ADT
Existing	4,180	5,020
With Development (ITE)	4,285	5,125
With Development (RR453)	4,333	5,173

**CEC Calculations:**

Scenario	Calculation	Injury Crash Rate
Existing	$4.89 \times 10^{-5} \times 4,180^{0.76} \times 5,020^{0.2}$	0.1519
With Development (ITE)	$4.89 \times 10^{-5} \times 4,285^{0.76} \times 5,125^{0.2}$	0.1548
With Development (RR453)	$4.89 \times 10^{-5} \times 4,333^{0.76} \times 5,173^{0.2}$	0.1571

**SH1C / Kahikatea Drive****Traffic volumes:**

Scenario	Q <sub>Major</sub> SH1C ADT	Q <sub>Minor</sub> Kahikatea Drive ADT
Existing	25,753	5,020
With Development (ITE)	25,858	5,125
With Development (RR453)	25,906	5,173

**CEC Calculations:**

<b>Scenario</b>	<b>Calculation</b>	<b>Injury Crash Rate</b>
<b>Existing</b>	$4.89 \times 10^{-5} \times 25,753^{0.76} \times 5,020^{0.2}$	0.6049
<b>With Development (ITE)</b>	$4.89 \times 10^{-5} \times 25,858^{0.76} \times 5,125^{0.2}$	0.6093
<b>With Development (RR453)</b>	$4.89 \times 10^{-5} \times 25,906^{0.76} \times 5,173^{0.2}$	0.6113