

12 July 2022

Project/File: 310204447

Unio Environmental  
Private Bag 92518  
Auckland 1141

Dear Vijay,

**Reference: Beachlands South Private Plan Change – Response to Request for Information**

This letter has been prepared in response to the Clause 23 Request for Further Information (“**RFI**”) issued by Auckland Council on 25 May 2022 in relation to the Private Plan Change request by Beachlands South Limited Partnership. Specifically, it responds to the technical questions on transport matters raised by Council’s consultant traffic engineer Wes Edwards (Arrive Ltd) contained within Appendix 2 of the RFI.

The applicants’ consultant planner Unio has prepared an holistic response to all RFI questions across all disciplines (“**Unio RFI Table**”). Each of the traffic-related issues raised is addressed in detail within either within the body of this letter or summarised within the Unio RFI table. Some issues raised in the RFI have required additional analyses or surveys to be undertaken that have not been completed at the time of issue. These will be dealt with under a separate response.

## 1 Road Safety History and Analysis

Item T1 of the RFI requests an extension of the road safety analysis presented in the ITA to include Whitford Road and Sandstone Road / Ormiston Road.

### 1.1 Whitford Road

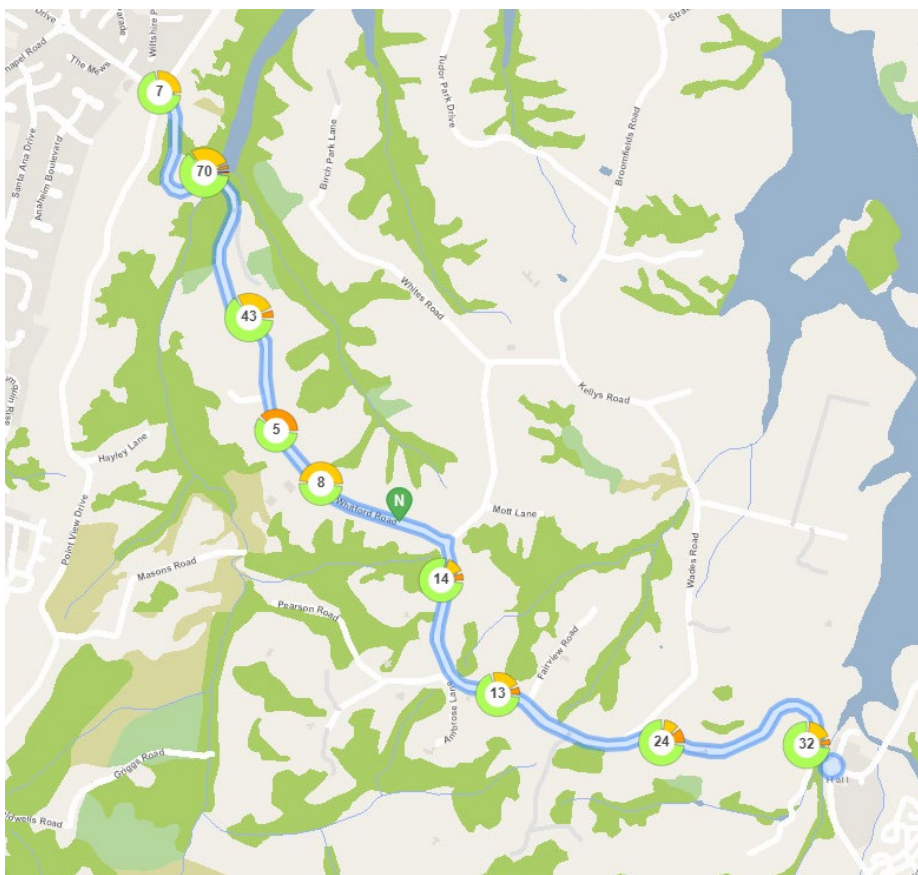
The Waka Kotahi New Zealand Transport Agency (WK) Crash Analysis System (CAS) database was interrogated to ascertain the ten-year road safety record from the period 2011 to 2021, plus all available data for 2022 for Whitford Road between Point View Road and Whitford Park Road.

A total of 217 crashes have occurred in the study area inclusive of 52 resulting in minor injuries for those involved, 15 resulting in serious injuries and two resulting in fatalities. The remaining 148 crashes are classified as non-injury crashes.

A total breakdown of crash severity by environment (mid-block or intersection) is provided in **Table 1**, and a graphic showing crash locations on a map is provided in **Figure 1**.

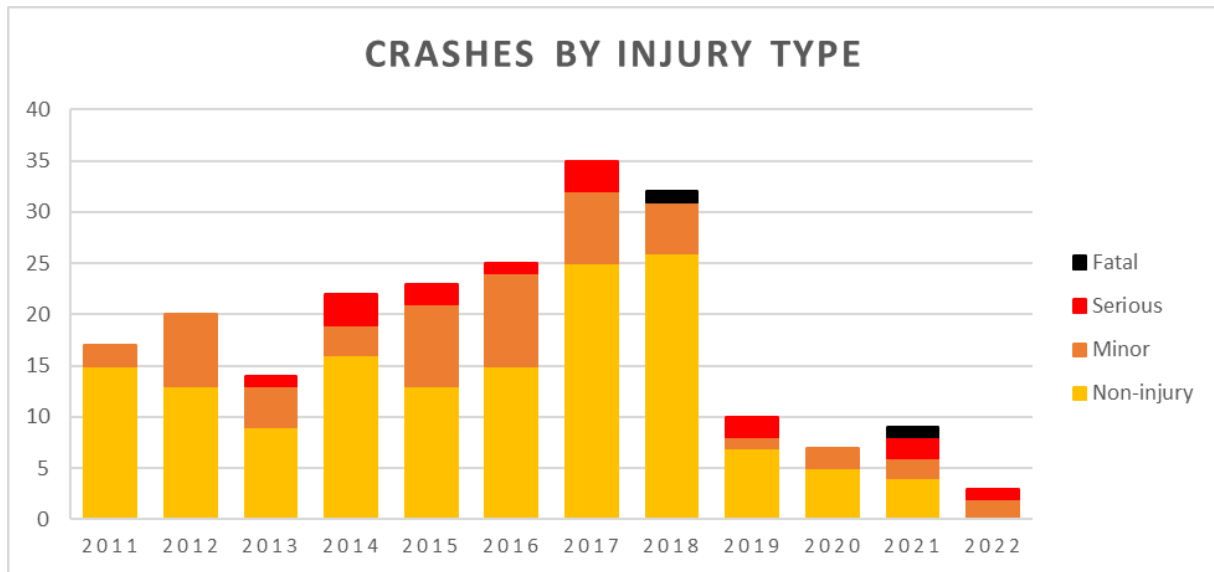
**Table 1: Crashes by Severity and Location Type**

Type of Junction	Non-injury	Minor	Serious	Fatal	Total
Driveway	6	0	1	0	7
Roundabout	17	5	2	0	24
T Junction	8	0	1	0	9
Midblock	117	47	11	2	177
<b>Total</b>	<b>148</b>	<b>52</b>	<b>15</b>	<b>2</b>	



**Figure 1: Whitford Road Crash Locations and Severity**

The breakdown of crashes for the study area based on the year of the event is shown in **Figure 2** below. A significant reduction in crashes can be observed since the year 2019. This is the result of Auckland Transport’s 2019 Speed Limit bylaw which reduced the speed limit on Whitford Road from between 80 to 60km/h between 160m southeast of Somerville Road and 110m northwest of Whitford Park Road (effective initially as a trial from June 2018).



**Figure 2: Whitford Road Crash Severity by Year (\*2022 Incomplete)**

The reduction in crashes can be directly attributed to the reduction in speed limit along Whitford Road. In fact, the success of this speed reduction contributed towards the justification of further speed reduction bylaws throughout Auckland. While the number of non-injury and minor-injury crashes have reduced significantly, the number of serious and fatal crashes remain fairly consistent, although it is recognised that there is a low statistical basis for this. An average comparison of crash statistics between 2011-2018 (pre speed limit change) vs 2019-2022 (post speed limit change) is shown in **Table 2** below.

**Table 2: Whitford Road Average Crash Trends Pre/Post Speed Reduction**

Average	2011-2018 Crashes/year	2019-2022 Crashes/year
<b>Non-injury</b>	16.5	5.3
<b>Minor</b>	5.6	2.0
<b>Serious</b>	1.3	1.4
<b>Fatal</b>	0.1	0.3

The two fatal crashes which occurred in 2018 and 2021 both occurred just to the west of Mangemangeroa Bridge (the road bridge over Whitford Gorge), and both were the result of head-on collisions on tight curves. Speeding was the main contributory factor in both cases. It is considered that, in addition to the recent speed limit reduction along Whitford Road, Auckland Transport should consider further measures to enhance safety on both approaches to the bridge. This could include:

- additional advance warning signs and markings; and/or
- high friction surfacing; and/or
- cable median barriers.

The 15 serious injury crashes can be broken down as follows:

- four were due to a loss of control of the vehicle where the driver was under the influence of drugs or alcohol;
- four were due to the driver being inattentive or failing to follow road rules;
- three were due to a loss of control of the vehicle when the driver was undertaking an overtaking manoeuvre or navigating a curve; and
- three were due to a loss of control of the vehicle when the driver was not operating at a suitable for the environment (at curves or during wet weather).

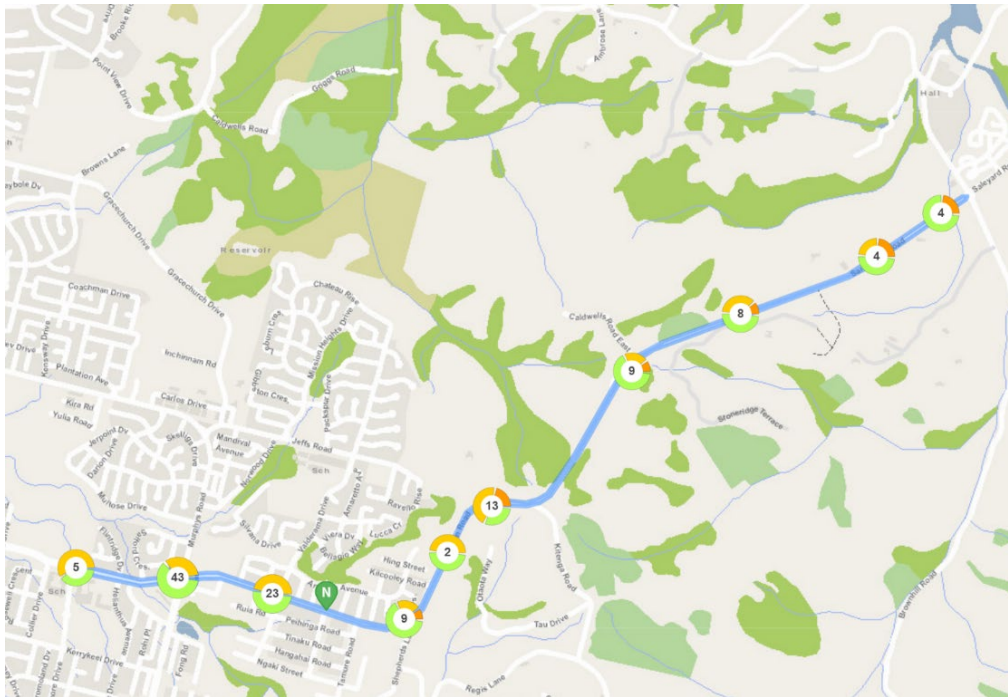
## 1.2 Ormiston Road / Sandstone Road

The WK CAS database was interrogated to ascertain the ten-year road safety record from the period 2011 to 2021, plus all available data for 2022 for Ormiston Road / Sandstone Road between the Whitford Park Road and Murphy's Road intersections.

A total of 121 crashes have occurred in the study area; 44 minor injuries, nine serious and no fatal injury crashes were recorded. The remaining 68 crashes were non-injury crashes. A breakdown of crash severity by environment (mid-block or intersection) is provided in **Table 3**, and a graphic showing crash locations on a map is provided in **Figure 3**.

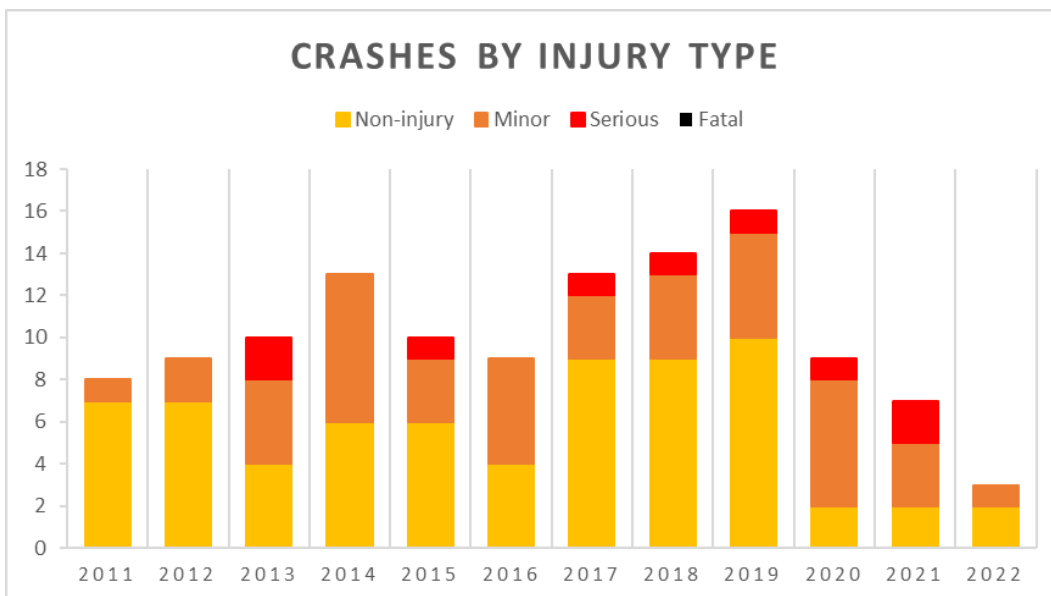
**Table 3: Crashes by Severity and Location Type**

Type of Junction	Non-injury	Minor	Serious	Fatal	Total
Mid-block	34	20	8	0	62
Intersections	34	24	1	0	59
Total	68	44	9	0	121



**Figure 3: Sandstone Road / Ormiston Road Crash Locations and Severity**

The breakdown of crashes for the study area based on the year of the event are shown in **Figure 4** below. A similar trend of reduced crash frequency is observed following the reduction in speed limit in mid-2019 (Ormiston Road / Sandstone Road reduced from 100km/h to 80km/h), although the majority of the reductions in 2020 onwards were to the non-injury crash types. In fact, the number of minor injury crashes increased in 2020 before reducing again in 2021.



**Figure 4: Sandstone Road / Ormiston Road Crash Severity by Year (\*2022 Incomplete)**

While the number of non-injury crashes have reduced significantly, the number of injury-related crashes remain fairly consistent, although it is recognised that there is a low statistical basis. An average comparison of crash statistics between 2011-2018 (pre speed limit change) vs 2019-2022 (post speed limit change) is shown in **Table 4** below.

**Table 4: Whitford Road Average Crash Trends Pre/Post Speed Reduction**

Average	2011-2019 crashes/year	2020-2022 crashes/year
<b>Non-injury</b>	6.9	2.4
<b>Minor</b>	3.8	4.0
<b>Serious</b>	0.7	1.2
<b>Fatal</b>	0.0	0.0

The most recent entry for Whitford Road / Ormiston Rd – Sandstone Road is dated 11/06/2022. The average is based on 2.5 years of data. The nine serious injury crashes can be broken down as follows:

- three were attributed mainly to various driver-related errors including police evasion;
- two were due to a loss of control of the vehicle when the driver was undertaking an overtaking or merging manoeuvre;
- two were due to a loss of control of the vehicle when the driver was not operating at a suitable for the environment (at curves); and
- one was due to the driving losing control when a stray animal suddenly obstructed their vehicle.

With the recent changes to speed limits along the section, the residual safety risk has reduced significantly. Based on the crash analysis data, there is no evidence of any part of this corridor having any significant safety concerns.

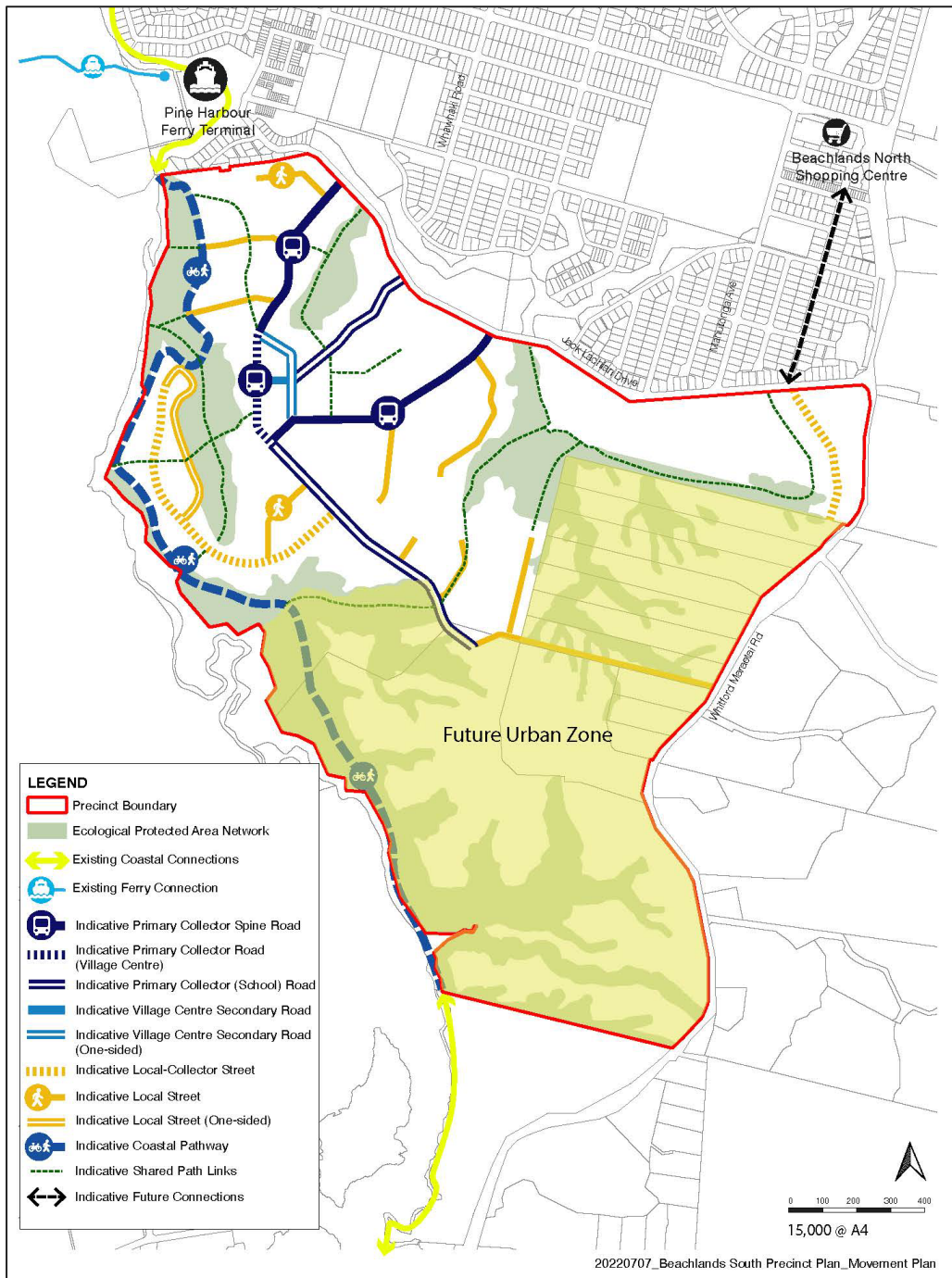
### 1.3 Road Safety Summary

The crash history presented in the ITA has been expanded to include Whitford Road and Sandstone / Ormiston Road. There are not considered to be any issues of concern, other than the ongoing safety record near Mangemangeroa Bridge on Whitford Road. That particular location should be monitored by Auckland Transport and further measures introduced to address the historical safety issue if further severe crashes occur.

There are no other areas of concern on either of these roads, and it is not considered that the minor increase in traffic volumes as a result of this Plan Change will have a detrimental affect.

## 2 Proposed Transport Network

Item T8 of the RFI requests an updated Transport Movement Plan for the Plan Change area only, with the remaining FUZ area not included. This is shown below as **Figure 5**.



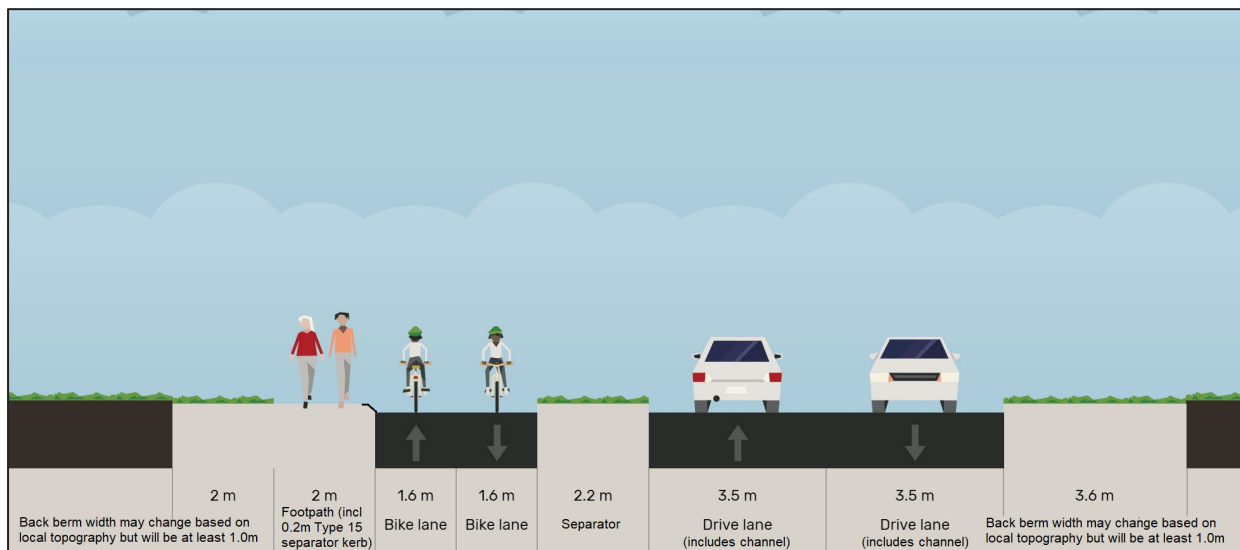
**Figure 5: Revised Transport Movements Plan**

Figure 5 shows the movement plan without the proposed routes within the FUZ area included. The proposed bus route shown within the site is an example of how the area can be served so that most of the population are as close to public transport routes as possible. There are a number of possible route variations. The proposed network was aimed at serving denser residential areas within the site.

Item T14 of the RFI requests discussion on how changes to the bus routing would affect existing users. The existing 739 bus service can be diverted within the site as a loop without removing coverage to the existing route, and therefore no impact on existing users is anticipated.

### 3 Jack Lachlan Drive Cross Section

Item T11 of the RFI requests a cross section for Jack Lachlan Drive. The Proposed Precinct Provisions [Standard I.7.3(1)] provide for active mode facilities on one side of Jack Lachlan Drive once either the school or the light industry land uses become operational. **Figure 6** below shows a typical cross section that can be provided.



**Figure 6: Indicative Jack Lachlan Drive Cross Section**

The cross section is compliant with the Auckland Transport Design Manual (“TDM”). It features:

- 3.5m through lanes, suitable for accommodating buses;
- A suitably separated 3.2m two-way cycleway on one side of the road; and
- A 1.8m footpath (with 0.2m Copenhagen Kerb separator to the cycleway).

It is considered that this proposed layout is appropriate to safely accommodate active mode trips to/from and around the site. Detailed plans showing how this cross section will be constructed within the existing Jack Lachlan Drive road reserve will be provided at Resource Consent Stage.

### 4 Future Public Transport Mode Shares

Item T15 of the RFI table requests additional data and analysis to support the assumed peak-period ferry and bus mode-share figures used in the analysis. These issues are dealt with within this section. The item also requests a ferry passenger questionnaire survey, which will be dealt with in a separate response.



## 4.1 Ferry Mode Share

The estimated ferry mode share for Beachlands area is estimated to increase from 6% to 13% between current (2024) and future (2038) assessment years. We consider this to be a realistic assumption due to the following reasons:

- **Improved PT service and better integration with other modes** – Beachlands' public transport network will continue to be improved as better integration between buses and ferry services will be provided. E.g. new bus connecting Maraetai to Pine Harbour Ferry Terminal via Beachlands (coordinated with ferry timetable) is planned to be introduced by AT in 2023-2024. This will reduce private vehicle travel between Maraetai and Beachlands. Better ferry weekday interpeak and weekend services are also discussed in AT's ferry programme business case which once implemented will offer more travel options. Significantly improved active mode network connecting to the ferry terminal is also proposed as part of this development and will reduce reliance on vehicle travel.
- **Increased Ferry Capacity** – Larger vessels will be introduced as development increases as required by the proposed precinct provisions, offering more ferry capacity on journeys between Beachlands and Auckland CBD. Currently, a lack of ferry capacity is one of the key factors precluding greater ferry mode share percentage in Beachlands. Pre-COVID data showed around 300-400 passengers per month commuting by ferry between Beachlands and Auckland CBD were left behind. Based on this we consider that insufficient vessel capacity is suppressing an increase in ferry patronage.
- **Whitford-Maraetai Road Congestion** – No significant capacity improvements are planned for this road and are considered unlikely to happen considering the Te Tāruke-ā-Tāwhiri: Auckland's Climate Plan in place to achieve the reduction in transport emissions. The exception being intersection upgrades to mitigate the effects of the development. As a result, the proportion of trips from Beachlands to South or East Auckland is likely to reduce in favour of trips to Auckland CBD due to increasing congestion on the road and more available jobs in the city. The number of jobs in Auckland CBD is estimated to increase by approximately 18,000 new places in the next 10 years based on council's i11.5 land use data. Ferry is the most convenient transport mode from Beachlands to reach these jobs in the city centre.

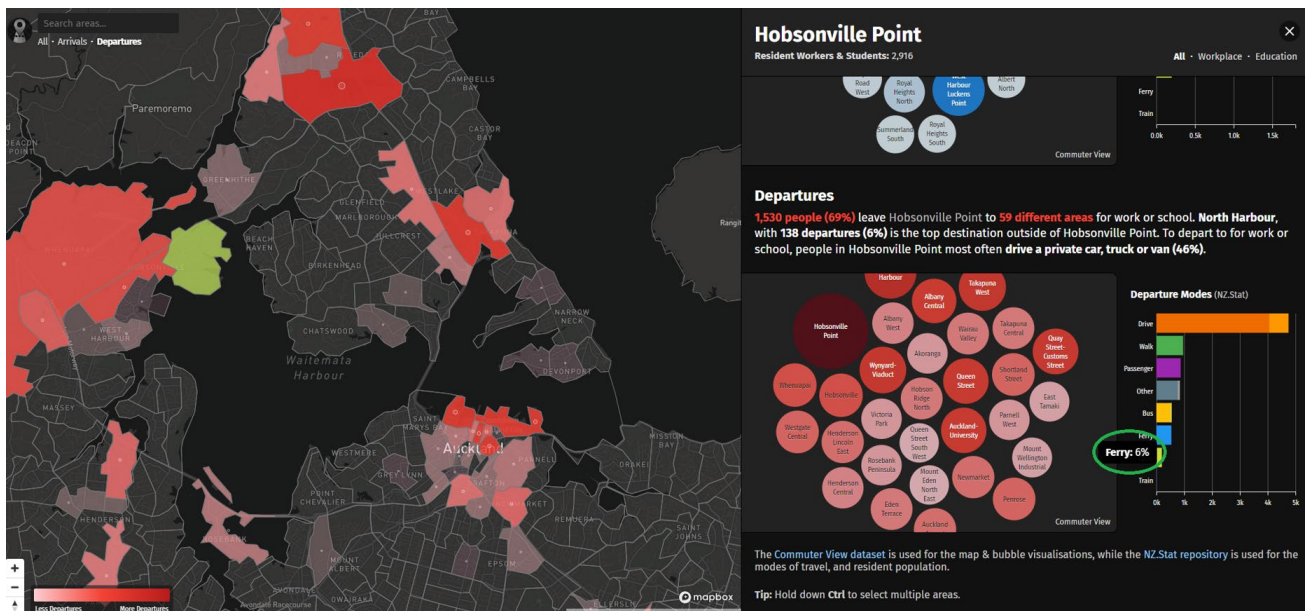
The RFI mentions that a 13% future ferry mode share for Beachlands would be nearing the existing ferry mode share at Bayswater (15%) and Devonport (21%). This is not considered to provide any relevant context, as the ferry mode share for these locations is also expected to increase due to a variety of pressures: access to the city centre by road becomes more congested, road pricing is introduced<sup>1</sup>, and PT services are improved. As such it is considered that overall PT mode share for these areas will increase but the difference in the future ferry mode share percentage between Beachlands and Bayswater/Devonport will likely remain, with the higher ferry mode shares at Devonport and Bayswater purely due to employment at City Centre being closer to these north shore neighbourhoods than Beachlands.

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<sup>1</sup> <https://www.greaterauckland.org.nz/2022/05/11/congestion-pricing-green-light/>

A further 2018 Census data analysis was also completed. In Waka Commuter<sup>2</sup>, the mode share per SA2 unit is shown — which includes working from home and intra-zonal trips. The data shows 6% ferry mode share for Hobsonville Point (**Figure 7** below). When focusing on external trips only (i.e. removing working from home and internal trips), the resulting ferry mode share percentage increases to 9.9%. Similar calculations were completed for Beachlands SA2 units (Te Puru and Sunkist Bay) but the change for ferry mode share was marginal and the baseline ferry mode share for purely external trips remained similar – around 6%.

It is also considered that with the proposed development, Beachlands will become more comparable to Hobsonville Point as there will be more and higher density residential dwellings closer to the ferry terminal. Furthermore, contrary to what is mentioned in the RFI, mode share increase assumptions in the ITA for Beachlands do not solely rely on population growth. As discussed above, the factors such as increase in ferry capacity, better active modes network, better PT integration, new ferry terminal facilities, mixed-use land, congestion on the road and denser housing around the ferry wharf will contribute to increasing ferry usage. All of these elements would be part of the proposed development or part of the future network changes in the area.



**Figure 7: Hobsonville Ferry Mode Share in Commuter Waka App**

Finally, another important element to consider is public transport travel time compared to private vehicle travel. When comparing public transport with private vehicle travel times from Beachlands, Devonport, Bayswater and Hobsonville (four areas connected by ferry services) to city centre, only the ferry connection from Beachlands can offer slightly faster public transport journeys than private vehicle travel. Please see analysis in **Table 5** below. This analysis is based on Google Maps travel

<sup>2</sup> <https://commuter.waka.app/>

time data using typical travel time when leaving the origin zone at 7:00am. It also takes into account that a public transport journey consists of walking, waiting at the station, transfers and a potential secondary transport connection to reach areas in the city.

**Table 5: Travel Times Between Car and PT Per Origin**

Origin - Destination	Current Ferry Mode Share %	Car travel time to City in minutes (average during peak congestion)	PT in min (includes walking, waiting at the terminal, ferry travel and other PT to reach destination)	PT Travel Contributing Factors			
				Walking	Waiting at the Terminal or a Stop	Ferry travel time to City	Connecting PT Trip
Beachlands to City	5.5%	80	70	10	10	35	15
Hobsonville to City	9.9%	50	75	10	10	40	15
Devonport to City	21.0%	40	55	10	10	20	15
Bayswater to City	15.0%	40	55	10	10	20	15

Despite travel times by public transport being around 20-40% slower than by private vehicle from zones like Devonport, Bayswater or Hobsonville Point, PT mode share from these zones is still moderate or high ranging between 9.9% to 21%. For Beachlands, however, it is acknowledged that to attract patronage, public transport is required to have good frequency throughout the day, enough capacity, have good accessibility/integration and density around the ferry terminal. Beachlands currently lacks some of those elements thus baseline ferry mode share is lower than in other zones discussed above.

It is also considered that the 13% mode share for Beachlands could be a mid-estimate with even larger mode share possible, e.g. the pre-conditions for mode shift at Beachlands are higher than at Hobsonville Point. Hobsonville Point is adjacent to the Upper Harbour Motorway, the only Auckland motorway to not be severely congested, whereas Beachlands is located around 40min by car away from SH 1 during the peak hour and 25min during the off-peak. Accessing SH 1 during the peak hours involves battling chronic congestion much of the way. Therefore, the travel time benefits of ferry over driving are very high and will continue to increase once ferry network/services are improved and congestion continues to increase on Whitford-Maraetai Road.

## 4.2 Bus Mode Share

Bus mode share for Beachlands was estimated to increase from current 1% to 4% by 2038 (note that the Reason for Request within Item T15 of the RFI incorrectly notes that this was assumed to occur by 2024). After interrogating the traffic model, it is acknowledged that this is likely to be a “high-estimate” scenario and a more conservative mode share may have been more appropriate. To assess the effect of this, the assumptions were adjusted to incorporate a 2.5% bus mode share estimate when assessing the development. This is based on the assumption that bus services will be improved as the population in Beachlands and Maraetai increases.

The current bus service connecting Maraetai and Beachlands to other areas in South and East Auckland is operating at minimal levels – service frequency is only every 60min. Despite this, the bus service carried approximately 200 passengers a day on average in 2020 February before COVID. The research shows that when improving a bus route that operates infrequent service and providing

better service frequency, patronage is likely to increase by 30%-50% in a short/medium-term and by 50%-100% in the long-term<sup>3</sup>. It should also be acknowledged that the quality of further journeys by bus is likely to be significantly improved in the near future. Botany Bus Station will be a key interchange for both the Eastern Busway and Botany to Airport public transport upgrades. With improved further bus journeys, the Beachlands service will over time become more attractive.

A more conservative 2.5% mode share is considered easily achievable by 2038 with the new ferry feeder bus service from Maraetai, improved existing 739 bus service frequency to e.g. 30min frequencies and potentially bus priority infrastructure at some of the intersections along Whitford Maraetai Road to enable better bus travel times.

This reduction in assumed bus mode share (from 4% to 2.5% in 2038) will have negligible impact on modelling results as the change in traffic volumes would increase only by at most 1.5%, which is approximately 40-50 vehicle trips more in the peak hour than currently modelled.

## 5 Validation of Traffic Survey Data

Item T23 of the RFI questions the use of traffic counts taken in early November 2020 given fluctuations in traffic volumes recorded at SH20 Hillsborough Road intersection since Covid-19 alert levels took hold. Specifically, the RFI states:

*“This data suggests that the turning movement counts recorded traffic volumes that were likely to be at least 4%, and potentially up to 10%, below pre-lockdown traffic levels. This has not been accounted for in the ITA analysis.”*

To test this issue, historical SCATS<sup>4</sup> data over a period of five years (2018 to 2022) at the Ormiston Road / Murphy's Road intersection was interrogated to gain an understanding of the traffic trends at one of the two key access routes to Beachlands. The intersection is a large five-legged signalised intersection, facilitating significant amounts of traffic movements through the Beachlands area. This data source is considered more relevant to this locale than the SH20 Hillsborough off-ramp quoted in the reason for the request, as that location serves the airport and therefore experienced more significant fluctuations during covid lockdowns due to flight restrictions.

To maintain data integrity, the following measurements were taken:

- All SCATS data was taken on a Tuesday in the first week of November in the years 2018 to 2021. In 2022 Scats data was taken on the 14<sup>th</sup> of June;
- Data was processed only during AM and PM peak periods; and
- Traffic volume data were cross-checked with Auckland Transport (AT) traffic counts.

Table 6 shows the total traffic flows through the intersection on a daily, AM and PM basis.

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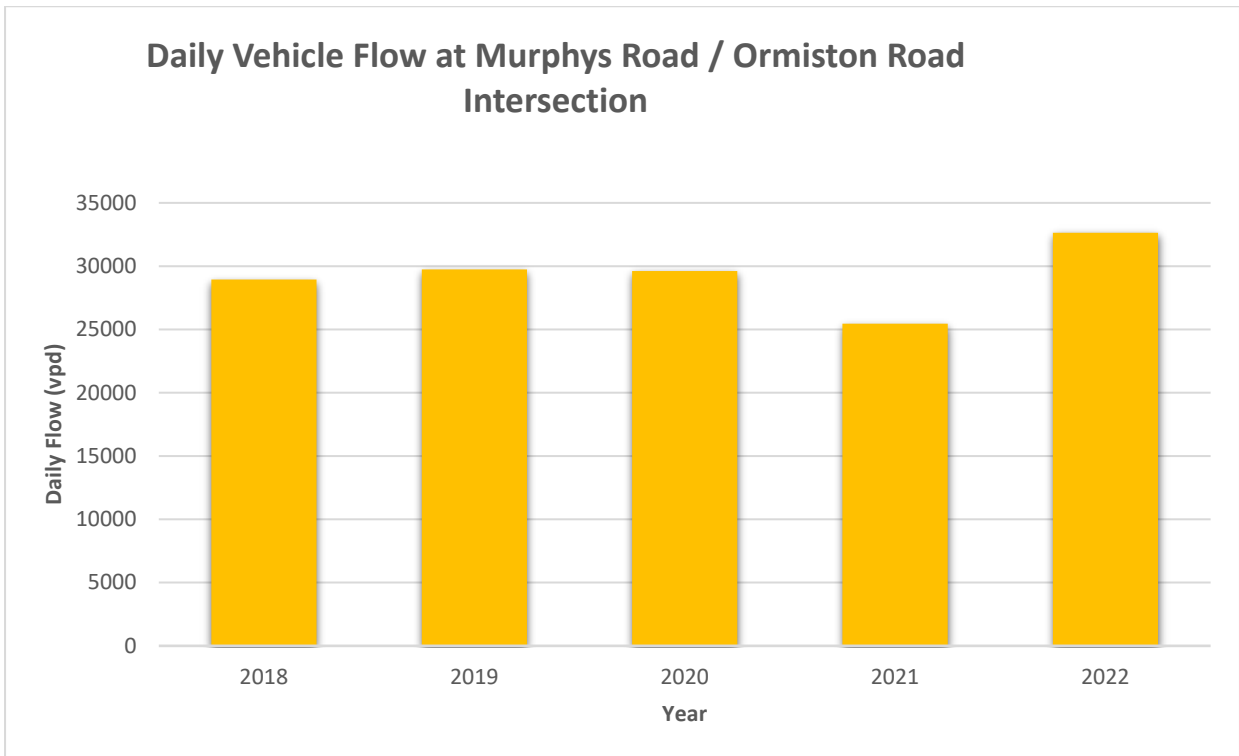
<sup>3</sup> <https://www.nzta.govt.nz/assets/resources/research/reports/248/248-Review-of-passenger-transport-demand-elasticities.pdf>

<sup>4</sup> SCATS is a traffic control system designed to optimise traffic flow. Intelligent algorithms process real-time data to capture trip counts at signalised intersections.

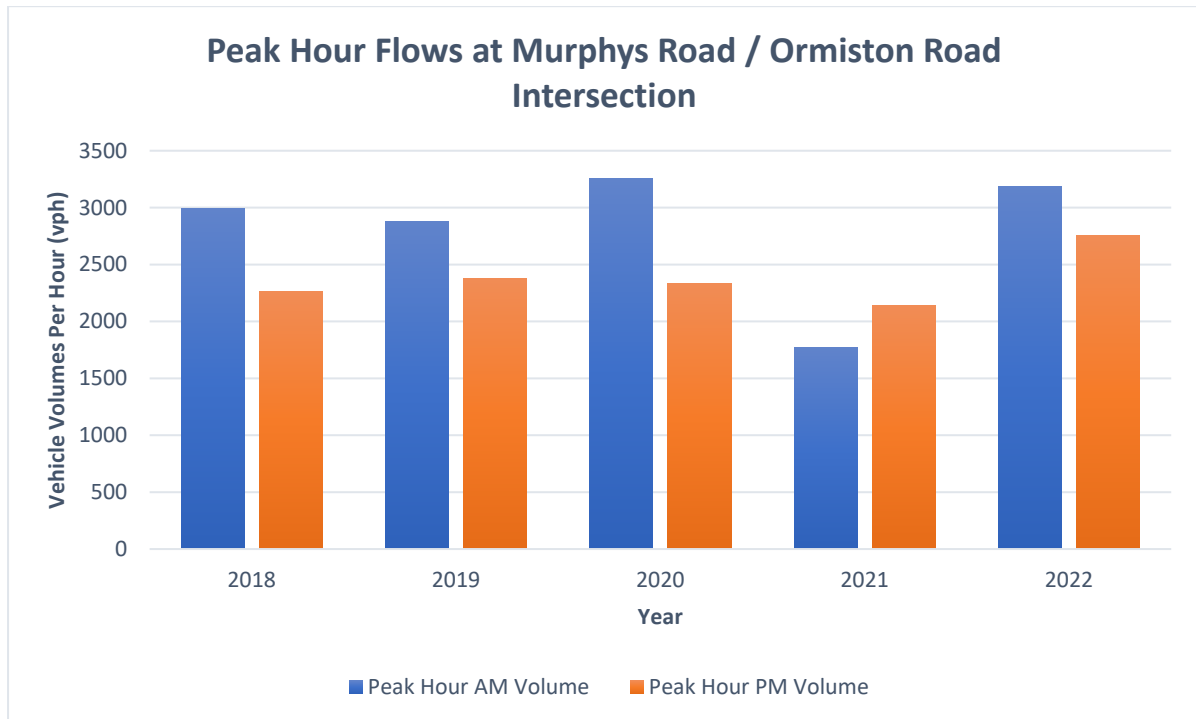
**Table 6 Summary of the Traffic Volumes at the Ormiston / Murphy's Road intersection**

Total Vehicle Movements at the Ormiston / Murphy's Road intersection					
Year	daily flow (vpd)	Peak AM Period		Peak PM Period	
		period	volume (vph)	period	volume (vph)
2018	28,944	8:00 to 9:00	2,992	17:00 to 18:00	2,267
2019	29,741	7:30 to 8:30	2,877	17:00 to 18:00	2,379
2020	29,617	7:45 to 8:45	3,255	16:30 to 17:30	2,331
2021	25,449	7:00 to 8:00	1,773	16:30 to 17:30	2,138
2022	32,636	7:45 to 8:45	3,186	16:30 to 17:30	2,755

The breakdown of daily flows over five years is depicted in **Figures 8 and 9** below.



**Figure 8: Total Daily Vehicle Movements at Murphy's Road and Ormiston Road Intersection**



**Figure 9: Comparison of Peak Hour Flows at Murphy’s and Ormiston Road Intersection**

Based on the table and figures above, it can be established that the 2021 data is inconsistent with other years, due to COVID level 3 restrictions at that time. The 2022 data was taken on 14 June and is provided for context only, as it does not offer a good comparison of traffic flows in November in the earlier years.

Importantly, it is noted that the November 2020 mid-covid daily counts compare well to the November 2018 and 2019, pre-covid counts. The daily counts at the intersection show that November 2020 total flows were 0.4% lower than November 2019 flows, and 2% higher than November 2018 flows. In the AM peak, November 2020 was 13% higher than November 2019 and 8% higher than November 2018. In the PM peak, November 2020 was 2% higher than November 2019 and 3% higher than November 2018.

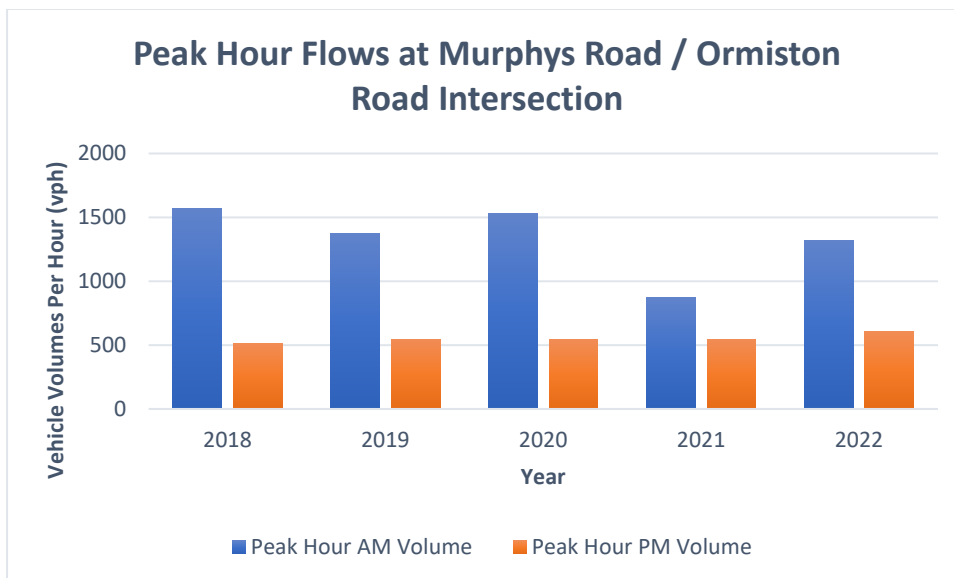
It can be concluded therefore that when accounting for all vehicle movements through this intersection, the 2020 flows are generally higher than the 2019 and 2018 flows, thereby validating the use of the November 2020 traffic counts in the traffic modelling within the ITA. In fact, this data suggests that the base for the traffic modelling represents a very conservative analysis.

The SCATS data was further broken-down to analyse the vehicle movements across only the Ormiston Road approach, as only these movements include trips originating in Whitford and/or Beachlands.

The summary of vehicle movements at the Ormiston Approach is tabulated in **Table 7** and **Figure 10** below.

**Table 7: Summary of the Peak hour Traffic Volumes at the Ormiston Approach**

Peak Hour Vehicle Movements at Ormiston Approach				
	Peak AM		Peak PM	
Year	period	volume (vph)	period	volume (vph)
2018	8:00 to 9:00	1,570	17:00 to 18:00	516
2019	7:30 to 8:30	1,376	14:30 to 15:30	547
2020	7:45 to 8:45	1,531	14:45 to 15:45	541
2021	7:00 to 8:00	874	16:15 to 17:15	543
2022	7:45 to 8:45	1,318	14:45 to 15:45	606



**Figure 10: Comparison of Peak Hour Flows at Ormiston Road Approach**

The results establish that in the AM peak, November 2020 was 11% higher than November 2019 and 2% lower than November 2018. In the PM peak, November 2020 was 1% lower than November 2019 and 5% higher than November 2018.

It can be concluded therefore that when accounting for only the Ormiston Road approach of the intersection, the 2020 flows are generally higher than the 2019 and 2018 flows. The November 2020 traffic counts used for the traffic modelling within the ITA are therefore considered an appropriate basis for the assessment, and in fact can be considered conservative.

## 6 Trip Generation

Item T29 of the RFI Questions the Trip Generation Assumptions used within the ITA.

## 6.1 High Density Residential

The RMS guide only provides high-density rates for metropolitan centres and metropolitan sub-regional centres. High-density accommodation has historically not been provided in areas outside of metropolitan areas and therefore there is no data.

While Beachlands is obviously not, in and of itself, a metropolitan sub-regional centre, with the addition of Beachlands South its characteristics will become comparable to one in that it will operate as a largely self-contained system, with an ability to provide its own retail, services, employment, recreation, education, etc. Further, like a sub-regional centre, it will have good accessibility to public transport (predominately via ferry services, supported by buses).

The use of the 2013 RMS data is likely to result in an over-estimate of peak vehicle trips, as the patterns of travel in the sites surveyed are largely 'unconstrained' in terms of vehicle travel, notwithstanding the availability of public transport services. This differs from Beachlands, which currently is, and will continue to be, within a constrained system where peak hour travel by car is highly disincentivised by the limited capacity of Whitford-Maraetai Road.

Further in regard to these points is the fact that this development will be one that will be progressively realised over the next 20-30 years or more. While it is impossible to know how peak hour car travel trip rates will continue to evolve into the future, what is known is that due to a myriad of factors, (changing work patterns with more WFH, more flexible work hours, rising fuel prices, growing disincentivisation of personal travel due to climate/carbon effects, reduced parking availability at destinations, etc etc), it is inevitable that peak hour car-based trip rates will continue to reduce.

For these reasons, using high density residential trips rates as measured in the early part of this century in largely unconstrained transport systems in an attempt to be 'conservative' with the analyses is both fundamentally flawed, and will be unresponsive of all current policies and strategies that are aimed at constraining peak hour travel.

## 6.2 Other Rates

The differences noted in commercial and light industrial land uses are considered negligible as these make insignificant difference to AM and PM peak hour traffic flows. Further, the distribution of these activities are against the primary peak hour flow (being attractors of trips rather than generators). As such any differences on these trip rates will have a negligible effect on the operational capacity of key intersections.

Yours sincerely,

**STANTEC NEW ZEALAND**



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