

**BEFORE AN INDEPENDENT HEARINGS PANEL  
OF THE UPPER HUTT CITY COUNCIL**

**IN THE MATTER OF** The Resource  
Management Act 1991

**IN THE MATTER OF** Upper Hutt City  
Council's Proposed  
Intensification Planning  
Instrument

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**EVIDENCE OF MARK GRANT GEORGESON  
ON BEHALF OF SILVERSTREAM LAND HOLDINGS LTD**

**(Transport)**

**14 April 2023**

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## 1. INTRODUCTION

### Qualifications and Experience

1.1 My full name is Mark Grant Georgeson. I am a Chartered Professional Engineer and hold a Bachelor of Civil Engineering degree from the University of Auckland. I am:

- (a) a Member of Engineering NZ and its specialist Transportation Group;
- (b) an International Professional Engineer;
- (c) a Member of the Institute of Transportation Engineers USA; and
- (d) a Member of the Institute of Public Works Engineering Australasia.

1.2 For the last 31 years I have worked as a traffic engineer with Stantec New Zealand, practicing as a traffic engineering specialist throughout New Zealand.

1.3 I have been a resident of Lower Hutt for the same 31 years and a regular user of the roading network in and around Silverstream and Upper Hutt. I have also visited the St Patrick's College Silverstream site (**Site**) multiple times during my involvement to date in providing transport advice to Silverstream Land Holdings Ltd (**SLHL**).

1.4 Over the past 25 years, I have provided expert advice to other land owners, property developers and the Council in respect of development options and infrastructure improvements to the Fergusson Drive corridor. As such I am very familiar with the local and wider transport environment, as it applies to the Site.

### Code of Conduct Statement

1.5 I have read the Code of Conduct for Expert Witnesses outlined in the Environment Court's Practice Note 2023 and confirm that I have complied with it in preparing my evidence. I confirm that the issues I address are within my area of expertise, except where I state that I rely upon the evidence of other expert witnesses. I also confirm that I have not omitted to consider material facts known to me that might alter or detract from my opinions.

## 2. PURPOSE AND SCOPE OF EVIDENCE

2.1 I have been asked by SLHL to present my views and findings in respect of the transportation needs and outcomes for potential development of the Site. In doing so, I have compared the transport needs that would be associated with development of the Site under the High Density Residential Zone (**HRZ**) (as proposed in the IPI(N)), against the Mixed Use Zone (**MUZ**) sought by SLHL.

2.2 In preparing this evidence, I confirm that I have reviewed the following (in so far as they relate the Site and my area of expertise):

- (a) the relevant provisions of the IPI as notified in the IPI(N);
- (b) the Upper Hutt City Council's (**Council**) section 32 report;
- (c) the IPI recommendations in the Section 42A Report version (**IPI(R1)**);  
and
- (d) the other evidence prepared for SLHL.

2.3 I have structured my evidence as follows:

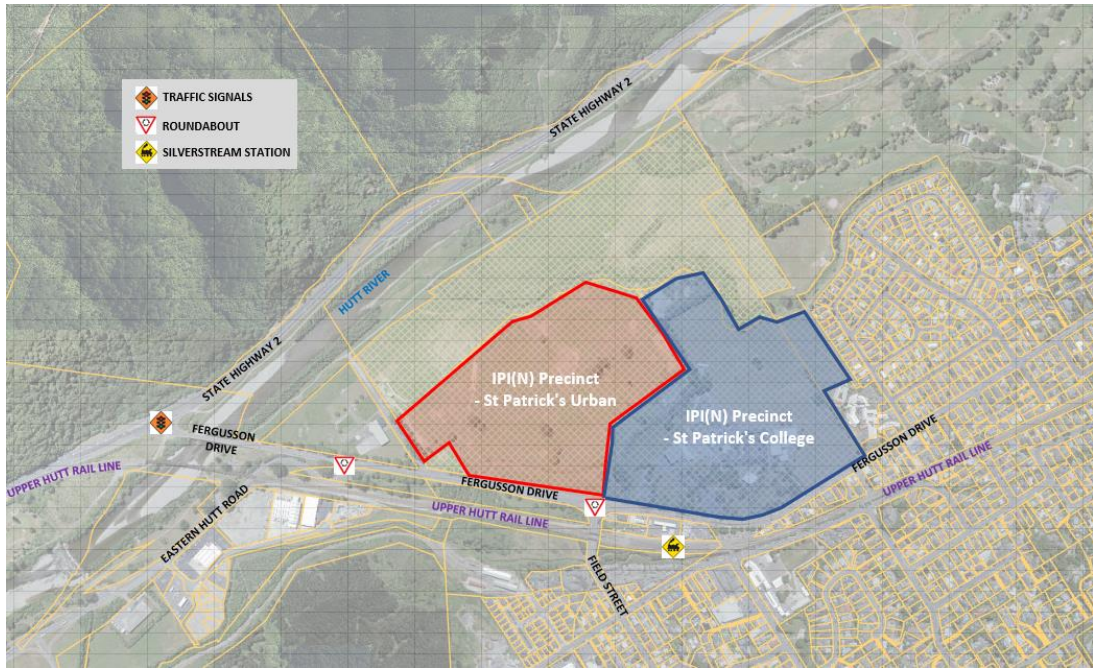
- (a) In paragraphs 3.1-3.16, I describe the existing transport environment in the vicinity of the Site, including its current and forecast operation;
- (b) In paragraphs 4.1-4.2, I summarise the relief sought in SLHL's submission, as amended with the measures proposed in Mr Lewandowski's evidence;
- (c) In paragraphs 4.3-4.12, I summarise the anticipated traffic additions generated at the Site arising from 'example development scenarios' that capture both an IPI(N) and MUZ mix of activities, should the relief sought by SLHL be adopted; and
- (d) In paragraphs 5.1-5.7, I respond to the Council's section 42A report (**S42A Report**) and evidence of the Council's traffic engineering consultant, Mr Wignall.

2.4 I note that the current Operative District Plan (**ODP**) provisions that apply to the Site enable (as a controlled activity) a much broader range of activities, including non-residential activities, than would be realised under the more restrictive IPI(N) HRZ provisions. This is discussed in detail in Mr Lewandowski's evidence.

- 2.5** My assessment of the associated transport impacts of example development scenarios for the Site demonstrates that transport effects of non-residential activities are able to be properly tested and addressed at the resource consent stage, if MUZ was to be applied to the Site and the provisions for a traffic generation threshold trigger (as recommended by Mr Lewandowski) were adopted. For residential activities, the rule trigger for greater than six residential dwellings would prevail to capture the required effects assessment, including traffic.
- 2.6** Depending on the type and scale of development and its staging, a range of smaller to larger infrastructure responses may be needed to facilitate Site access and assure the safe and efficient operation of the transport network. In my view, the land use activities that require such responses, can be thoroughly considered (and effects controlled by Council) at the time of any future resource consent by way of Integrated Transport Assessments. These resource consent triggers are appropriately provided for under the IPI(R1) provisions, as amended by Mr Lewandowski's recommendations.
- 2.7** At the time of such consents being considered, there will be more clarity around the transport effects created by that proposal and the necessary infrastructure responses. Council will be able to consider updated traffic modelling which will provide the base tool required to suitably assess the impacts of Site traffic demands and the mitigations required.

### **3. SITE LOCATION AND LOCAL TRANSPORT ENVIRONMENT**

- 3.1** Under the IPI(N), the Site is divided into two parts: the 'St Patrick's College' and 'St Patrick's Urban' precincts, with these two areas forming the 'St Patrick's Estate Precinct'. It is located in Silverstream between Fergusson Drive and State Highway 2 (**SH2**). The aerial photograph below shows the location of the Site in the context of the IPI(N) and local transport network.



- 3.2** Fergusson Drive is classified as a Primary Regional Arterial road under the ODP, having the predominant function of providing a key link between major sectors and distributing traffic from intercity links. Adjacent to the Site, Fergusson Drive is a four-lane road with two traffic lanes in either direction separated by a raised median. At the eastern end of the Site, Fergusson Drive connects with Field Street via a 3-arm roundabout. At the western end, Fergusson Drive connects with Eastern Hutt Road, also via a 3-arm roundabout.
- 3.3** Further west, Fergusson Drive connects with SH2 via the Hutt River bridge (single lane in each direction) at an at-grade signalised tee-intersection. SH2 serves as a national State Highway route connecting Upper Hutt with Lower Hutt and Wellington City to the south, and Wairarapa to the north.
- 3.4** Fergusson Drive accommodates Bus Service 110 (Petone – Lower Hutt – Upper Hutt – Emerald Hill), which operates at 15-minute intervals during the day and every 30-60 minutes in the evenings. In addition, the Silverstream rail station is located essentially opposite the Site, providing access to regular train services on the Hutt Valley line through to Wellington. In my view, the Site is well served by frequent public transport connections to the wider Upper Hutt area and Wellington region beyond.

## Traffic Patterns

- 3.5** To understand the existing traffic patterns on the road network in the vicinity of the Site, I have summarised the available daily traffic count data in the table below.

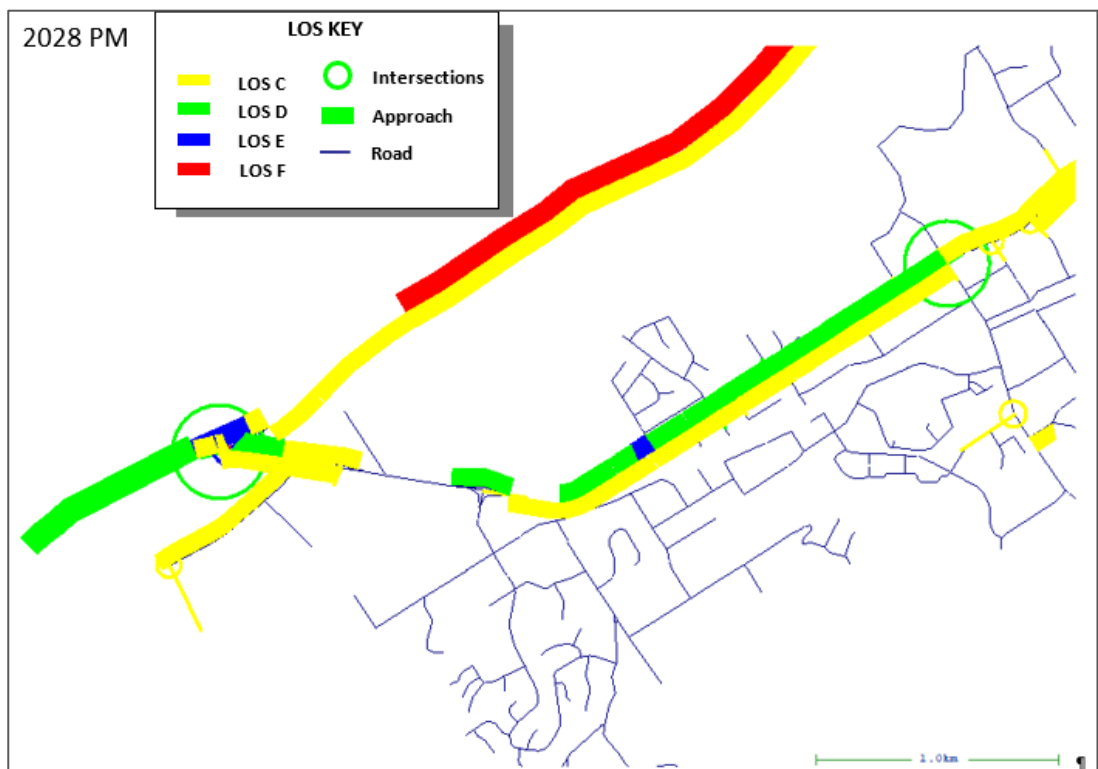
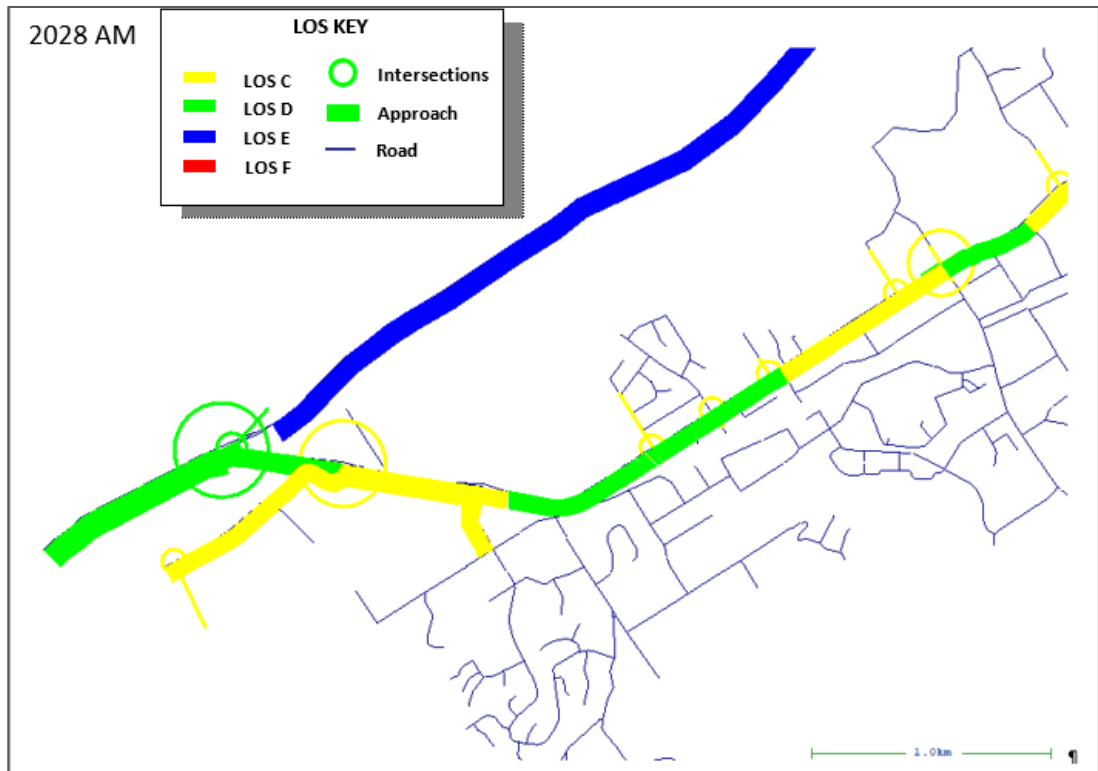
| Road              | Location                                   | Count  | Date |
|-------------------|--|--------|------|
| Fergusson Drive   | Between SH2 and Eastern Hutt Road          | 19,350 | 2022 |
|                   | Between Eastern Hutt Road and Field Street | 24,820 | 2022 |
|                   | East of Field Street                       | 20,480 | 2022 |
| Eastern Hutt Road | South of Fergusson Drive                   | 16,450 | 2022 |
| Field Street      | South of Fergusson Drive                   | 12,500 | 2022 |
| SH2               | North of Fergusson Drive                   | 26,500 | 2021 |
|                   | South of Fergusson Drive                   | 30,150 | 2021 |

- 3.6** These volumes reflect the form and function of the primary road network that characterises this location. I acknowledge they are of a level that requires full and particular consideration and analysis of access needs and options for the Site.

## Traffic Operation

- 3.7** By way of demonstrating the current and future traffic operation of the roading network in the vicinity of the Site, I have reviewed the Council's 'Tracks' traffic model outputs for the adjacent Fergusson Drive corridor for each of the 2023 and 2028 modelled years, for the weekday AM and PM peak periods. These help to provide context to the current and forecast 'state' of the capacity and performance constraints on the adjacent roading network.
- 3.8** Statistics are presented as Levels of Service (**LoS**) which range from LoS A (which represents uncongested operation and minimal delays and queues) to LoS F (which represents highly congested operation with long delays and extensive queuing).
- 3.9** As I alluded to earlier, the Council is currently undertaking further development of its traffic model. While the descriptions will be updated to represent the latest available traffic conditions and forecasts, in the absence of the updated modelling it is my view that the current model is sufficient to provide the context required for the purpose of this evidence.

**3.10** I include the AM peak and PM peak LoS plots for 2028 below. These outputs, which do not include any development traffic generation for the Site, show the 4-lanes of Fergusson Drive across the Site frontage performing well but with pinchpoints of LoS D at the roundabouts, the bridge, and especially SH2 which operates at LoS E and F north of the intersection.



**3.11** These modelling tools serve to inform Road Controlling Authorities (**RCA**) of future predicted performance, to assist in planning for improvements. In my experience, RCAs typically consider LoS D to be the point at which some form of intervention needs to begin to be planned for to accommodate future traffic increases.

**3.12** Given this context, it is relevant that detailed assessment and analysis is undertaken of the effects of Site traffic loadings to justify the mitigation responses (if any) that are required. Such assessment also informs the location and form of access points to ensure the network will function safely and efficiently. To that end, it is in my view reasonable to provide an assessment trigger for evaluating the effects of development traffic generated at the Site (as proposed in Mr Lewandowski's evidence), which I comment further on at paragraph 4.9.

### **Programmed Improvements**

**3.13** A review of the relevant planning documents - including the Council's Long Term Plan 2021-31 (**LTP**) – provides for a replacement of the Silverstream bridge connection to SH2. Responding to the network conditions I have just described, the bridge replacement is intended to increase capacity on this part of the network, which represents a key gateway to Upper Hutt City from the south, and will include associated improvements to the Fergusson Drive intersections at SH2, Eastern Hutt Road, and Field Street.

**3.14** The LTP notes the following in relation to the proposed bridge replacement:

*“Increased traffic at the southern end of the city exceeds the capacity of the road network during peak hours and is causing significant delays at the intersection of State Highway 2 and Fergusson Drive and at the intersection of Fergusson Drive and Eastern Hutt Road. The bridge also does not have the capacity to meet the 100 year flood requirements. These roads and the bridge form a key gateway to the city from the south. The bridge also provides a critical access point to the city in the event of State Highway 2 being compromised, boosting the city's resilience. The work will look to address the existing issues with this key link and also accommodate future growth in the area (pg.76)”.*



*“The project will encompass associated improvements required to the adjacent Eastern Hutt Road, Fergusson Drive, and Field Street intersections. Significant growth is anticipated in this part of the city and this project includes assisting to provide for this growth (pg.139)”.*

**3.15** As stated, the LTP recognises the importance of ensuring the transport network in the vicinity of the Site can respond to development growth, and acknowledges the need to consider the Fergusson Drive ‘road corridor’ as a whole and not just its intersections. This, in my view, is fundamental to ensuring that any development at the Site can be properly accommodated in this gateway location.

**3.16** With respect to active modes, construction of the Whakawhirinaki ‘Silverstream Water Bridge and Shared Path’ is currently underway, and will provide a dedicated safe walking and cycling connection across the Hutt River (separate from the current Fergusson Drive bridge), connecting the Hutt River Trail with the active mode routes that run alongside Fergusson Drive. This marks an important connection for active mode accessibility to/from the Site, and will help to support sustainable travel choices as the area is developed.

#### **4. SLHL SUBMISSION AND EXAMPLE SITE DEVELOPMENT SCENARIOS**

**4.1** Details of the SLHL submission are described in the evidence of Mr Lewandowski, and I do not repeat this in any detail here. The MUZ zoning sought by SLHL provides for residential activities and a wider range of non-residential activities to be established on the Site, in a manner similar to the extant ODP Special Activity Zone. This can be compared to the narrow focus on residential activity under the HRZ proposed for the Site under the IPI(N).

**4.2** By way of demonstrating differences in potential Site activities under HRZ and MUZ, I have outlined two example development scenarios below. I understand these to represent likely development scenarios under the respective zonings:

- (a) HRZ ‘Residential’: approximately 650 residential units plus supporting neighbourhood convenience stores (that will attract a combination of internalised trip making and externally generated trips); and
- (b) MUZ ‘Hybrid of Residential and Retail’: approximately 500 residential units, supporting neighbourhood convenience stores, plus two Large

Format Retail (**LFR**) stores which may include a mixture of faster<sup>1</sup> and slower<sup>2</sup> trade retail activities.

### **HRZ Development Scenario**

- 4.3** Given the mixed typology of the higher density residential dwellings proposed for the Site under the HRZ (in line with the National Policy Statement on Urban Development (**NPS-UD**)), such townhouse and apartment developments positioned within walkable catchments of key transport nodes typically attract lower car ownerships and generate less vehicle trips than more traditional standalone suburban dwellings.
- 4.4** In this location, I would expect the HRZ (as described above under paragraph 4.2(a)) to generate total peak hour trips of some **400-600** vehicles per hour (**vph**) depending on the specific typology mix, extent of use of public transport (bus / rail) by residents for commuting, and type of convenience stores and their level of external attraction.

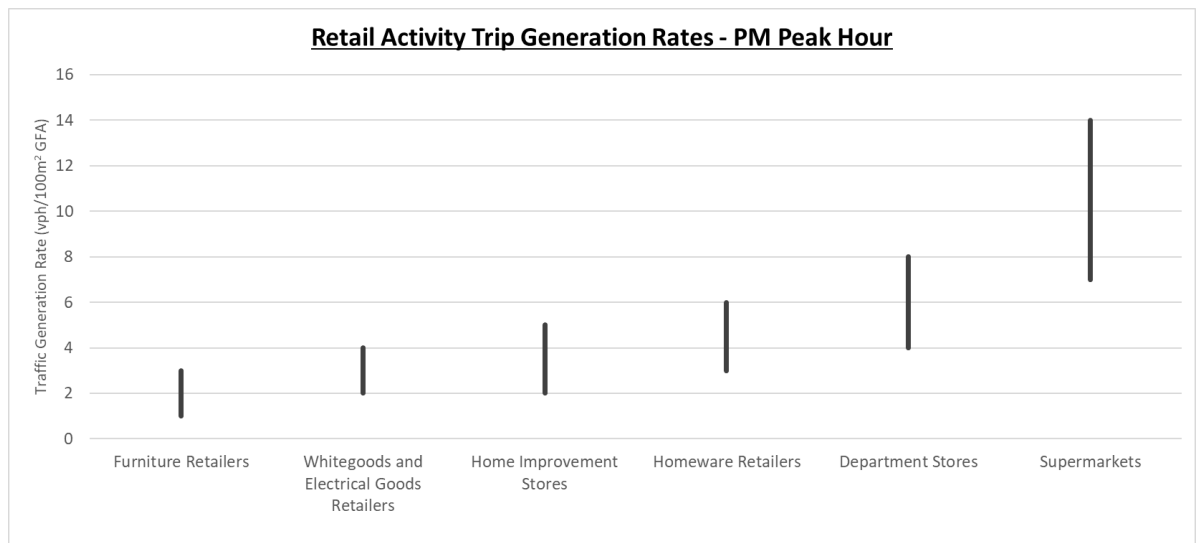
### **MUZ Development Scenario**

- 4.5** Recognising that a mixed-use development scenario would attract a larger external traffic draw for those visiting the LFR offerings provided at the Site, the following graph provides typical trip generation rates for a range of retail activities, including slower trade stores such as furniture retailers, through to faster trade activities such as The Warehouse, K-Mart, and supermarkets.

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<sup>1</sup> Faster Trade: includes discount department stores such as K-Mart and The Warehouse

<sup>2</sup> Slower Trade: includes furniture, electrical and utility goods stores



**4.6** As shown, trip rates of around 1-6vph per 100m<sup>2</sup> GFA are typical of slower trade LFR stores, whilst faster trade department stores and supermarkets generate in the range of 4-14vph per 100m<sup>2</sup> GFA, respectively. In practice, it is anticipated that a retail development on the Site would incorporate a mix of slow and fast trade activities, such that an overall average trip generation of around 5vph per 100m<sup>2</sup> GFA could eventuate.

**4.7** Applying this average trip generation rate to the LFR activity under the **MUZ development scenario**, and allowing to for the residential component, in my view would give rise to an associated total trip generation of approximately **800-1,100vph**, again depending on the typology of dwellings, use of sustainable modes by residents and staff, and type of LFR activities established at the Site.

### **Assessment**

**4.8** In either scenario described above, the need to appropriately assess the traffic additions and any required scale and timing of mitigation works for the adjacent network, is essential.

**4.9** In my opinion, an appropriate District Plan methodology would be to adopt a traffic generation threshold trigger, where any proposed activity on the Site that exceeds the threshold is required to be considered with detailed analysis of associated development traffic effects on the network. The traffic effects of the activity can be thoroughly tested and infrastructure responses verified to the satisfaction of RCAs. In my experience, such triggers work well and indeed are beginning to become more commonplace in second generation District Plans.

**4.10** At the request of the Council, Mr Wignall has prepared guidelines for such assessments, which are appended to his evidence (Appendix 4 of the S42A Report). These guidelines provide information on when and how Integrated Transport Assessments (**ITAs**) should be undertaken in Upper Hutt to assist developers and their advisors.

**4.11** Mr Wignall identifies a threshold of 100vph in mixed and centre zones. I see no reason why the proposed 100vph trigger put forward by Mr Wignall in his technical assessment and subsequent evidence for this Site would not be appropriate in this case. This would enable traffic effects to be assessed and infrastructure responses could be required, appreciating the characteristics of the adjacent network I described earlier. I therefore agree with the adoption of this trigger mechanism (at the 100vph threshold) proposed in Mr Lewandowski's evidence. I refer to the threshold further at paragraphs 5.4-5.7 below.

**4.12** In lieu of detailed traffic analysis, I would expect such mitigation for either of the development scenarios described above to involve:

- (a) one, two or three Site connections to Fergusson Drive, possibly including a fourth arm to the Field Street roundabout; and
- (b) corridor capacity improvements at the adjacent roundabouts and at the SH2 intersection for more traffic dominant schemes, as envisaged by the LTP.

## **5. COUNCIL OFFICER'S REPORTS**

**5.1** I have read both the Transport evidence prepared by Mr Wignall (Council's consultant traffic engineering advisor), as well as relevant parts of the Council Officer's S42A report prepared by Mr Muspratt.

**5.2** Mr Muspratt includes discussion of the St Patrick's Estate Precinct from paragraph 1123 of his report. At paragraph 1126 (and 1129) he appears to have some sympathy for mixed use development within the Precinct and invites SLHL to provide additional information at the hearing to enable consideration of more specific amendments. He then reflects that a structure plan would be the most appropriate method to identify development forms, site constraints, and potential new roading connections.

- 5.3** While I accept that a structure plan could present a technical solution, I am aware there is currently no certainty of development form, mix and scale, let alone any analysis that gives an indication of the number, form and location of roading connections and possible upgrades to the Fergusson Drive corridor. That is, the infrastructure needs and responses could be widely different depending on the development scheme, in the manner I have touched on at Paragraph 4.9. As I discuss below, the measures provided for under the IPI(R1) provisions, as amended by Mr Lewandowski's recommendation would allow for the Council to consider these (and control adverse effects) through the consenting process.
- 5.4** I note that Mr Wignall in his evidence (paragraph 14) acknowledges there are a number of key traffic considerations associated with development of the Site, and in particular, the capacity of the adjacent Fergusson Drive corridor. Mr Wignall recommends an appropriate mechanism to manage associated Site traffic-related impacts would be to apply a traffic threshold trigger of 100vph, measured in Passenger Car Units (**PCU**) to any proposed new activity.
- 5.5** For the reasons I have outlined, I agree with Mr Wignall in this regard. It is proper to include an equivalent traffic threshold trigger to ensure that detailed analysis of the associated development traffic impacts and identification of off-site mitigation, if any, can be addressed at the resource consent stage, as a substitute for and preference to a structure plan.
- 5.6** Whilst Mr Muspratt has carried forward an equivalent traffic threshold trigger recommendation from Mr Wignall for the 'Trentham Racecourse Precinct', where such activities that exceed the 100vph traffic threshold are considered as a 'Restricted Discretionary Activity' (with regard to effects on the transport network), he has not applied an equivalent approach for the Site, as a means of addressing his concerns.
- 5.7** I consider such provision can be included for the Site, as a technical solution to assessing and addressing the transport effects Mr Muspratt is concerned about, and suggest that the draft provision identified at paragraph 1327.3 of Mr Muspratt's S42A Report for the Trentham Racecourse Precinct, as set out below, could be adopted in this case. Mr Lewandowski further reflects on these provisions in his evidence.

Activity status: Restricted Discretionary

Where:

a. *The activity or activities will generate more than 100 vehicles per hour measured by passenger car units (PCU)*

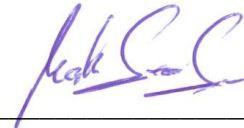
*Matters of discretion are limited to:*

*Methods to avoid, remedy or mitigate adverse effects on the transportation network as identified by an integrated transport assessment.*

## **6. CONCLUSION**

**6.1** In my opinion, the relief sought in SLHL's submission to establish a MUZ classification for the Site, along with the recommended provisions around the inclusion of a traffic generation threshold trigger, can be supported from a transportation perspective. This would allow associated Site traffic impacts to be appropriately assessed through the resource consent process.

**DATED:** 14 April 2023



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**MARK GRANT GEORGESON**