

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

AND

IN THE MATTER of a submission pursuant to Clause 6 of Schedule 1 of the Act in respect of the **PROPOSED WAIKATO DISTRICT PLAN** by Pokeno Village Holdings Limited (submitter no. 368 / further submitter no. 1281)

**STATEMENT OF EVIDENCE OF WESLEY JOHN EDWARDS ON BEHALF
OF POKENO VILLAGE HOLDINGS LIMITED (HEARING 25 –
REZONING)**

1. INTRODUCTION

1.1 My name is Wesley John Edwards. I am the Director of Arrive Limited.

Qualifications and experience

1.2 I have a Bachelor of Engineering from the University of Auckland (1989). I also have a New Zealand Certificate of Engineering and I am a Chartered Professional Engineer, an International Professional Engineer, a Chartered Member of Engineering New Zealand, and a Member of the Institute of Transportation Engineers. I have completed the Ministry for the Environment Making Good Decisions programme.

1.3 I have 34 years of experience in civil engineering, with the last 29 years specialising in traffic engineering including road safety auditing, crash investigation, road safety design, the design of streets and intersections, subdivision design, traffic modelling, structure planning, and plan changes.

1.4 Examples of my experience relevant to this project are:

(a) Plan Change 24 relating to Pokeno Village, including assisting with the development of the Pokeno Structure Plan and advising on transport matters (2007-09).

(b) Plan Change 21 Graham Block, western Pokeno (2017-18).

- (c) Assessment of resource consent applications in and around Pokeno including:
 - (i) Subdivision of Helenslee Block, north-western Pokeno (2010-13);
 - (ii) Subdivision of Bartell Block, western Pokeno (2015-16);
 - (iii) Subdivision of Graham Block, western Pokeno (2017-18);
 - (iv) Subdivision of 114 Dean Road, eastern Pokeno (2018);
 - (v) Proposed TaTa Valley resort, western Pokeno (2018-19);
- (d) Advising Auckland Council on several Plan Changes ("PC") and Notices of Requirement ("NoR") in southern Auckland including:
 - (i) Plan Change 55 Patumahoe South, Franklin (2019-);
 - (ii) Plan Change 61 Waipupuke, Drury West (2020-);
 - (iii) Plan Change 43 McLaughlins Quarry, Wiri (2020-);
 - (iv) NoR for KiwiRail Wiri-Quay Park, Auckland (2020-);
 - (v) NoR for KiwiRail Southern Stations (2020-).
- (e) Franklin 2 Precinct (Paerata Rise), a SHA plan variation rezoning 294 hectares for 5,000 homes and a Town Centre, subsequent Framework Plans, and resource consent assessments for subdivisions (2013 - 20);
- (f) Addison development, Takanini. Several resource consents and plan changes including appeals, for 1,600 homes. (2005-21);
- (g) Waiata Shores, Takanini, subdivision ITA for 500 homes (2011-17);
- (h) Hingaia 1a Plan Change, Papakura, 1,300 homes (2003-06);
- (i) Kingseat Plan Change, Franklin, 5,000 people (2009-11);
- (j) Belmont Plan Change, Pukekohe, 600 homes (2007-10);
- (k) Anselmi Ridge Subdivision, Pukekohe, 500 homes (2005-08);
- (l) McLennan Plan Change, Takanini, 450 homes. (2006-07);

- (m) Cosgrave Plan Change, Takanini, 800 homes (2004-08);
- (n) Kirikiri Plan Change, Takanini, 500 homes (2004-08); and
- (o) Several other plan changes, notices of requirement and large-scale resource consents in locations outside southern Auckland and northern Waikato.

Involvement in project

- 1.5 I was first engaged by Pokeno Village Holdings Limited ("PVHL") in 2007 to advise on the Pokeno Structure Plan and I have provided ongoing advice to PVHL on transport issues relating to Pokeno since then.
- 1.6 I was most recently engaged by PVHL in October 2020 to review the proposed inclusion of land on the western side of Helenslee Road (known as Pokeno West) in the Proposed Waikato District Plan ("PWDP") and the transport implications of submissions on the PWDP seeking rezoning of land in and around Pokeno.
- 1.7 I have visited Pokeno numerous times since 2007. I last visited the area on Tuesday 13 October 2020, specifically to look at the areas surrounding the land where rezoning is sought.

Purpose and scope of evidence

- 1.8 The purpose of my evidence is to provide a high-level overview of the transport characteristics of Pokeno, the effects of various proposals to rezone land, if authorised and developed, and the feasibility of adequately servicing the land areas identified for rezoning.
- 1.9 Specifically, my evidence will:
 - (a) Describe the existing transport environment of Pokeno (Section 3);
 - (b) Describe the likely future transport environment of Pokeno (Section 4);
 - (c) Describe the transport network constraints (Section 5);
 - (d) Summarise the transport characteristics of the various proposals to rezone land (Section 6);
 - (e) Comment on the anticipated transport effects of the various proposals to rezone land (Section 7);

- (f) Summarise specific issues raised by some rezoning submissions (Section 8);
- (g) Review the relevant provisions of the National Policy Statement on Urban Development 2020 (Section 9);
- (h) Comment on the Council Officer's Framework Report (Section 10).

1.10 A summary of my evidence is contained in Section 2.

Expert Witness Code of Conduct

1.11 I have read the Code of Conduct for Expert Witnesses, contained in the Environment Court Consolidated Practice Note (2014) and I agree to comply with it. I can confirm that the issues addressed in this statement are within my area of expertise and that in preparing my evidence I have not omitted to consider material facts known to me that might alter or detract from the opinions expressed.

2. SUMMARY OF EVIDENCE

- 2.1 The railway, SH1 and SH2 divide Pokeno into sections with limited opportunities to cross, and this affects the capacity of the transport network in Pokeno and its ability to service development.
- 2.2 Several studies have identified transport infrastructure required to enable expansion of Pokeno, most notably the studies prepared to inform the Pokeno Structure Plan.
- 2.3 As growth in Pokeno continues, there are several locations in the road network that I expect will have capacity constraints and require upgrading including Pokeno Road between Helenslee Road and Gt South Rd, and the Dean Road/ SH1 Southbound off ramp intersection.
- 2.4 Waikato 2070 shows a new arterial road connecting SH1 and Pokeno Road and a connection across SH1 at Market Street, but the level of detail and investigation into those possible new links appears to be preliminary.
- 2.5 Collectively, if all submissions seeking rezoning were approved, the resulting "live zoned" area would triple the size and population of the town and result in a 44% reduction in the number of jobs per dwelling.
- 2.6 A relatively high proportion of people already leave Pokeno for work, mostly to the Auckland Region, and the cumulative impact of the proposed rezoning

would be to exacerbate this dormitory commuter town pattern, resulting in a significant increase in travel demand.

- 2.7 While public transport in Pokeno has recently been improved, I expect the predominant mode of transport will continue to be private vehicles, resulting in a significant increase in vehicle travel, congestion (predominantly within the Auckland Region), and a corresponding increase in road crashes.
- 2.8 Based on the evidence currently available, the effect of zoning all the land requested in the submissions cannot be determined as no transport study considers all the proposals. There has been no comprehensive modelling exercise like that undertaken for the PSP, despite collectively adding double the traffic than the PSP did.
- 2.9 Additional development areas would require additional infrastructure. None of the infrastructure identified has been demonstrated as being feasible to construct.
- 2.10 In my view the SH2/Avon Road intersection and Dean Road are not suitable for accommodating new development traffic, and further development of eastern Pokeno requires a new vehicular connection across SH1. No vehicular connection has yet been demonstrated as feasible or economic.
- 2.11 I do not agree with the s42A reporting suggesting that a structure plan is not required for land to be zoned FUZ when the question of whether infrastructure is able to be provided, irrespective of funding, remains unanswered.
- 2.12 There is no certainty that adequate transport infrastructure to address the likely effects of rezoning all the land as requested by submitters could be provided.
- 2.13 A comprehensive structure planning exercise, including the use of transport modelling, and investigation of potential infrastructure upgrades and new connections could provide the missing evidence and identify areas that are impractical or uneconomic to develop, at least at the intensity currently proposed.
- 2.14 Without such an exercise, in my view, the Panel cannot be satisfied that the land proposed to be zoned can be serviced by transport infrastructure in an appropriate, timely or cost-effective manner.

- 2.15 I expect that this exercise would demonstrate it is possible to provide sufficient infrastructure for some additional development around Pokeno, but that it is not practical to provide for all the zoning that has been requested.
- 2.16 To conclude, it is my view that the Panel should require a comprehensive study be undertaken for Pokeno, including use of the regional transport model and a model of the Pokeno area like the modelling undertaken for the PSP. This should be supported by investigations and concept design to provide sufficient proof that the various infrastructure projects required to support the growth are feasible, which could also be used to provide an estimate of costs for the provision of the necessary transport infrastructure.

3. **THE TRANSPORT NETWORK**

- 3.1 The principal elements of the transport network in Pokeno, shown in Figure 1, include:
- (a) The Waikato Expressway and Southern Motorway (SH1);
 - (b) State Highway 2 (SH2);
 - (c) The North Island Main Trunk (NIMT) Railway;
 - (d) Great South Road; and
 - (e) Pokeno Road.
- 3.2 The railway, SH1 and SH2 divide Pokeno into sections with limited opportunities to cross, and this makes new connections more difficult and more expensive to provide.
- 3.3 Figure 1 shows recent annual average traffic volume information for key roads in and around Pokeno. I have not included 2020 data as annual average volumes tend to be significantly lower, presumably because of the measures imposed to address the Covid-19 situation.
- 3.4 Figure 2 shows the location of reported crashes in the area over the past five years (2016-2020). Additional figures showing enlargements in areas of interest are provided in **Attachment A**.

Figure 1: Daily traffic volumes on road network

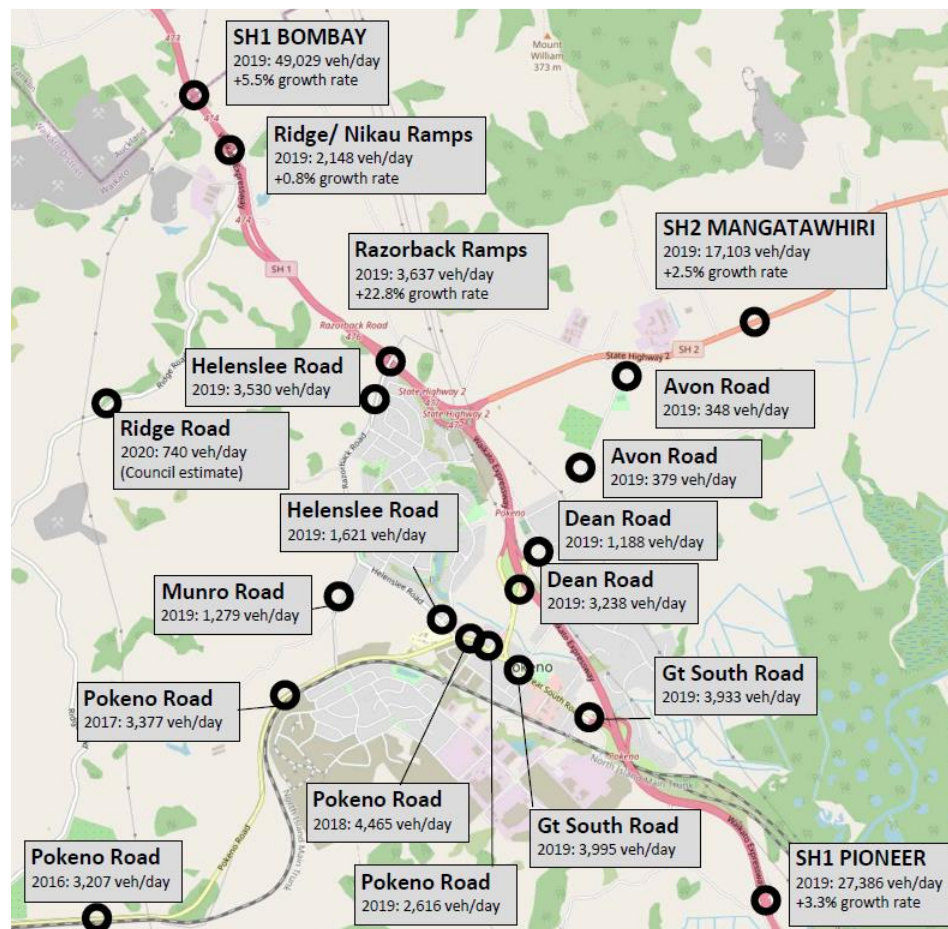


Figure 2: Locations of reported crashes 2016-2020 – All of Pokeno



3.5 Points to note from the crash record include:

- (a) A total of 241 crashes were reported in the wider Pokeno area in the past five years, resulting in four fatalities, twenty-one people being seriously injured, and 93 people receiving minor injuries, with a social cost of \$43.61 million.
- (b) Two of the fatalities occurred on local roads – one on Razorback Road, and another on Ridge Road, both involving a vehicle leaving the road on a bend.
- (c) One crash resulting in three serious injuries was reported at the Pokeno Road/Munro Road intersection (two vehicles collided with one turning at intersection).
- (d) Four crashes were reported at the SH2/Avon Road intersection, resulting in one serious injury and seven minor injuries, with one of the minor-injury crashes involving a vehicle on Avon Rd.
- (e) Five crashes were reported at the Dean Road/Pokeno off-ramp roundabout, resulting in one serious injury and two minor injuries,

and all were single-vehicle loss-of-control crashes for traffic exiting SH1.

- (f) Five crashes (three involving minor injury) were reported at the tighter bend on Helenslee Road.

3.6 Compared with the expected incidence of injury crashes for similar roads with comparable traffic volumes¹:

- (a) Ridge Road has 34% more crashes;
- (b) The Pokeno Road/Munro Road intersection has more than double the crashes;
- (c) The SH2/Avon Road intersection has more than double the crashes; and
- (d) The Dean Road/Off Ramp roundabout has 30 times more crashes.

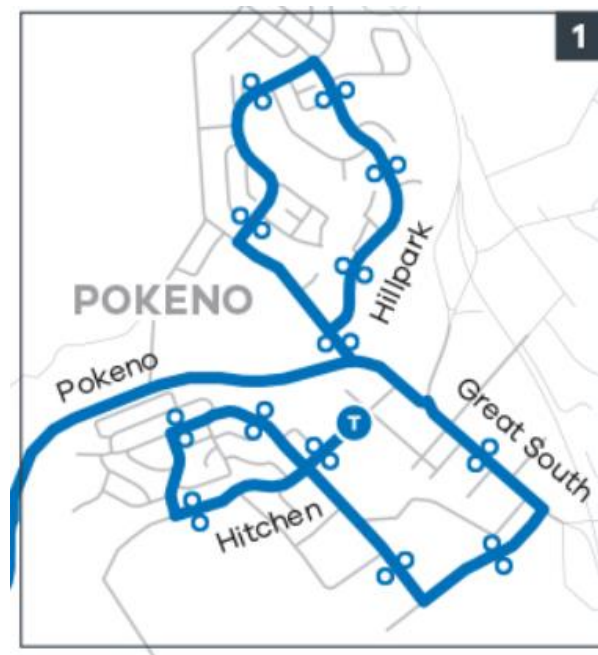
Public transport

3.7 Public transport services for Pokeno are currently quite limited. The “21 Northern Connector” bus service runs between Hamilton and Pukekohe and services a bus stop on Gt South Rd in Pokeno. This Monday to Friday service departs Hamilton at 9:10am, passes through Pokeno around 11am, and arrives at Pukekohe around 11:25am. The return service departs Pukekohe at 2:15pm, passes through Pokeno around 2:45pm, and reaches Hamilton around 4:35pm.

3.8 Waikato Regional Council launched the “44 Pokeno to Pukekohe” bus service on 10 January 2021. The service runs at approximately 40-minute intervals during peak periods on weekdays from 6:15am to 8:30am, and 3:00pm to 7:00pm. There are two services around the middle of the day on weekdays, and services every two hours on weekends from around 8am to 6pm.

1 Based on crash models from Crash Estimation Compendium, New Zealand Transport Agency, 2018.

Figure 3: 44 Pokeno to Pukekohe bus route within Pokeno²



- 3.9 “Te Huia” passenger rail services between Hamilton and Papakura are scheduled to start in April 2021³ and are funded on a trial period until 30 June 2024. There will be two services to Papakura in the morning and two services to Hamilton in the evening on weekdays, and one service in each direction on Saturdays. Trains will stop at Frankton, Rotokauri, Huntly and Papakura. The nearest rail services for Pokeno residents are the AT Metro services at Pukekohe and Papakura. New stations are planned to be added at Drury and Paerata in the coming years.

4. THE FUTURE TRANSPORT ENVIRONMENT

- 4.1 The future transport environment in Pokeno has been the subject of several studies undertaken primarily for the purpose of identifying the transport infrastructure required to enable expansion of Pokeno in accordance with the Pokeno Structure Plan (PSP).
- 4.2 In addition, various long term planning documents prepared by the Council show future upgrades to transport infrastructure in Pokeno, though these are generally not fully planned or funded.

Pokeno Structure Plan

- 4.3 The PSP, which forms part of the operative Waikato District Plan: Franklin section, was supported by extensive transport assessments including the

² Sourced from <https://www.busit.co.nz/regional-services/pokeno-to-pukekohe/>

³ Sourced from <https://tehuiatrain.co.nz>

development of a traffic model for Pokeno (the Beca PSP Paramics model) which underwent three iterations to refine the PSP. The PSP model was developed to represent 2022 when it was assumed development would be complete.

- 4.4 The PSP was also supported by other investigations including options for crossing the railway and SH1, options for servicing the aggregate extraction zone traffic, consideration of adding north-facing ramps to the southern interchange, and analysis of on-ramp and off-ramp performance.
- 4.5 Several transport infrastructure projects were identified as necessary to support the development. All transport infrastructure projects had a concept design prepared to show they would be practical to construct, identify additional land that might be required, and allow a cost estimate to be prepared.
- 4.6 I am informed by Mr Botica of PVHL that these projects and some others were included in Council's Long Term Plan ("LTP") and that PVHL has paid development contributions to Council on that basis. Those projects are listed in Table 1.
- 4.7 As can be seen in the table, several of the identified upgrades have not been undertaken, even though development of the PSP area is nearly complete.
- 4.8 This is expected as a start date of 2012 places the infrastructure timetable part way through Stage 2, and the upgrades that are not yet complete are timetabled to be implemented in the future.

Table 1: Pokeno Infrastructure Projects

Stage	Project	Progress
One (0-5 years) (2012-17)*	Widening and upgrading of roads such as Helenslee Rd as development occurs	Completed
	Relocating the railway level crossing to McDonald Rd	Completed
Two (6-10 years) (2018-22)	Constructing a new road-over-rail bridge and new intersection at Pokeno Rd	Completed
	Installing traffic signals at Pokeno/ Helenslee intersection	Not started
Three (11-15 years) (2023-27)	Changing the Dean Rd roundabout to a Give Way to increase the capacity of the SH1 off-ramp (a larger roundabout does not fit)	Not started
	Improving the Pokeno/ Munro intersection with either a right-turn bay or small roundabout	Not started
Four (16+ years) (2028+)	Improving the Helenslee/ Munro intersection with either a right-turn bay or small roundabout	Partially Completed
Unspecified timing	Installing traffic signals at Pokeno/ Hitchen intersection	Not started
	Installing traffic signals at Pokeno/ Gt South intersection	Not started
	Installing traffic signals at Gt South/ McDonald intersection	Not started
	Closing Ford St to through traffic intersection	Not started
	Upgrade Ford/ Gt South intersection	Not started
	Intersection upgrade Razorback Rd off-ramp terminal.	Not started
	Remove old Hitchen Rd bridge and construct cul de sac	Not started
	Replace Pokeno Rd bridge	Not started
	Improve Gt South/ Dean intersection	Not started
	McDonald/ Gateway Park intersection	Completed
	Hitchen/ Gateway Park/ Harriet Johnston intersection	Completed

* Assumes a start date of 2012 when development commenced (PC21 became operative in 2010).

Pokeno Intersection Assessment

- 4.9 In 2016 Council commissioned Beca to produce the *Pokeno Intersection Assessment* report, which was published on 21 December 2016 and updated on 3 February 2017. This report considered five intersections in Pokeno for design periods of 2022 and 2040.
- 4.10 The five intersections considered, with the recommended form and timing of each upgrade as recommended in the 2017 Beca report are summarised in

4.11 Table 2, assuming a start date of 2016. The timing indicated in the PSP is also shown:

Table 2: Intersection forms recommended in Beca 2017 report and PSP timing

Intersection	Proposed Form	Required	PSP Timing
Pokeno/Munro	Roundabout	5 - 10 years (2021-26)	2023-27
Pokeno/Hitchen	Traffic signals and widening	5 - 10 years (2021-26)	Unspecified
Pokeno/Helenslee	Traffic signals and widening	0 - 5 years (2016-21)	2018-22
Pokeno/Gt South	Roundabout	0 - 5 years (2016-21)	2018-22
Deans/Gt South (SH1 on ramp)	Roundabout	0 - 5 years (2016-21)	N/A

- 4.12 Inspection of the table shows that the timing recommended in the Beca reports is broadly consistent with the timing indicated in the PSP, and demonstrates that Council is actively investigating changes to some of the intersections listed in the PSP.

PC21 Graham Block

- 4.13 Plan Change 21 rezoned the Graham Block in the southern part of Pokeno from rural to residential zoning. It added a relatively small amount of traffic generation from additional dwellings.
- 4.14 Work undertaken for PC21 indicated that the traffic signals planned for the Pokeno Road/Hitchen Road and Pokeno Road/Gt South Road intersections were likely to be required slightly earlier than the PSP staging, when around 70 to 85% of the PSP development was complete. The inclusion of PC21 is therefore expected to move those infrastructure projects from an unspecified timeframe into the Stage 4 timeframe, probably sometime beyond 2026.

Waikato District Blueprints

- 4.15 Some infrastructure upgrades are identified in the Waikato District Blueprints, which are master plans developed in conjunction with the local community.
- 4.16 The Waikato Blueprint states:

"Strong residential growth is occurring in Pokeno on both sides of State Highway 1. The Auckland to Hamilton Corridor and Blueprint projects may identify transformational opportunities or strategic needs, (e.g. a hospital or a school) to cater for or support residential and employment growth, however NZTA has no allocated budget for these areas."

- 4.17 The Blueprint also notes:

"Investments targeting State Highway 2 are on hold, with the exception of safety improvements. NZTA has declined further access onto State Highway 2 for developments".

4.18 Whangarata Road has been identified as a road that needs upgrading⁴.

4.19 The Pokeno Local Area Blueprint ("LAB") includes Transport Initiative P07.1:

Investigate establishing wider transport links with employment areas, Tuakau, and SH1. Considering a new underpass and/ or bypass⁵.

4.20 This initiative has a ranking within the LAB (September 2020) as Very High 3 (on a scale that includes Top 1 to Top 3, Very High 1 to Very High 5, High, and Medium).

4.21 The Pokeno LAB identifies an initiative for a Park-n-Ride facility, noting that Council is currently investigating land purchase to allow for park-n-ride facilities.

Waikato 2070

4.22 Waikato 2070 is the WDC Growth and Economic Development Strategy, a high-level planning document prepared under the Local Government Act 2002. The "Pokeno Development Plan" included in Waikato 2070 shows several "Activity Zones" where new development could occur in three timeframes.

4.23 The Waikato 2070 "Pokeno Town Centre Plan" shows a new arterial road connecting from a new SH1 northbound off-ramp near Deans Road to Pokeno Road between Helenslee Road and Hitchen Road.

4.24 Accommodating a new major intersection within that short length of busy road corridor would require extensive widening of Pokeno Road.

4.25 The Pokeno Town Centre Plan also shows a new east-west link across SH1 between Market Street East and Market Street West. Market Street is at the same level as SH1 so if the link is to be useable by vehicles and located within the road reserve it would cut off access to numerous properties nearby. Retaining access to properties is likely to require significant land

4 Waikato District Blueprint 2019, sourced from <https://www.waikatodistrict.govt.nz/your-council/plans-policies-and-bylaws/plans/blueprints/local-area-blueprints/pokeno-local-area-blueprint>

5 Pokeno Local Area Blueprint, sourced from <https://www.waikatodistrict.govt.nz/your-council/plans-policies-and-bylaws/plans/blueprints/local-area-blueprints/pokeno-local-area-blueprint>

acquisition beside the Market Street road reserves. A crossing for pedestrians and possibly cyclists may be feasible at that location.

- 4.26 Waikato 2070 also shows a new train station and a new bus station in central Pokeno. The LTP 2018-2028 includes the two options to either provide a Park-n-Ride facility in Pokeno or investigate other public transport options such as rail, at a cost of \$13.6 million to be decided in 2042 for implementation in 2044-48.
- 4.27 It is not known what level of investigation or analysis has informed the Pokeno Town Centre Plan as no detail is provided in the document or available in the public domain. On 8 October 2020 I emailed Council requesting transporting modelling information for Pokeno and received a phone call in reply (on 28 October 2020) from Gareth Bellamy, Council Roading Engineer, advising that Council had commissioned the 2018 Beca work and some traffic counts, but that no transport modelling had been undertaken. I am informed that PVHL requested information when the section 42A framework report for the rezoning hearings was released which addresses Waikato 2070 in detail, and I understand no supporting information in relation to transport issues has been released.

Waikato District Long Term Plan

- 4.28 The LTP sets out WDC's plans for the provision of facilities including transport infrastructure.
- 4.29 The LTP identifies that:
- "Traffic volumes between Pokeno and Tuakau are expected to increase significantly resulting in safety issues and congestion."*
- 4.30 The LTP provides two options, upgrading routes between Tuakau and Pokeno (preferred) or restricting growth to address safety issues and congestion at a cost of \$22.5 million, with the option to be decided in 2027 for implementation in 2029-38⁶.
- 4.31 A table⁷ in the LTP lists nine key roading projects with costs from \$150,000. None of the Pokeno infrastructure projects identified above are listed in the table.

6 Waikato LTP 2018-2028, pg 27.

7 Ibid, pg 86.

- 4.32 The LTP does not state if the changes to the intersections along Pokeno Road at Munro Road, Helenslee Road, Hitchen Road and Gt South Road are included within the upgrading of routes between Tuakau and Pokeno. WDC and PVHL entered into a Development Agreement and PVHL has paid development contributions to Council and Mr Botica informs me those projects were included in the LTP.
- 4.33 In terms of public transport, the LTP includes two options to either provide a Park-n-Ride facility in Pokeno or investigate other public transport options such as rail, at a cost of \$13.6 million. Decisions on this are not planned until 2042 for implementation in 2044-48.
- 4.34 The LTP 2021-2031 is due to be released in June 2021. The Framework Report indicates that the 2021 LTP will include funding for the infrastructure upgrades required to support development identified in Waikato 2070. The Framework Report states:

Waikato 2070 is a key document for the Council in respect to informing the Asset Management Planning process within Council, which in turn informs the 30-year Infrastructure Strategy and the LTP.

Asset groups, including three waters and roading are considering the growth capacity and timing of growth cells in Waikato 2070 to determine servicing and servicing cost.

The process from now until 1 July 2021, when the new LTP comes into effect, is as follows:

a. The required infrastructure projects are costed and then compiled/aggregated. These include renewals, improved service levels, and wholly new growth-related capital expenditure.

b. Once this is complete, the total package of works across all asset groups is costed through a budget model to determine the financial implications of this investment on Council over the 10-year life of the LTP.

c. This is then worked through with elected members prior to the release of the LTP for public consultation.

- 4.35 As set out in paragraph 4.26 above, it is not clear what work has been done to inform the Pokeno Development Plan and the infrastructure upgrades

required to support the identified development areas. As the LTP will not be released until after the rezoning hearings have been completed, it is also uncertain which upgrades are planned to be funded by WDC to support expansion of the town.

5. NETWORK CONSTRAINTS

- 5.1 From my work in Pokeno to date, I am aware of a number of locations in the road network that have, or will have, capacity constraints as growth in Pokeno continues.

Pokeno Road

- 5.2 I anticipate the first area likely to experience congestion and delay is Pokeno Road between Helenslee Road and Gt South Road, resulting from growth in Pokeno and in Tuakau.
- 5.3 The growth enabled by operative zoning in Pokeno and Tuakau can be accommodated by the planned and funded infrastructure projects, such as the installation of traffic signals at the Pokeno Road/Hitchen Road and Pokeno Road/Gt South Road intersections.
- 5.4 Accommodating further growth is likely to require larger or additional infrastructure, potentially including the bypass and new interchange that is shown in Waikato 2070. As set out in paragraph 4.29 above, it is unclear whether that infrastructure will be funded in the 2021-31 LTP.

Railway Level Crossing

- 5.5 The railway is crossed at McDonald Road (level crossing) and Hitchen Road (road over rail bridge).
- 5.6 When the PSP was prepared KiwiRail (then Ontrack) specified a maximum volume of 10,000 vehicles per day for the McDonald Road level crossing. The total traffic volume projected to be crossing the railway exceeded that, so the Hitchen Road overpass was proposed to provide a second connection to the PSP land west of the railway and keep the McDonald Road volume below 10,000 vehicles per day.
- 5.7 The development of all currently “live zoned” areas in Pokeno is expected to result in the McDonald Road level crossing having a daily traffic volume of around 8,000 vehicles per day by 2024.

- 5.8 Since the preparation of the PSP KiwiRail has introduced procedures for assessing and evaluating level crossings, including the Level Crossing Safety Impact Assessment (LCSIA) process, but to my knowledge no assessment of the Pokeno crossing allowing for development sought by submitters has been undertaken.

SH1 Crossings

- 5.9 There are three crossings of SH1 in and around Pokeno:
- (a) A one-lane underpass at the southern Pokeno Interchange, usable only by southbound on-ramp traffic;
 - (b) A two-lane underpass at Deans Road;
 - (c) A two-lane overbridge at the Helenslee Road/Razorback Road Interchange.
- 5.10 The nearest alternative crossings of SH1 are the overbridges at the Mercer Interchange and at the Nikau Road/Ridge Road SH1 Interchange.
- 5.11 Connectivity to eastern Pokeno is poor, particularly for pedestrians and cyclists. The only road connection is via Deans Road, and the capacity of that connection is constrained by the volume of traffic exiting SH1 at that point, and there are safety issues I will describe in Section 9. New development east of SH1 should include an additional vehicle connection for several reasons.

SH2 Access

- 5.12 Pokeno has access to and from SH2 at Avon Road; however due to the width of SH2 and the high volume of traffic on SH2, turning at this intersection is difficult and the capacity is limited. In my view it is not practical to safely provide for an increased volume of right turns at this intersection.

6. TRANSPORT CHARACTERISTICS OF PROPOSALS FOR REZONING

- 6.1 The PWDP provides for the "live" zoning of a large land area in the west of Pokeno, described as "Pokeno West". Submissions on the PWDP seek to rezone a total of 663 hectares of additional land around Pokeno.
- 6.2 If all the submissions were approved, this would amount to a very substantial increase in the size of Pokeno with consequent implications for infrastructure requirements.

Expected Yields

- 6.3 Table 3, Table 4, Table 5, and Table 6 summarise the yield suggested by each rezoning proposal. I have prepared these tables using the yields stated in the submissions or evidence where available, and yields calculated from typical densities for other submissions where a yield is not stated.
- 6.4 The tables do not include submission 749 by Kainga Ora which seeks to rezone land already zoned for development to a Medium Density Residential Zone ("MDRZ"). Kainga Ora is seeking the MDRZ be applied to 52.8 ha of land in Pokeno but provides no estimate of the number of additional dwellings that might be realised. The trip generation rate of that zone would likely be lower on a per-dwelling basis, so the overall impact on the road network is likely to be relatively modest, and as large parts of the proposed zone are already developed the impact would likely occur over a longer timeframe. Nevertheless, it is an additional impact over and above that identified in this statement of evidence.

Table 3: Estimated yield of proposed rezoning – residential

Submission	Zoning	Area (ha)	Dwellings
89. CSL Trust and Top End Properties	Residential (49.3ha), Rural Lifestyle (45.8ha)	95.1	413
97. AC Shiu (Pokeno West)	Residential	159.6	1,300-1,600
205. Rainbow Water	Residential	16.1	45
360. K Yang	Residential	11.6	125
451. S & T Hopkins	Residential or Rural Lifestyle or Large Lot Residential	20.7	28-66
458. D Lawrie	Residential	77.0	829
502. SG Noh	Residential	4.9	52
524. A Noakes	Residential	23.5	253
598. Withers Family Trust	Residential	27.3	294
754. P van Leeuwen	Rural Lifestyle	81.1	159
862. Havelock Village	Residential (97.6ha), Rural Lifestyle (52.3ha), Commercial and Industrial	149.9	600
Total Residential Zones		666.8	4,098-4,436

Table 4: Estimated yield of proposed rezoning – non-residential

Submission	Zoning	Area (ha)	100m2 GFA
548. Grander Investments	Heavy Industrial	27.4	658
574. TaTa Valley	Special Purpose – Resort	236.4	
668. C & A Reeve	Commercial	22.1	663
862. Havelock Village	Commercial (0.35ha) General Industrial (1.67ha)	2.0	50

983. Hynds Pipe Systems	Heavy Industrial	4.3	0
Total Non-Residential Zones		292.2	1,371

Table 5: Estimated yield of proposed rezoning – future urban

Submission	Zoning	Area (ha)	Dwellings
54. Thorntree Orchards, 696. Parkmere Farms, 735. C&T Young	Future Urban	64	300-320
Total Future Urban Zone		64	300-320

Table 6: Estimated yield of proposed rezoning – totals

Zone Type	Area (ha)	Dwellings	100m ² GFA
Residential	666.8	4,098 – 4,436	
Non-Residential	292.2		1,371
Future Urban	64	300 – 320	
Total	1023⁸	4.398 – 4.756	1,371

- 6.5 I note that the evidence of Mr Colegrave⁹ calculates a potential dwelling capacity of the proposed Residential and Village rezonings resulting in a higher number of dwellings. This is based on density targets per hectare of land anticipated by the PWDP.
- 6.6 At present, there is little certainty what the final form of development might be. Therefore, yields might be consistent with that indicated in submissions or higher. If the density targets were achieved the impact of the rezoning would be significantly higher than assumed in any of the transport assessments.
- 6.7 For comparison, the PC24 (PSP) process rezoned around 400 hectares of land and provided for around 2,000 dwellings, increasing the village population to 5,900 people. The PC21 process rezoned 13 hectares and provided for an additional 160 dwellings, increasing the future population to around 6,300 people.
- 6.8 The evidence of Mr Botica¹⁰ provides a more detailed breakdown by area and includes the PC14 land in Pokeno East, to give a total projected population of around 7,560 people in 2,700 dwellings.

8 Some land is subject to submissions seeking different outcomes, so the total land area is not the sum of the areas for each type of zone.

9 Statement of evidence of Fraser Colegrave, section 3.

10 Statement of evidence of Colin Botica, paragraph 3.9.

- 6.9 Collectively, if all submissions seeking rezoning were approved, the resulting “live zoned” area would cover three times as much land and nearly triple the size and population of the town, to around 7300 dwellings.
- 6.10 The PC24 process zoned 80ha of industrial land and was expected to provide around 1,880 new jobs, a ratio of 0.9 jobs per dwelling, or 0.7 jobs per dwelling when all zoned land is included.
- 6.11 By comparison, only 55ha of business land is sought in submissions (excluding TaTa Valley). On a simple pro-rata basis this could provide around 1,300 new jobs in addition to the TaTa Valley resort which is expected to provide around 200 jobs. The total increase of around 1,500 jobs is less than the 1,880 jobs that were expected to be provided by PC24.
- 6.12 Overall, there would be a 34% reduction in the residential employment ratio, to somewhere in the order of 0.5 jobs per dwelling.
- 6.13 Recent structure plans in the Auckland Region have included employment generated within residential zones when considering the employment to dwelling ratio in the context of travel demand and self-containment, generally assuming every dwelling creates 0.5 jobs. I presume this is due in large part to people working from home, but also because of local businesses providing services to residential dwellings.
- 6.14 If the same approach is applied to Pokeno, the operative zoning providing for 2700 dwellings could contribute to a total of 3,230 jobs including the jobs in the non-residential zones, a ratio of 1.2 jobs per dwelling.
- 6.15 On the same basis, the 7300 dwellings that could potentially be constructed if all submissions seeking rezoning are approved would contribute to a total of 7,019 jobs in the town, a ratio of 1.0 jobs per dwelling, a 20% reduction compared with the PSP.
- 6.16 When the actual development that has occurred to date is considered the current employment situation in Pokeno is worse than anticipated. The 2018 Census data for Pokeno shows there were 1,437 workers resident in Pokeno. 168 people lived and worked in Pokeno and a further 63 people travelled into Pokeno for work, a total of 231 jobs on Census day. 501 residents of Pokeno travelled to other areas for work.
- 6.17 I expect this lower level of employment to be partly due to a relatively small proportion of the business land being developed in 2018, and some large business sites employing relatively few people. I would expect that the

completion of some construction, and the planned construction of more businesses would improve the employment figures in the medium term.

- 6.18 In any case, the employment ratio in Pokeno could decline significantly under the proposed rezoning because of a substantial increase in residential development and a modest increase in non-residential development.
- 6.19 Mr Colegrave considers the balance of residential and non-residential land and calculates the cost of Pokeno residents commuting to Auckland, on what appears to me to be a conservative basis of 50% of residents commuting out of Pokeno.

Expected trip generation

- 6.20 Table 7 summarises the expected raw trip generation from each rezoning proposal. The raw trip generation is the trips generated by each area of land and does not allow for trips made between the various areas.

Table 7: Estimated raw trip generation of proposed rezoning

Submission	Trip Generation	
	Peak Hour	Daily
89. CSL Trust and Top End Properties	351	3,717
97. AC Shiu (Pokeno West)	1,170	12,393
205. Rainbow Water	38	405
360. K Yang	106	1,127
451. S & T Hopkins	43	460
458. D Lawrie	705	7,464
502. SG Noh	75	472
524. A Noakes	215	2,279
598. Withers Family Trust	250	2,647
754. P van Leeuwen	87	953
862. Havelock Village	510	5,400
Subtotal Residential Zones	3,550	37,317
548. Grander Investments	658	6,579
574. TaTa Valley	366	1,100
668. C & A Reeve	663	5,305
Subtotal Non-Residential Zones	1,687	12,984
54. Thorntree Orchards, 696. Parkmere Farms, 735. C&T Young	264	2,790
Subtotal Future Urban Zone	264	2,790
Total (excl #754, incl #54, #969, #735)	5,414	53,091

- 6.21 For comparison, the estimated trip generation for the PSP was around 4,400 trips per hour with around 40% of that (1,760 trips) generated by the new residential land. PC21 was estimated to generate around 114 trips per hour.
- 6.22 Collectively the rezoning proposals would result in traffic volumes in Pokeno more than doubling.

Trip distribution

- 6.23 When the transport assessment for the PSP was undertaken assumptions were made about the proportion of trips that would be “captured” or remain internal to Pokeno. These would include trips from dwellings in Pokeno to the local school, local shops and services, and local employment, and trips between local businesses. For the PSP, the internal capture proportion was assumed to be 36% based on the ratio of jobs per person as informed by census data from Tuakau and Huntly.
- 6.24 The trip distribution used for the PSP analysis is shown in Table 8, together with an approximate peak-hour traffic volume.

Table 8: Trip Distribution assumed for PSP/ PC24 at 2022

Destination	Proportion	Volume
Internal to Pokeno	36%	1,584
North (via SH1)	36%	1,584
East (via SH2)	5%	220
South (via SH1)	7%	308
West (via Pokeno Rd)	16%	704
Subtotal External		2,186
Total		4,400

- 6.25 Commuting data from the 2018 Census is now available and a summary is attached as **Attachment B**. The census recorded that 34% of journeys to work and education were internal to Pokeno. The distribution for 2018 is summarised in Table 9.

Table 9: Actual Person-Trip Distribution from 2018 Census

Destination	Proportion
Internal to Pokeno	34%
North (via SH1)	44%
East (via SH2)	1%
South (via SH1)	2%
West (via Pokeno Rd)	20%

- 6.26 Comparing the PC24 estimate with the 2018 values, more Pokeno traffic is travelling to the north and west, and less traffic is travelling to the east and south.

- 6.27 Given the employment ratio from the sought rezoning, I would expect the proportion of trips remaining within Pokeno to reduce by around 44%, to somewhere around 18%. This would also affect the proportion of vehicles leaving the town from all dwellings, not just dwellings in new growth areas.
- 6.28 For example, of the 1,874 peak-hour residential trips generated by the PSP and PC21, around 640 trips would remain within Pokeno based on the 2018 Census. With the sought rezoning increasing the peak-hour residential generation around 5,424 trips, somewhere around 980 trips would remain within Pokeno.
- 6.29 Assuming a pro-rata redistribution, residential peak-hour trips to Tuakau, Pukekohe and Auckland would increase from around 1,200 trips (64%) to around 4,200 trips (78%). As a result, Pokeno would become less self-sufficient, and more dependent upon private-vehicle travel to Auckland.

7. ANTICIPATED EFFECTS OF REZONING

Network Capacity and Efficiency

- 7.1 Based on the evidence currently available, the effect of zoning all the land requested in the submissions cannot be determined as no transport study appears to have been undertaken which considers all the proposals (not even the growth area identified in Waikato 2070).
- 7.2 Despite collectively adding significantly more traffic to the town than the PSP did no comprehensive modelling exercise like that undertaken for the PSP has been completed.
- 7.3 Many rezoning proposals have no transport assessment. Transport assessments have been included in the evidence filed by Pokeno West Limited CSL Trust and Top End Properties, Thorntree Orchards, Cindy and Tony Young, and Parkmere Farms (Pokeno East), Kainga Ora, Havelock Village, and Hynds, but they are focussed on the effects of the specific development proposed and proposals by related entities and do not include the impact of the other rezoning submissions as shown in Table 10.

Table 10: Assessments that include traffic from other submitter areas

Transport Assessment	Includes Traffic From						
	Pokeno West	CSL Trust & Top End Properties	Havelock Village	Pokeno East	Kainga Ora	Hynds	TaTa Valley
Pokeno West	-	Yes					
CSL Trust & Top End Properties	Yes	-					
Havelock Village			-				Yes
Pokeno East				-			
Kainga Ora					-		
Hynds						-	
TaTa Valley	Yes						-

- 7.4 No assessment fully allows for the reduction in the employment ratio increasing travel outside Pokeno from any “live zoned” areas.
- 7.5 This partial allowance for increased long-distance commuting results in a larger volume of traffic entering and exiting Pokeno during peak periods, particularly traffic travelling to Auckland. In turn this would place greater pressure on intersections around the periphery of the town, and on the SH1 ramps.
- 7.6 None of the submitter assessments have evaluated the performance of the SH1 northern Pokeno interchange (Dean Road and Gt South Road ramps), or the SH1 southern Pokeno interchange.
- 7.7 None of the submitter transport assessments has validated the proposed intersection forms through concept design to determine land requirements and feasibility.

Road Safety

- 7.8 None of the residential zoning assessments explicitly consider the impact of the additional traffic on road safety, although all recommend that existing rural roads are increased in width.
- 7.9 Rural roads with winding alignments including tight bends, such as Ridge Road and Bluff Road are likely to experience an increase in crashes.

- 7.10 If the road stays the same, the number of injury crashes along a road is directly proportional to the change in traffic volume. A doubling of traffic volume would typically result in a doubling of crashes, unless measures are taken to reduce the risk of crash, such as widening the road, easing bends, installing street lighting.
- 7.11 The change in crashes at intersections depends on which roads experience a change in volume.
- 7.12 While changing a road from a high-speed rural form to a low-speed urban form would typically result in a reduction in both the number and severity of crashes, in my view merely lowering the speed limit in the absence of other measures would be insufficient to address the increased crash risk, particularly where one side of the road remains rural and the other side is developed for countryside living.

Active Modes

- 7.13 Many of the areas proposed for residential development (including Havelock Village, Pokeno West, and CSL Trust and Top End Properties) are remote from local services and employment. The steep terrain and limited connections provide poor connectivity and are likely to lead to relatively small proportions of people choosing to walk for non-recreational purposes, regardless of the proposed provision of cycling facilities.

Summary

- 7.14 Despite the lack of adequate evidence about the collective impact of rezoning all the areas requested for live zoning in submissions, I feel relatively confident in drawing some conclusions on likely effects based on the work I have previously undertaken in Pokeno, and the analysis provided by submitters:
- (a) There is likely to be insufficient capacity along Pokeno Road between Helenslee Road and Gt South Road to accommodate the expected peak-hour travel demand unless land is acquired to provide widening of Pokeno Road and Hitchen Road.
 - (b) There is some potential for possible adverse effects on the operation of SH1 due to substantial increases in the volume of traffic using the on ramps. It may be possible to address those effects by widening the on ramps and using ramp-metering signals.

- (c) There is some potential for possible adverse effects on SH1 due to higher off-ramp traffic volumes. That may be addressed by increasing the capacity at the ramp terminal intersection (by adding traffic signals for example) and/ or by widening or lengthening the off-ramp to accommodate longer queues. The latter appears to be impractical at both Pokeno off-ramps as they are already close to upstream on-ramps.
- (d) If changes are made to the Dean Road / SH1 off-ramp intersection to improve off-ramp capacity, they would likely reduce the capacity of Dean Road to provide connections to and from eastern Pokeno.
- (e) The Dean Road/ Fraser Road intersection has deficient sightlines, so increases in the volume of traffic using that intersection are likely to result in poor road safety outcomes.
- (f) Both Dean Road and Avon Road are unsuitable for accommodating any significant new development areas, as Dean Road is too steep, and the SH2/ Avon Road intersection would experience safety issues. Any further development in the eastern part of Pokeno would depend on a new vehicular connection across SH1 being confirmed as feasible.
- (g) Any further development in the south-western part of Pokeno (including Havelock Village) would result in the traffic volume over the McDonald Road level crossing increasing significantly, increasing the potential for poor safety outcomes at the crossing and poor efficiency outcomes at the Gt South Road/ McDonald Road intersection.

7.15 A scenario where some of the developments are enabled and others are not may be possible, but at this stage there appear to be some network deficiencies applicable to each area where rezoning is sought, and there is currently insufficient evidence to demonstrate that the zoning of any one area can be addressed by infrastructure that is practical and feasible.

7.16 In my opinion, a structure planning exercise informed by appropriate technical assessments should be undertaken to determine what transport infrastructure is required to support the development.

7.17 These would also be helpful to inform LTP decisions such as whether and when the connections between SH1 and Tuakau should be upgraded.

8. **SPECIFIC ISSUES RAISED BY REZONING SUBMISSIONS**

- 8.1 In this section I address some specific issues raised by the transport evidence lodged by some of the rezoning submitters.

Pokeno West Ltd (Submitter 89)

- 8.2 The evidence of Mr Leo Hills includes a revised ITA for Pokeno West Ltd. The ITA is based on the superseded 2016 version of the Beca Report.

- 8.3 In my view there were several shortcomings with the Beca 2016-17 work including:

- (a) not rerunning the PSP model (initially developed by Beca) with updated inputs;
- (b) using outputs from a superseded version of the PSP Paramics model with a population 30% higher than the final version and a significantly different roading pattern.
- (c) adding traffic from additional development that was already included in the PSP model, and at a high trip generation rate.
- (d) adding excessive growth from Tuakau and applying it incorrectly.
- (e) assuming development of the live zoned areas would not be completed until 2030 when completion is expected to be nearing completion around 2023.
- (f) not checking that the recommended intersection layouts were feasible by preparing concept design layouts.

- 8.4 These shortcomings are likely to have resulted in upgrades being recommended that were not required or being required earlier than necessary.

- 8.5 In addition to the issues with the Beca work, there are some additional shortcomings in the Pokeno West ITAs because they are based on the Beca work, including:

- (a) The 2016 Beca work preceded PC21 and apparently did not include traffic from that area, which now has a live zoning.
- (b) Beca was subsequently engaged by Council in 2018 to investigate the Pokeno Road/ Hitchen Road and Pokeno Road / Helenslee Road

intersections again, resulting in some changes to recommended intersection layouts in a report dated 12 November 2018.

- (c) The 2017 Beca projected traffic volumes do not account for a reduction in the employment ratio, so the volume of traffic using the SH1 interchanges, and the roads connecting to them, such as Helenslee Rd, Gt South Rd, and Dean Rd, are therefore likely to be underestimated in the Pokeno West ITA analysis.
- (d) The Beca report considered five intersections in central Pokeno and did not include any assessment of the SH1 ramps or interchanges.

8.6 The revised ITA has included the SH1 Razorback off-ramp terminal intersection based on traffic counts from 2020. The assessment appears to be based on the 2020 volumes without allowing for future growth from other sources including completion of development in existing live zoned areas.

8.7 The revised ITA has expanded the assessment to include additional intersections along Helenslee Road. The source of the traffic volumes used in the assessment of these intersections is not stated, and as a result may not include traffic generated from all existing live zoned areas.

Trip generation

8.8 The ITA assesses the impact of traffic generated by 1,350 dwellings while acknowledging:

"the site has the potential to enable the development of approximately 1300 – 1600 dwellings"

8.9 As a result, the ITA could have under-estimated the trip generation by up to 19%.

Trip distribution

8.10 The revised ITA has reduced the proportion of new traffic remaining within Pokeno to 20%, with 60% of trips now being made to and from Auckland, and the remaining 20% to elsewhere in the Waikato District. This largely accounts for reduction in the employment ratio with respect to Pokeno West itself, but not for changes in travel from existing live zoned areas.

Infrastructure upgrades required

8.11 The ITA recommends several infrastructure projects including roundabouts at some new intersections and traffic signals at the Helenslee Road/ Munro

Road intersection. The analysis of intersection capacity does not account for geometric constraints imposed by the terrain or land ownership.

8.12 In this regard:

- (a) At the Helenslee Road/ Munro Road intersection the non-orthogonal geometry may require the use of less-efficient signal phasing patterns than assumed in the Pokeno West analysis.
- (b) The future layout assumed for the Pokeno Road / Hitchen Road intersection would require additional road widening and land acquisition on Hitchen Road and Pokeno Road.
- (c) The future layout assumed for the Pokeno Road/ Gt South Road intersection would require road widening and land acquisition on Pokeno Road.
- (d) The ability to provide suitable roundabout geometry has not been demonstrated at the Pokeno Road/ Munro Road intersection where the railway is a constraint, and land acquisition is likely to be required.

Walking and cycling accessibility

8.13 The accessibility of the Pokeno West area to local services by walking is based on an upper-limit walking distance of 1.5km rather than the industry-standard distances of 400m and 800m, and does not recognise the steep terrain which reduces accessibility. The distance is also applied in an as-the-crow-flies manner rather than allowing for the layout of roads, streams, and other features.

8.14 In this respect I prefer the "Accessibility analysis – walk catchments" diagram¹¹ in the evidence of Cam Wallace for Kainga Ora (submitter 749) when evaluating accessibility of the area by foot which shows that none of the new residential areas proposed by submitters are within the industry standard walking catchment of services in central Pokeno.

8.15 This is likely to result in less travel being made by foot or bicycle, and more travel being made by private motor vehicles than suggested in the assessment.

11 Submitter 749. Evidence of Cam Wallace. Page 73 of 121 (page number not shown).

Cumulative impacts

- 8.16 The revised Pokeno West ITA has included traffic generated by the neighbouring site proposed to be rezoned by CSL Trust and Top End Properties (submitter 89). The ITA for that land, also prepared by Commute, is subject to the same shortcomings as the ITA for Pokeno West.

Summary

- 8.17 In my view, the traffic assessment of the Pokeno West rezoning:
- (a) Is based on outdated and incorrect traffic data;
 - (b) Exaggerates the accessibility of the area;
 - (c) Could have underestimated the trip generation by up to 19%;
 - (d) Incorrectly distributes traffic likely to be generated by the proposal;
 - (e) Fails to evaluate the impact at several key intersections known to have future capacity constraints;
 - (f) Does not consider the cumulative impact with other submissions seeking land to be rezoned.
- 8.18 The traffic assessment fails to demonstrate that it is practical to provide sufficient transport infrastructure to serve the proposed rezoning and fails to provide an adequate assessment of the likely effects on the transport environment.

CSL Trust and Top End Properties (Submitter 89)

- 8.19 Mr Hills' evidence contains an updated ITA for the CSL Trust and Top End Properties proposal. The ITA has the same deficiencies as the Pokeno West assessment, namely:
- (a) Being based on the 2016 Beca report;
 - (b) Not accounting for a reduction in the employment ratio with respect to existing live zoned areas;
 - (c) Not making sufficient allowance for the completion of development in live zoned areas;
 - (d) Adopting simplistic and erroneous trip assignments;

- (e) Exaggerating accessibility of the area, and
 - (f) Assuming infrastructure upgrades are required by existing live zoned areas rather than new growth areas.
- 8.20 The ITA includes traffic generated by Pokeno West but does not include traffic from any other proposed rezoning.

Access

- 8.21 It is expected that development of the land would include two new road connections to Ridge Road. Mr Hills notes:

"the location of the road network is subject to further design (to be undertaken as part of subsequent assessments) and therefore at this stage is considered a 'concept' only and is not anticipated to be incorporated into the district plan review process."

- 8.22 As the name suggests, Ridge Road follows a ridgeline where the land tends to fall away relatively steeply on each side. The road has a winding alignment with frequent bends that limit sightlines along the road from many locations.
- 8.23 The urban design evidence from Mr Ho includes a masterplan showing the anticipated development of the land including the locations of two road connections to Ridge Road. Figure 4 is an extract from Figure 15 of that evidence. It appears that neither proposed road connection would have adequate sight distances along Ridge Road, and this is particularly true of the northern connection.

Figure 4: Extract from Masterplan for CSL Trust and Top End Properties land¹²



- 8.24 To date there is no evidence that there are any locations along Ridge Road where it would be practical to provide a new intersection with sufficient sight lines to provide for safe operation. Therefore, there is no evidence that it is practical to provide the infrastructure necessary to support development of the land.

Traffic distribution

- 8.25 The distribution of traffic assumed in the ITA is simplistic. For example, while assigning 85% of all Auckland traffic to the Helenslee Rd intersections and 15% to Ridge Rd may be appropriate, distributing those trips equally across the two intersections on each road does not reflect the likely layout of the road network within Pokeno West. It is more likely that most Auckland traffic

12 Evidence of Billy Ho, Pg 14 of Appendix, Part of Figure 15.

would use the northern intersection on each road, and most other traffic would use the southern intersection. As a result, the performance of each intersection has not been assessed adequately.

Summary

8.26 In my view, the traffic assessment of the CSL Trust and Top End Properties submission:

- (a) Is based on outdated and incorrect traffic data;
- (b) Exaggerates the accessibility of the area;
- (c) Incorrectly distributes traffic likely to be generated by the proposal;
- (d) Fails to evaluate the impact at several key intersections known to have future capacity constraints;
- (e) Does not consider the cumulative impact with other submissions seeking land to be rezoned;
- (f) Does not adequately address the constraints to providing access from Ridge Road.

8.27 The traffic assessment fails to demonstrate that it is practical to provide sufficient transport infrastructure to serve the proposed rezoning and fails to provide an adequate assessment of the likely effects on the transport environment.

Havelock Village Ltd (Submitter 862)

8.28 The Havelock Village ITA was also undertaken by Commute and has the same flaws as the Pokeno West and CSL Trust and Top End Properties assessments as it:

- (a) Is based on the 2016 Beca report;
- (b) Does not account for a reduction in the employment ratio with respect to existing live zoned areas;
- (c) Does not make sufficient allowance for the completion of development in live zoned areas;
- (d) Adopts simplistic and erroneous trip assignments;
- (e) exaggerates accessibility of the area; and

- (f) assumes infrastructure upgrades are required by existing live zoned areas rather than new growth areas.

8.29 There are also several other flaws in the assessment, discussed below.

Access

8.30 The Havelock Village ITA assumes that the area would be accessed via a new connection to Yashili Drive, a connection to the end of Hitchen Road, and potentially a connection to Bluff Road.

8.31 The ITA assumes that 60% of the Havelock Village traffic would use Hitchen Road with most continuing over the Hitchen Road overbridge to Pokeno Road, and the remaining 40% would use Yashili Drive and use the McDonald Road level crossing to Gt South Road.

8.32 The proposed connection to Yashili Drive would be the shortest route between most locations in Havelock Village and most locations in Pokeno and beyond, so in my opinion most of the traffic generated by Havelock Village would use the Yashili Drive connection, rather than Hitchen Road as assumed in the analysis.

8.33 Between 6% and 16% of the Havelock Village traffic is shown as not crossing the railway, so would remain on the south western side of Pokeno. This proportion is considered excessive when all schools and most local services are located on the north eastern side of the railway.

8.34 Therefore, in my view the assessment has underestimated the proportion of traffic using Yashili Drive, the Hitchen Road overbridge, and Pokeno Road.

8.35 If a connection via Bluff Road were used a sizeable proportion of the site would have shorter travel distance to Mercer or points further south via Bluff Road than via Yashili Drive, so the Bluff Road route could be attractive to many. In my view, connecting the Havelock Village area to Bluff Road would require substantial upgrading of Bluff Road to address adverse safety impacts, and the feasibility of upgrading that route has not been established in the evidence.

Cumulative effects

8.36 The Havelock Village assessment includes traffic expected to be generated by the TaTa Valley resort, but not the Pokeno West area, or the CSL Trust and Top End Properties land, despite Commute having prepared the traffic

assessments for those land holdings. No allowance for traffic from any other land that submitters seek to be rezoned is included.

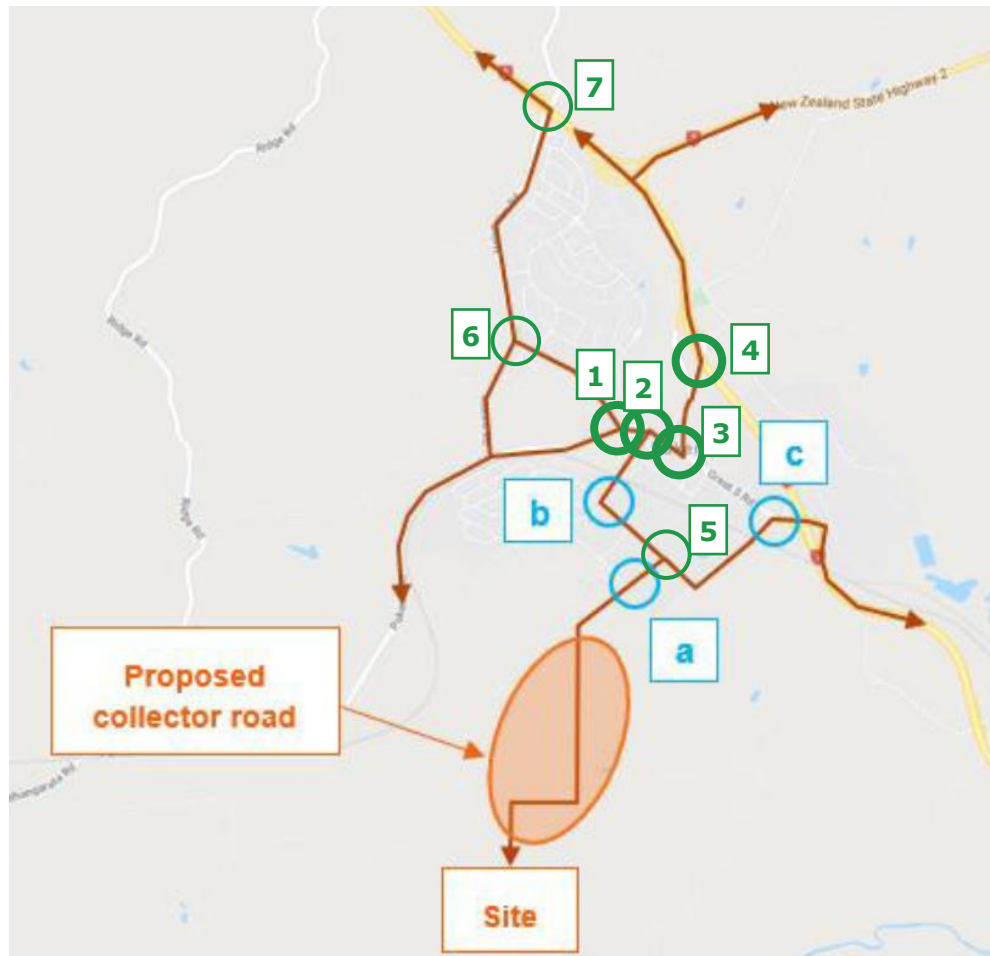
Intersection evaluations

- 8.37 The assessment evaluates the performance of the new intersection on Yashili Drive, the intersection of Hitchen Road/Gateway Drive/Hitchen Road, and the intersection of McDonald Road/Gt South Road, but not the Yashili Drive/Gateway Drive intersection. More importantly, the Pokeno Road/Hitchen Road intersection, the Pokeno Road/Gt South Road and Pokeno Road/Helenslee Road intersections are not considered, despite these intersections being identified as requiring upgrades in the other assessments undertaken by Commute for Pokeno West Ltd¹³ and CSL Trust and Top End¹⁴ and carrying increased traffic volume because of the Havelock Village proposal.
- 8.38 Figure 5 of Mr Hills' evidence shows the site, the routes that traffic is anticipated to use, and the intersections that have been assessed (marked "a", "b", and "c". I have reproduced his figure in Figure 5 and added additional key intersections that are known to be facing future capacity constraints "1", "2", "3" and "4", together with other intersections that would have been evaluated in a more complete assessment as "5", "6", and "7".

13 Submitter 97. Evidence of Leo Hills. Paragraph 74 pg 27.

14 Submitter 89. Evidence of Leo Hills. Paragraph 72 pg 26.

Figure 5: Figure 5 from evidence of Mr Hills with additional intersections I consider should be assessed marked "1" to "7"



- 8.39 When modelling the impact of the Havelock Village proposal Mr Hills has added the village and resort traffic to existing¹⁵ traffic volumes at the three intersections. This fails to account for traffic that will be generated by completion of development in live zoned areas, or for any other source of traffic growth, including the Pokeno West area included in the Proposed Waikato District Plan. The assessment therefore does not provide an assessment of the impact of the proposal on the future transport network.
- 8.40 The impact of the proposed rezoning on the operation of the McDonald Road level crossing has not been evaluated.

Summary

- 8.41 In my view, the traffic assessment of the Havelock Village submission:
- (a) Is based on outdated and incorrect traffic data;

15 Evidence of Leo Hills, paragraphs 5.13, 5.16, 5.18.

- (b) Incorrectly distributes traffic likely to be generated by the proposal;
 - (c) Fails to evaluate the impact at several key intersections known to have future capacity constraints;
 - (d) Does not allow for development of existing live zoned land so fails to consider the future environment;
 - (e) Does not allow for development in the Pokeno West area included in the notified version of the Proposed District Plan;
 - (f) Does not consider the cumulative impact with other submissions seeking land to be rezoned;
- 8.42 The traffic assessment fails to demonstrate that it is practical to provide sufficient transport infrastructure to serve the proposed rezoning and fails to provide an adequate assessment of the likely effects on the transport environment.

Thorntree Orchards (54), C & T Young (735), Parkmere Farms (696)

- 8.43 These submitters now seek to rezone an area in Pokeno East as Future Urban.
- 8.44 The evidence of Mr Gary Black assesses the proposal in the context of a residential zone. The assessment provided is best described as subjective based on casual observation of the area, as opposed to an objective assessment based on numerical analysis.

Access via SH2

- 8.45 Mr Black notes that the SH2/ Avon Road intersection will likely form the main access and egress from the northern part of Pokeno East. He recommends that this intersection will require upgrading.

"Based on my previous experience, this could include a formalised right turn bay, deceleration lanes and acceleration lanes. Early consultation with Waka Kotahi NZTA at either the plan change or resource consent stage would be undertaken to confirm the scope of any intersection upgrade. I consider the upgrade to this intersection would be undertaken early in any development of Pokeno East".

- 8.46 At this point SH2 carries over 17,100 vehicles per day and vehicles turning right into Avon Road would need to turn across two westbound lanes.

8.47 In other locations on the state highway network the Transport Agency has installed, or is planning to install, wire-rope barriers or other median barriers to improve safety. I consider it possible that movements at the SH2/ Avon Road intersection may in future be restricted to left-in and left-out movements in a similar manner to the SH1 / Pioneer Rd northern intersection.

8.48 It is also important to note that the Pokeno LAB states:

"NZTA has declined further access onto State Highway 2 for developments".

8.49 Even if the safety issues at the SH2/ Avon intersection are addressed, I would see any use of SH2 to provide a connection between the northern parts of eastern Pokeno and other destinations within Pokeno to be undesirable as it would introduce two additional merge and departure movements on and off SH2 and SH1, including at the Dean Road off ramp which I expected would have constrained capacity in future if additional land is zoned for development.

Access via Dean Road

8.50 Mr Black notes the restricted visibility along the southern Dean Road leg of the Dean Road / Fraser Road intersection and identifies this as a safety concern. He notes:

"The existing restricted visibility at the cross intersection would remain an operational and safety issue and would also need to be addressed as part of an intersection upgrade".

8.51 Mr Black has not identified any potential upgrades that could address these deficiencies.

8.52 I have previously considered potential upgrades at this intersection in the context of a subdivision at the northern end of Dean Road, although primarily focused on addressing another deficient sightline to the north along Dean Road. Based on my experience with this intersection, addressing the deficiencies at this intersection with additional zoned land in Pokeno East would likely require the construction of a roundabout and require the acquisition of private property.

8.53 The national One Network Road Classification (ONRC) classifies Dean Road as a "Primary Collector" south of the off ramp which is consistent with the

current traffic volume of around 3,200 veh/day. North of the off ramp where the traffic volume is currently around 1,200 veh/day Dean Road is classified as an "Access" road. While the road classification is not determined entirely by traffic volume, Access roads typically carry fewer than 1,000 veh/d.

- 8.54 Given Dean Road is the most direct road connection between Pokeno East and the remainder of the town, and the traffic volume on it will increase as development of the live-zoned land continues, I would characterise Dean Road as a Secondary Collector (typically 1,000 to 3,000 veh/day) with respect to the future transport environment.
- 8.55 Dean Road between Fraser Road and the SH1 off ramp is steep. Mr Black states a gradient of 1 in 6 (17%), which matches the gradient I have calculated from LIDAR contour data.
- 8.56 Legislation¹⁶ sets a default maximum grade for any new road of 1 in 8 (12.5%), unless a District Plan, Bylaw or Council Resolution sets a different maximum gradient.
- 8.57 The Waikato Regional Infrastructure Technical Standards stipulate a maximum gradient of 1 in 12 (8%) on arterial, collector and industrial roads and a maximum gradient of 1 in 8 (12.5%) on residential roads.
- 8.58 A gradient of 1 in 8 (12.5%) is the steepest practical grade for regular use by heavy vehicles (trucks and buses). Austroads guidelines, adopted as de-facto design standards in New Zealand, note that a gradient of 15% is the maximum grade a heavy vehicle can negotiate uphill, with heavy vehicles travelling extremely slowly downhill; and that a gradient of 12 to 15% is only suitable on low volume roads with very few commercial vehicles.
- 8.59 Grades steeper than 15%, as present in Dean Road, are said to be not negotiable by heavy vehicles¹⁷, and are only to be used in extreme cases where there are no commercial vehicles. This effectively rules out a bus service to eastern Pokeno.
- 8.60 In my view the steep gradient on Dean Road, combined with the restricted sightlines at the Dean Road/ Fraser Road intersection, make Dean Road unsuitable for supporting any additional development capacity.

16 Local Government Act 1974, s329 (1).

17 Austroads Guide to Road Design Part 3: Geometric Design. Austroads. Sydney. 2016, revised 2020. Table 8.2 pg 208.

Additional access required

- 8.61 Coupled with the safety concerns at the SH2/ Avon Road intersection, and the desire for there to be a second access route in the event one road is closed for any reason, in my view, it is only feasible to consider additional development (beyond the existing live zoning) in eastern Pokeno if an additional vehicle connection across SH1 is constructed.
- 8.62 The original submissions for these submitters included a concept plan that included a proposed vehicle underpass beneath SH1. A new road leading from Avon Road near Gulland Road would descend into a cutting before reaching the proposed "tunnel" under SH1, although a route and connection point for the western end of this link was not shown, and there is no immediately obvious point at which to connect that end of an underpass to the remainder of the road network.
- 8.63 This vehicular connection is not shown on the Indicative Masterplan shown in the evidence for these submitters, nor is it mentioned by Mr Black.
- 8.64 To date there is no evidence that a second vehicular crossing of SH1 would be practical to construct, and in my view that would preclude zoning of any additional land for development in eastern Pokeno.
- 8.65 Mr Black has identified three potential additional walking and cycling connections across SH1:
- (a) Between the northern end of Fraser Road and Hillpark Drive;
 - (b) Between Fraser Road north of Pokeno Cemetery and Springburn Place;
 - (c) Between Market Street East and Market Street West.
- 8.66 A pedestrian bridge crossing over SH1 appears feasible to construct in each of these locations, with the acquisition of private property required for either of the northern options, albeit that the ramps to provide access for cyclists to the bridge would have significant length due to the height difference between the bridge and the ground on at least one side of any of the crossing locations.

Summary

- 8.67 Mr Black makes two primary conclusions. Firstly:

"the Future Urban zoning sought by the applicants can be accommodated by the existing road network"

8.68 As a Future Urban zoning does not provide for any significant new development that conclusion is largely irrelevant.

8.69 Secondly:

"A residential zoning can also be accommodated by the existing road network when combined with appropriate road improvements implemented as part of a future plan change and any subsequent resource consent application."

8.70 In my view it may be feasible for this land to be developed once a new connection across SH1 is constructed, but at this point there is no evidence to demonstrate that a connection is feasible, or that it would be economic.

8.71 With insufficient evidence to support even a relatively low density of urban development it is difficult to justify a Future Urban zoning on this land.

9. NATIONAL POLICY STATEMENT ON URBAN DEVELOPMENT 2020

9.1 The National Policy Statement on Urban Development 2020 ("NPS-UD") obliges or encourages local authorities to take several matters into account when deciding to zone land. Waikato District Council is a Tier 1 local authority, and Pokeno is a Tier 3 urban environment.

9.2 Every Tier 1 local authority is required to provide sufficient development capacity for housing and business land, and that development capacity must be "infrastructure ready".

9.3 The NPS has infrastructure requirements for short term (3 years), medium term (3 to 10 years), and long term (10 to 30 years). With respect to the short term, development capacity is infrastructure-ready if there is adequate existing development infrastructure. The existing transport infrastructure in Pokeno is not adequate to support the complete development of all live-zoned land and is not sufficient to support the development of any new zoned land.

9.4 For the medium-term, existing infrastructure must be adequate or funding for adequate infrastructure is to be identified in a long-term plan. Funding for the upgrade of Pokeno Road, Whangarata Road, and Munro Road is identified in the Waikato Regional Land Transport Plan 2015-2045 (2018 Update) (RLTP).

- 9.5 Infrastructure to support additional development capacity is not identified, planned, or funded. Additional transport infrastructure to provide for the development of the existing live-zoned land in Pokeno is identified and funded, predominantly through development agreements, but is not itemised in the LTP document.
- 9.6 It is possible that additional infrastructure, funded privately, might contribute to some development areas being infrastructure-ready in the medium term, but that has yet to be established. For long-term capacity, adequate infrastructure must be identified in Council's infrastructure strategy.
- 9.7 The Waikato 2070 and the Local Area Blueprints identify a potential link between Pokeno Road and SH1 and a potential crossing of some sort across SH1, but not the remainder of the infrastructure that would be required to support development of any new development areas.
- 9.8 The Council must also be satisfied that additional infrastructure (not controlled by Council) to service the development capacity is likely to be available. With respect to transport this could include the provision of state highway or rail infrastructure, such as any changes to the SH2/Avon Road intersection or to any state highway on or off ramps. The only infrastructure item included in the Draft RLTP 2021-28 is an expansion of the SH2 Pokeno to Mangatarata safety improvements project.
- 9.9 As noted earlier, the 2021-31 LTP will be adopted by Council in June 2021 following consultation in March and April followed by hearings. At the time of writing this statement the Draft 2021-31 LTP had not been released by Council, so it is currently unknown what infrastructure might be funded.

10. **COMMENTS ON THE S42A REPORTS**

- 10.1 At the time of writing, WDC has issued the Framework Report together with a S42A report on the Future Urban Zone ("FUZ Report").

Structure Planning

- 10.2 The FUZ report notes (emphasis added):

*Growth areas are to be connected and integrated with adjoining urban areas and are to be supported by the necessary network infrastructure. **A key method for ensuring that such integration and staging occurs***

is through a consultative structure planning process that informs changes to the District Plan¹⁸

...

*In my view, the higher order documents include clear direction that in order for urban growth to be well-managed and to achieve positive outcomes for the community, such growth needs to be undertaken in a coordinated and connected manner. **Such coordination is best undertaken through a structure planning process***¹⁹

10.3 The report notes that a structure plan may not be warranted where:

"The block is relatively small in size, is isolated from other growth areas (and therefore there is no cumulative need to align the form and connections of what will ultimately form one large growth area), and where there are obvious existing connections to the adjacent urban area such that a structure plan will provide little additional direction or value."

Or

*"A structure plan may not be necessary where a growth area is under single ownership and has clearly defined boundaries such that a coherent layout can be determined through the subdivision consent process without the need for coordination between landowners."*²⁰

10.4 In my opinion, structure planning may well still be appropriate when a growth area is under single ownership given the need for coordination of transport infrastructure delivery outside the block boundaries, particularly where more than one development block is enabled.

10.5 I remain of the view that a comprehensive structure planning process for Pokeno needs to be undertaken before applying urban zoning to greenfield land.

18 Zone Extents – FUZ & MDRZ Section 42A Report, paragraph 101.

19 Ibid, para 103.

20 FUZ & RMDZ s42A Report, para 107 (1).

Future Urban Zone

- 10.6 The FUZ report recommends that structure plans should not be required for a FUZ, and that FUZ would provide a zoning options for blocks where no structure plan is in place or capacity is not plausible, for reasons including a lack of infrastructure, within the next 10-15 years.
- 10.7 The report anticipates that a subsequent plan change process, informed by a structure planning process, could result in a “live” zoning once confirmation that transport and other infrastructure are able to be provided. It appears the report sees the provision of infrastructure primarily constrained by the timing of funding.
- 10.8 In the case of submissions seeking FUZ or other zoning east of SH1, there is currently no evidence that sufficient infrastructure could be provided to support any form of urban development, regardless of timing of funding. In the absence of confirmation that provision of another crossing of SH1 is feasible it would appear imprudent to apply any new zoning, including FUZ, to this area. If at least one feasible crossing solution could be demonstrated, then it may be appropriate for FUZ to be applied in that area.
- 10.9 With respect to other areas, such as Pokeno West and Havelock Village, it might be feasible to apply the FUZ to those blocks, but in my view that should only be done where there is sufficient evidence to demonstrate that appropriate infrastructure to service some form of urban development is feasible (technically and economically), irrespective of funding timeframes. To date that has not been adequately demonstrated.

Framework report

- 10.10 The Framework report provides some guidance for assessing submissions for rezoning. In this section I address the rezoning submissions collectively against these lenses.

Lens One – objectives and policies

- 10.11 The first lens is consistency with the PWDP objectives and policies. Mr Scafton’s evidence addresses the appropriateness of this “lens”, but nevertheless I attempt to assess the submissions against it here.
- 10.12 The Framework report sets out the relevant objectives and policies, and these have the aim of consolidating settlement around existing towns and villages that are consistent with Future Proof 2017.

10.13 Policy 4.1.3 (a) is for development to:

"...occur within towns and villages where infrastructure and services can be efficiently and economically provided."

10.14 It could be inferred from the policy that infrastructure is most efficiently and economically provided around towns and villages with existing infrastructure that can be extended, as opposed to areas without any existing infrastructure, which I would generally agree with.

10.15 I also infer this policy to mean that development should only occur where infrastructure can be efficiently and economically provided, and in my view that may not include every location around the periphery of every town or village.

10.16 In my view, the infrastructure required to support some of the proposed development areas around Pokeno would not be efficient or economic to provide, or at least there is no evidence to support that position at this time. A comprehensive structure planning process could provide such evidence.

Lens Two – higher order documents

10.17 The second lens requires consideration of consistency with higher order documents including the Waikato Regional Policy Statement (WRPS). The report sets out the information to be provided to support zoning for new urban development from WRPS implementation method 6.1.8. Proposals are to be supported by information which includes the following:

...

b) the location, type, scale, funding and staging of infrastructure required to service the area;

c) multi-modal transport links and connectivity, both within the area of new urban development, and to neighbouring areas and existing transport infrastructure; and how the safe and efficient functioning of existing and planned transport and other regionally significant infrastructure will be protected and enhanced;

...

10.18 To date none of the submissions seeking new urban development areas have adequately described the scale, funding and staging of required

infrastructure for each area, and there is no assessment of the infrastructure required to support all the sought rezoning collectively.

10.19 None of the submissions are supported by evidence that adequately describes how the safe and efficient function of the transport infrastructure will be protected and enhanced.

10.20 In my view none of the submissions are consistent with the WRPS.

Lens Three – best practice planning

10.21 The third lens seeks to apply best practice planning with several criteria provided.

10.22 One of the criteria is that economic costs and benefits are considered. None of the submissions seeking rezoning has adequately identified the transport infrastructure required to support the zoning, nor provided an economic assessment of the costs and benefits of providing such infrastructure, either on an individual or cumulative basis.

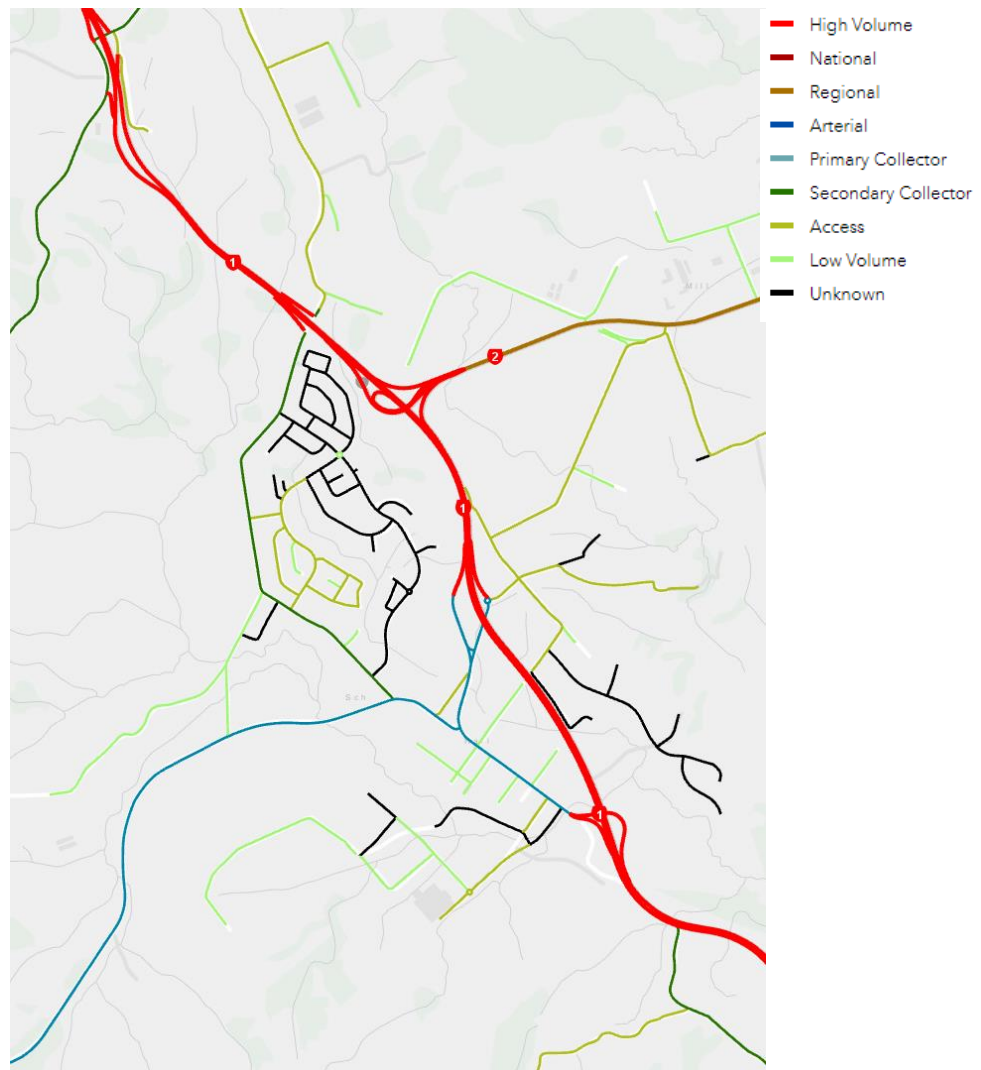
10.23 Another criterion is that zone boundary changes recognise the availability or lack of major infrastructure. In my view the submissions for rezoning do not meet this criterion.

10.24 Business and industrial zones have several criteria, including:

"ease of access to the regional road network (without passing through town and village centres or residential areas)."

10.25 The term "regional road network" is not defined in the Framework report but that would typically be interpreted as including all roads with an ONRC classification of "Regional" or above. It is arguable that roads with an "Arterial" classification might also be included. The ONRC classification for roads in the Pokeno area is shown in Figure 6.

Figure 6: One Network Road Classification Map



- 10.26 In the Pokeno area, only SH1 and SH2 are classified as “Regional” or above, and there are no roads with an “Arterial” classification. Great South Road and Pokeno Road are classified as “Primary Collector”.
- 10.27 The existing and proposed commercial and industrial zones require vehicles to pass through the town centre or a residential area as the SH1 interchanges at either end of the town centre have ramps facing in one direction.
- 10.28 It is largely impractical for any land in Pokeno to have easy access to the regional road network, however that is defined, without passing through the town centre or a residential area, due to the terrain and lack of alternate routes, at least not without construction of new roads such as the possible connection between Pokeno Rd and SH1 that has been identified. As a result, it may be necessary to adopt a lenient approach to this criterion, at least in the short to medium term.

- 10.29 In summary, it is my view that there is currently insufficient evidence for any of the proposed rezoning to demonstrate compliance with the lenses identified in the Framework report.
- 10.30 I expect that with further investigation and analysis suitable evidence could be provided for some of the proposed rezoning areas. A comprehensive structure planning exercise would assist in providing such evidence.

Wesley John Edwards

10 March 2021

ATTACHMENT A

FIGURES SHOWING REPORTED CRASHES IN POKENO

These maps show the locations of reported crashes as red areas. They also show a pin (for single crashes) or a pie chart (for multiple crashes near the same spot) colour-coded by the severity of the worst injury to a person.

N Non-injury	M Minor injury	S Serious injury	F Fatality
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Figure 7: Locations of reported crashes 2016-2020 – North west of Pokeno

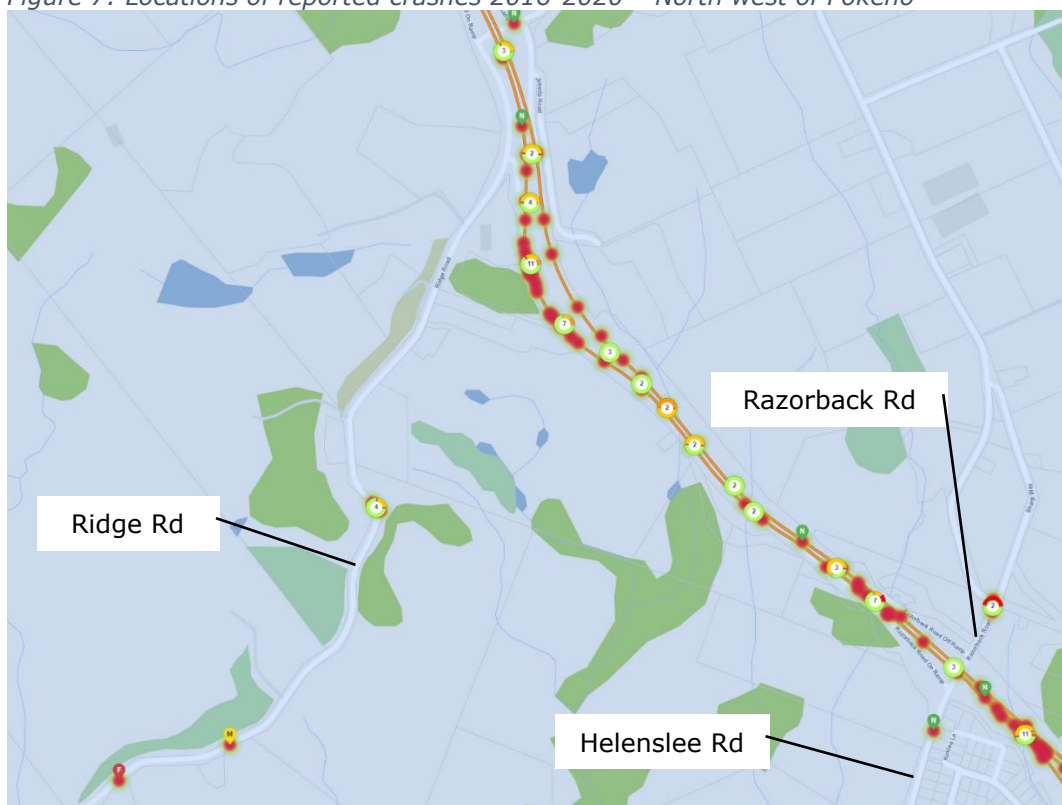


Figure 8: Locations of reported crashes 2016-2020 – West of Pokeno



Figure 9: Locations of reported crashes 2016-2020 – Helenslee area

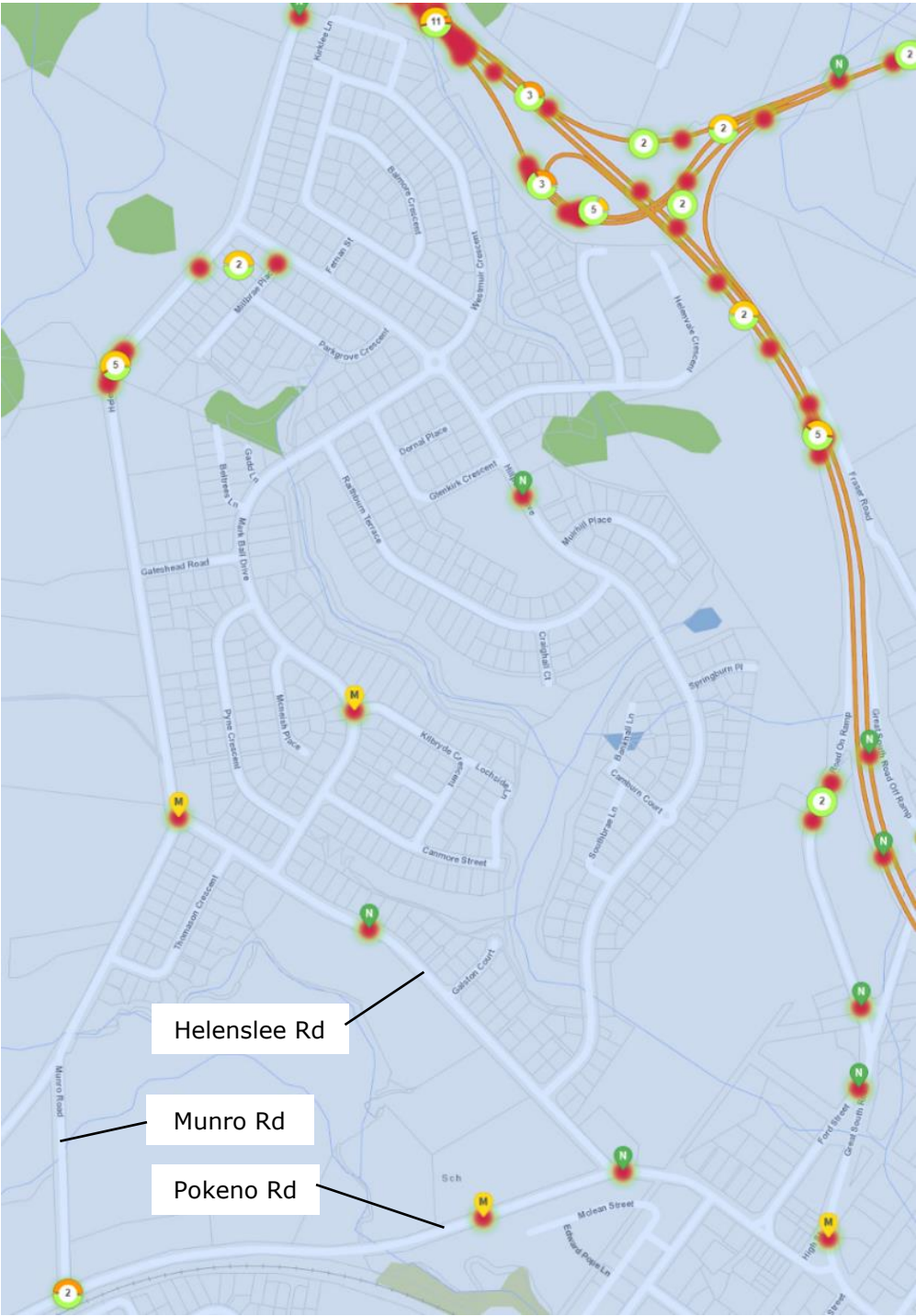
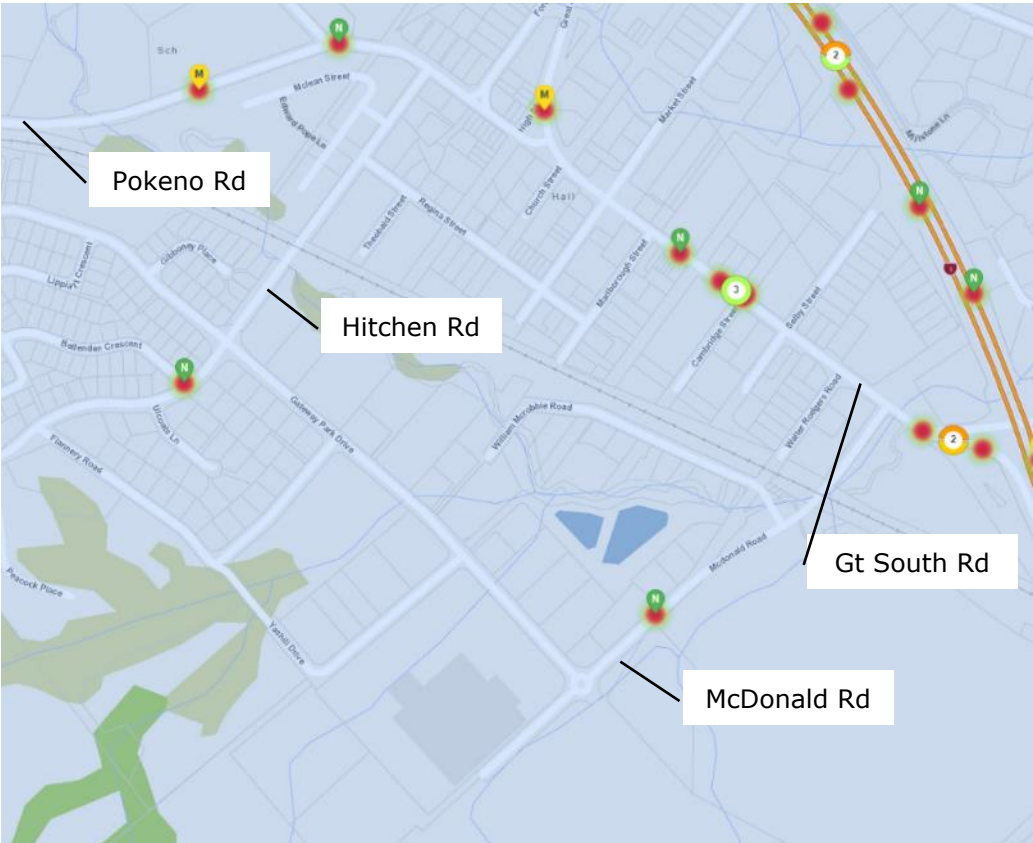


Figure 10: Locations of reported crashes 2016-2020 – Pokeno East



Figure 11: Locations of reported crashes 2016-2020 –Pokeno South

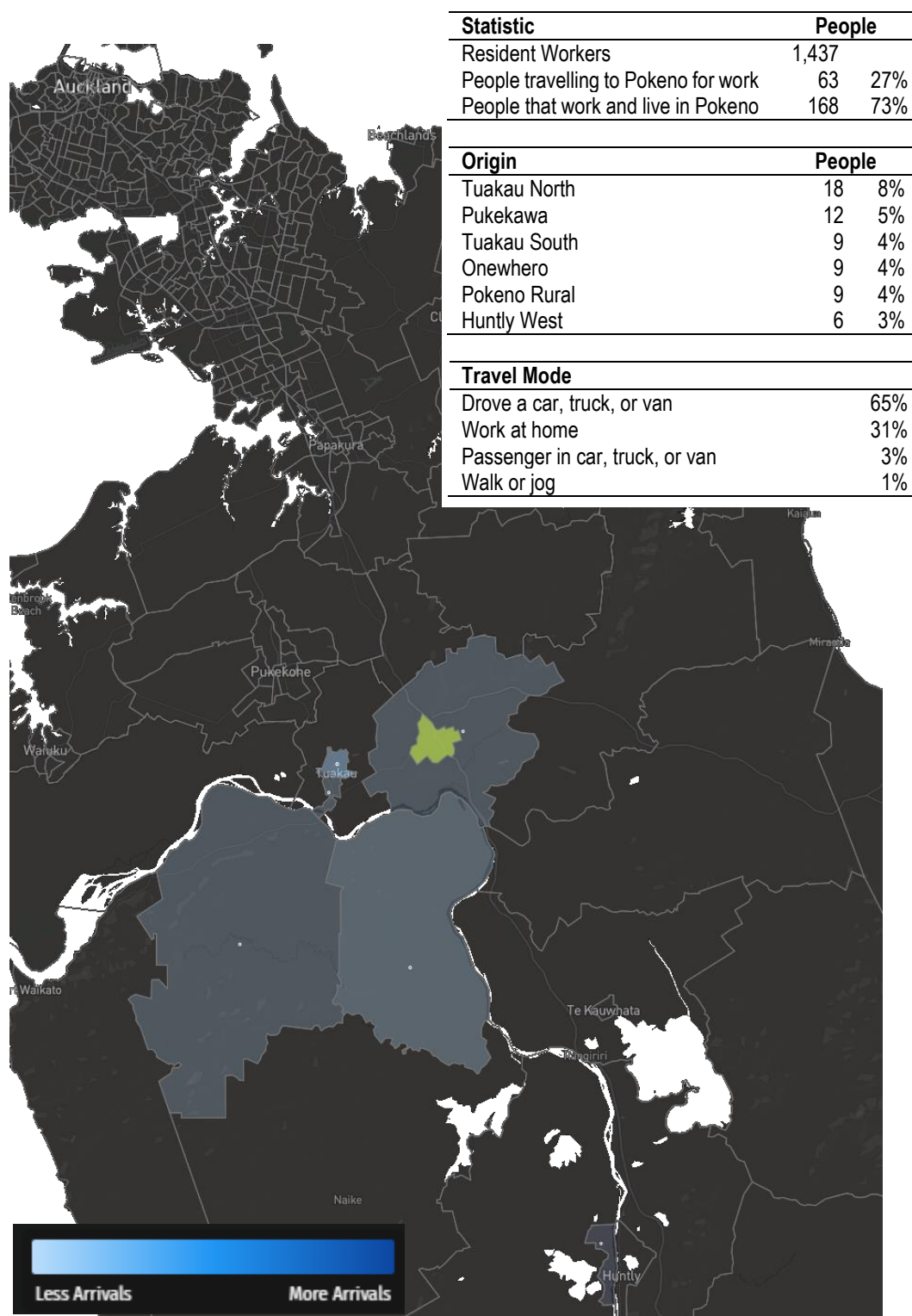


ATTACHMENT B:

TRIP DISTRIBUTION FROM 2018 CENSUS²¹

On the following maps Pokeno is shown in Green. All statistics with a low number of people are obfuscated by expressing the data in multiples of three people to promote privacy.

Workplace Trips - Arrivals into Pokeno



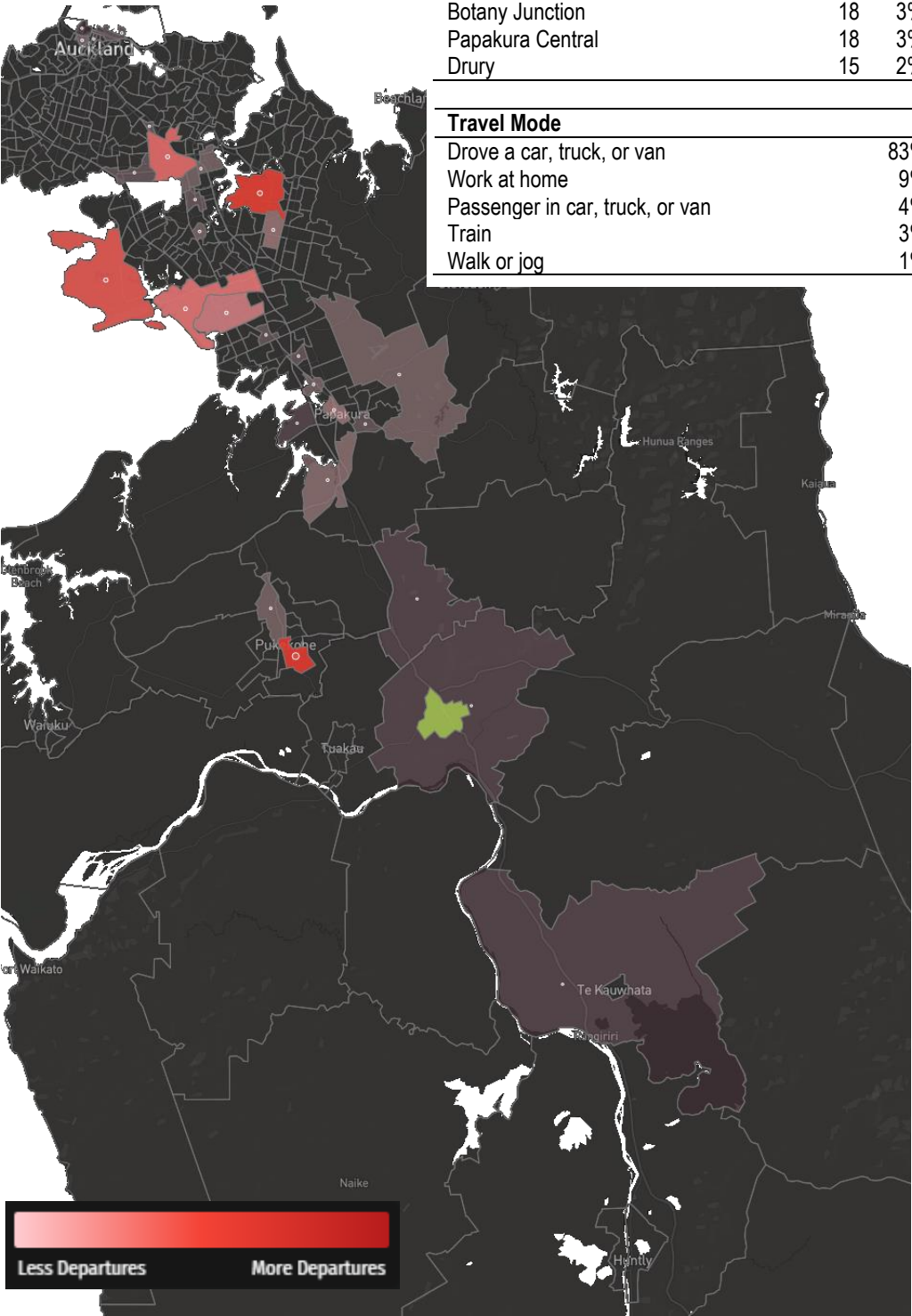
21 Graphics sourced from <https://commuter.waka.app/> based on 2018 Census data.

Workplace Trips – Departures from Pokeno

Statistic	People	
Resident Workers	1,437	
People travelling from Pokeno for work	501	75%

Destination (Top 9 of 28)	People	
Pukekohe Central	87	13%
East Tamaki	54	8%
Auckland Airport	42	6%
Penrose	36	5%
Manukau Central	33	5%
Wiri West	27	4%
Botany Junction	18	3%
Papakura Central	18	3%
Drury	15	2%

Travel Mode	
Drove a car, truck, or van	83%
Work at home	9%
Passenger in car, truck, or van	4%
Train	3%
Walk or jog	1%

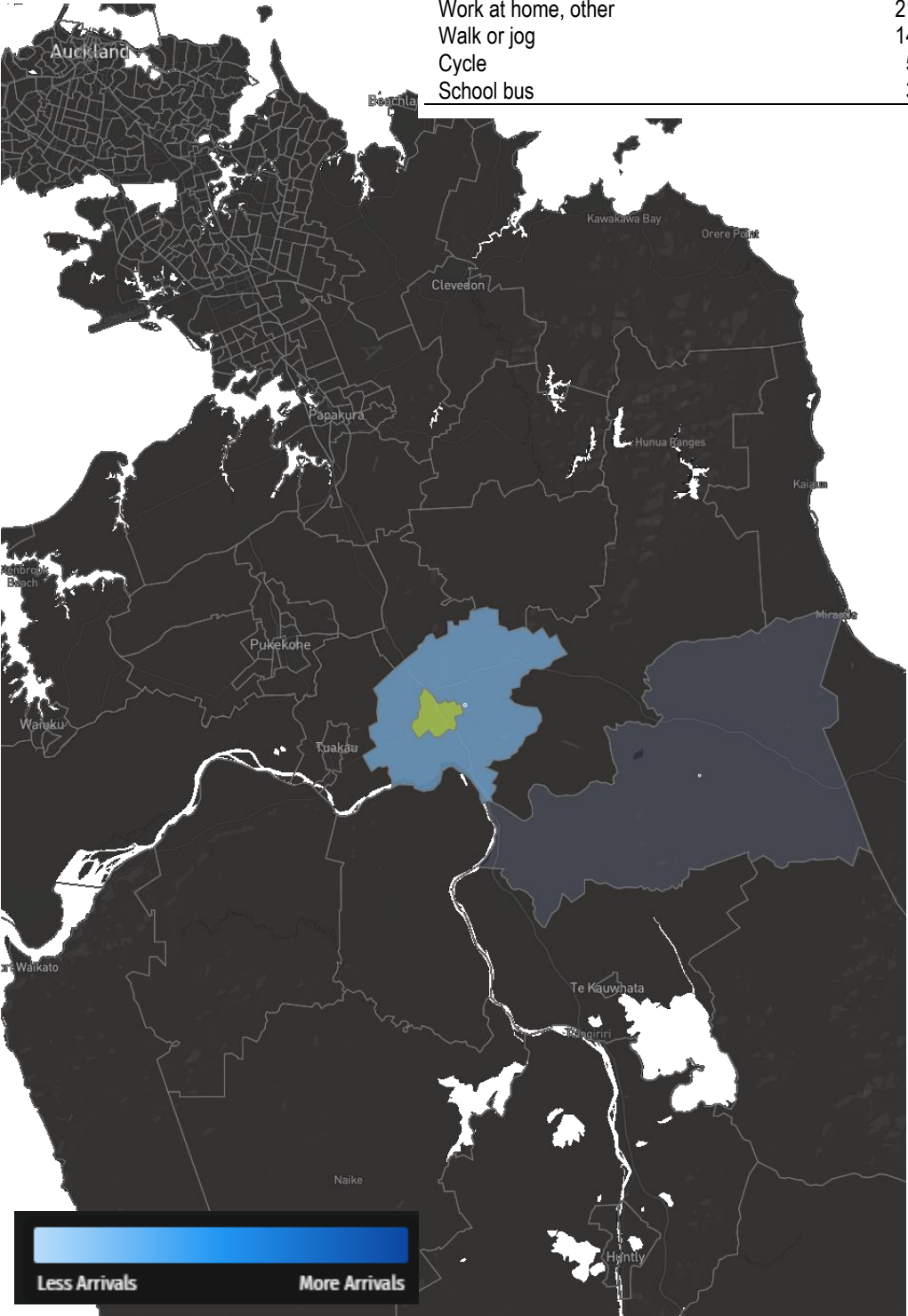


Education Trips - Arrivals into Pokeno

Statistic	People	
Resident Students	603	
People travelling to Pokeno for education	30	13%
People that live and learn in Pokeno	204	87%

Origin	People	
Pokeno Rural	24	10%
Maramarua	6	3%

Travel Mode	Percentage
Passenger in car, truck, or van	57%
Work at home, other	21%
Walk or jog	14%
Cycle	5%
School bus	3%



Education Trips – Departures from Pokeno

Statistic	People	
Resident Students	603	
People leaving Pokeno for education	165	14%

Destination	People	
Pukekohe Central	30	8%
Tuakau South	30	8%
Auckland University	27	7%
Bombay Hills	24	7%
Tuakau Rural	9	2%
Rosehill	9	2%
Manukau Central	9	2%
Otara Central	9	2%
Ormiston North	6	2%
Rooseville Park	6	2%
Cloverlea	6	2%

Travel Mode	
Passenger in car, truck, or van	52%
Drove a car, truck, or van	13%
School bus	10%
Learn at home, other	9%
Walk or jog	8%
Train	5%
Cycle	2%

