Before the Independent Hearings Panel
at Timaru

under: the Resource Management Act 1991

in the matter of: Submissions and further submissions in relation to Timaru Proposed District Plan – Hearing B

and: **Fonterra Limited**
Submitter 165

Statement of evidence of David John Robert Smith (Traffic)

Dated: 5 July 2024

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STATEMENT OF EVIDENCE OF DAVID JOHN ROBERT SMITH

INTRODUCTION

1 My full name is David (Dave) John Robert Smith.

2 I hold a Bachelor of Technology (with Honours) in Industrial Operations Research and Master of Philosophy in Operations Research from Massey University. I am a Chartered Member of the Institute of Logistics and Transport (CMILT), a member of Engineering New Zealand (MEngNZ) and of the NZ Modelling User Group sub-group of ENZ. I have been appointed to the NZ Transport Agency Independent Professional Advisors panel for Transportation Modelling. I am also certified as a Hearings Commissioner having completed the Making Good Decisions course in 2019.

3 I hold the position of Technical Director of Transportation Planning at Abley. I have been in this position since 2018 and have been at Abley for nine years. I lead a range of development and transportation planning projects for public and private sector clients.

4 My previous work experience includes 24 years of transportation planning and engineering experience. I have managed and led numerous projects related to transportation planning, transportation research and Resource Management Act 1991 (*RMA*) related matters for public and private sector clients. As an expert witness I have recently been engaged by Foodstuffs South Island Limited, Auckland Council, Selwyn District Council, Queenstown-Lakes District Council, Fulton Hogan, Ports of Auckland and Fonterra Limited.

5 Although this is a council hearing, I confirm I have read the Expert Witness Code of Conduct set out in the Environment Court's Practice Note 2023. I have complied with the Code of Conduct in preparing this evidence and I agree to comply with it while giving oral evidence before the hearing committee. Except where I state that I am relying on the evidence of another person, this written evidence is within my area of expertise. I have not omitted to consider material facts known to me that might alter or detract from the opinions expressed in this evidence.

SCOPE OF EVIDENCE

6 I have been asked by Fonterra to prepare this brief of evidence to assist the Hearing Panel in relation to traffic matters.

7 In preparing my evidence I have reviewed:

7.1 Fonterra's submission on the Timaru Proposed District Plan (*PDP*) dated 15 December 2022;

7.2 Provision TRAN-S20 in the PDP and related matters in the area-wide Transport chapter; and

7.3 Various information provided by Fonterra in relation to traffic, including some assessment work done by Beca Limited in 23 June 2023.

8 The scope of my evidence is limited to establishing a suitable traffic generation threshold for the Clandeboye Dairy Manufacturing site (*the Site*), which will inform a trip generation standard applying to the Site. My evidence provides:

8.1 a brief outline of the existing traffic environment around the site with comment on the capacity of the existing roading network;

8.2 the basis of the threshold for assessing traffic effects set out in proposed rule TRAN-S20 and how that rule will work in practice; and

8.3 recommendations towards a suitable threshold for assessing the traffic effects of future development applications at the Clandeboye site.

EXISTING TRAFFIC ENVIRONMENT

9 The Site operated by Fonterra is situated at the intersection of Rolleston Road and Milford Clandeboye Road, approximately 30km northeast of Timaru and 56km southwest of Ashburton. The Site is situated in the Industrial H zone under the current Timaru Operative District Plan surrounded by rural zoned land (R1 and R2).

10 The notified zoning of the Site is General Industrial Zone under the PDP. The overall context of the environment is rural with farming activities on neighbouring properties and the closest urban centre, Temuka being located 13km to the southwest.

11 The daily traffic generated by the Site has been surveyed over a continuous seven-day period from 4th-10th November 2019 by Fonterra (the *2019 Data*). The Site has advised that the current traffic levels are very similar to 2019 traffic activity levels based on the capacity and operations of the Site. I also understand that the data was captured during peak milk production season so is representative of peak traffic activity at the Site.

12 A summary of the traffic data which comes from the earlier assessment information undertaken by Beca is included in **Attachment One.** I have analysed the 2019 Data to determine the peak daily, average daily, peak hourly and average hourly two-way traffic volumes generated by the site. These are as follows:

12.1 Peak daily traffic volume is 2,156 vehicle movements per day observed on Tuesday 5th November 2019;

12.2 Average daily traffic volume is 1,828 vehicle movements per day which is the seven-day average over the survey period;

12.3 Peak hourly traffic volume is 420 vehicle movements per hour which comprises 360 vehicles arriving for the day shift (and departing at the end of the day shift) on Wednesday 5th November 2019, coupled with approximately 60 milk tanker and service vehicle movements per hour; and

12.4 Average hourly traffic volume is 249 vehicle movements per hour which comprises an average 208 staff vehicles either arriving or leaving in any given hour over the seven-day survey period, coupled with an average of 41 milk tanker and service vehicle movements.

13 The milk tanker, service vehicle and staff movements predominantly travel west along Canal Road, connecting to Factory Road and Farm Road to access the State Highway One and wider transport network. The main traffic routes used by traffic associated with the Site with Average Daily Traffic (*ADT*) volumes and heavy vehicle percentages[1] are included in **Attachment Two**.

14 I have reviewed these ADT and heavy vehicle proportions, and referred to Austroads Guide to Traffic Management Part 3 Traffic Study and Analysis Methods to estimate the likely capacity of the surrounding network. I have calculated that:

14.1 With respect to State Highway One (SH1), the capacity of a two-way two-lane highway is generally 1700 vehicles per lane per hour or 3200 vehicles per hour two-way. Typical traffic profiles include up to 10% of daily traffic in peak hour which corresponds to a capacity of up to 32,000 vehicles per day (vpd). As observed in **Attachment Two** SH1 currently has 7,000 vpd to the north of the Orari River and 10,000 vpd to the south of Temuka.

14.2 I have applied the methods in section 5.1.1 of the Austroads manual to determine the hourly capacity of the other key corridors. This takes into consideration factors such as the road lane width, presence of shoulders, heavy vehicle percentage and topography. I have concluded that the local roads have capacities in the range of 830-1,500 vehicles per lane per hour. The current peak number of trips generated by the Site is 420 trips for the highest observed peak hour or an average of 249 trips per hour for a shift change (from paragraph 12). Noting that this traffic is distributed across several corridors as shown in **Attachment Two**, I have concluded that there is ample spare capacity on all local roads during peak.

14.3 In **Attachment Two** the local roads frequented by traffic from the Site currently experience daily traffic volumes in the range of 450 vpd through to 4,300 vpd. These daily flows are very low in the

[1] Sourced from Mobileroads.org which compiles RAMM traffic data from NZ Transport Agency Waka Kotahi, Timaru District Council and other Local Authorities throughout New Zealand.

context of the capacity of rural roads of this standard which I consider to be in the 8,300-15,000 vpd range.

15 Overall, I have concluded that all local and State Highway corridors in the vicinity that would likely be impacted on by any future development application at the Site are operating well below capacity. This means that the surrounding network is very unlikely to be sensitive to modest increments in traffic and has ample capacity to support background growth in activity for the foreseeable future.

ITA THRESHOLDS

16 An Integrated Transport Assessment (*ITA*) is the key deliverable produced by Transportation Planners and Engineers when assessing the impacts of a development for a spatial plan, plan change, resource consent application and/or notice of requirement. Guidance as to the contents of an ITA are stipulated in several documents including NZTA's Planning and Policy Manual Appendix 5C[2] and NZTA Research Report 422[3]. The guidance also sets out what is required in a 'basic' ITA and in a more comprehensive 'full' ITA.

17 ITAs are generally not required for smaller development applications. Typically, the requirement to prepare a basic or full ITA is a function of the scale of a proposal in terms of physical size, the quantum of traffic generated, or number of carparks. Second generation District Plans typically include thresholds for various development activities over which a basic or full ITA is required to be prepared. Timaru PDP follows the same approach as other second generation District Plans with the thresholds stated in TRAN-S20.

18 For industrial activities, the thresholds set out in TRAN-S20 are as follows:

18.1 A basic ITA is required where Gross Floor Area (*GFA*) exceeds 5,000 sqm; and

18.2 A full ITA is required where GFA exceeds 12,000sqm.

19 For warehousing and distribution activities which are also typical in industrial areas the thresholds are as follows:

19.1 A basic ITA is required where GFA exceeds 6,500sqm; and

19.2 A full ITA is required where GFA exceeds 25,000sqm.

20 The thresholds for warehousing and distribution are higher as the traffic generation associated with the activity on a GFA basis is typically much

[2] https://www.nzta.govt.nz/assets/resources/planning-policy-manual/docs/planning-policy-manual-appendix-5C-integrated-transport-assessment.pdf.

[3] https://www.nzta.govt.nz/resources/research/reports/422.

lower. This reconciles with published traffic generation rates for these activities in New Zealand, Australia and USA[4].

21 I note that the Timaru PDP also includes a 'catch-all' threshold for mixed-use activities or 'other' activities not covered by the prior activity categories. These are expressed in vehicles movements in peak hour (vmph) and vehicle movements per day (vmd) and are as follows:

21.1 A basic ITA is required where vehicle movements exceed 50 vmph or 250 vmd (whichever is greatest); and

21.2 A full ITA is required where vehicle movements exceed 120 vmph or 1000 vmd (whichever is greatest).

22 My view is that the setting of appropriate ITA thresholds is important to avoid assessments of small development applications which are very unlikely to have a noticeable impact on the local and wider transport environment, and conversely to ensure that a suitable level of assessment is provided for larger-scale developments that may give rise to effects on the local and wider transport environment.

23 In the following section, I have considered the site-specific characteristics of the Site to establish an appropriate threshold.

CLANDEBOYE DAIRY FACTORY CONTEXT

24 In the event that a development application was prepared for the Site, the 'industrial activity' thresholds from TRAN-S20 would be the default thresholds.

25 In my experience, he thresholds for 5,000 and 12,000 sqm GFA are informed by typical traffic generation rates in the range of 1-2 trips[5] for every 100 sqm GFA for industrial activity. I note that with the adoption of a typical traffic generation rate of 1 trip per 100sqm GFA the thresholds in the Timaru PDP correspond to 50 trips (=1*(5000/100)) and 120 trips (=1*(12000/100)) for a basic and full ITA respectively. This matches the traffic generation for the 'mixed use and other activity' category identified in TRAN-S20.

26 I have calculated the actual traffic generation associated with the Site based on the 2019 Data to understand the local traffic generation context. I have calculated the current site area and GFA based on recent aerial photography. The calculation of GFA is conservatively low in that I have assumed only one level of floor area in each building footprint (however I understand from the Site that the dryers and some other parts of the factory have multiple levels).

27 I have concluded that the currently developed area of the site is 36.7 Ha and the GFA is approximately 101,000 sqm GFA. I have subsequently

[4] Refer Table 8.10 of NZTA Research Report 453 (2011) available at https://www.nzta.govt.nz/assets/resources/research/reports/453/docs/453.pdf

[5] NZTA Planning and Policy Manual Appendix 5B includes 2 trips/100sqm GFA for Industrial; RTA Guide to Traffic Generating Developments includes 1 trip/100 sqm GFA for Manufacturing activities.

calculated the observed trip rates as a function of GFA based on the traffic survey data presented in paragraph 12.

28 These trip rates coincide with the shift changes when staff are arriving or departing at the Site, with a peak trip rate of 0.42 (= 420 * (100/101,000) and average trip rate of 0.25 (= 249 * (100/101,000) vehicle movements per 100 sqm GFA. These are considerably lower than the standard industrial trip rates from literature presented in paragraph 25 above which are typically in the order of 1-2 trips per 100 sqm GFA.

29 Based on the calculated actual trip rates at the factory, a hypothetical future development application of 5,000 sqm GFA would trigger the requirement for the preparation of a basic ITA under TRAN-S20, despite this only likely generating an additional 12-21 two-way vehicle trips per hour to the wider transport network. In my view this addition of traffic to the surrounding transport network would be largely inconsequential and corresponds to one additional vehicle movement every 3-5 minutes.

30 I recommend that in the case of the Site, the thresholds for 'mixed use and other activities' in TRAN-S20 are more appropriate. The basic ITA threshold of 50 trips in peak hour approximates to less than one vehicle per minute, and the full ITA threshold of 120 trips in peak hour corresponds to two vehicles per minute.

31 Ms Tait has requested that I comment on the suitability of a rule that requires an ITA to be prepared up activities that increase the capacity for milk processing or storage, but not for projects that do not add to the capacity of the Site such as a biomass project. I understand that activities that do not add capacity to the Site are generally unlikely to increase the traffic generation of the Site, both in terms of heavy vehicle and staff vehicle movements. For the avoidance of doubt, I consider that the proposed adoption of the thresholds for 'mixed use and other activities' in TRAN-S20 remains a suitable means of addressing all types of activities and that the vehicle generation can be simply calculated at the Site based on production capacity, site maintenance requirements and staff numbers. An additional rule would in my view would add complexity and an element of redundancy to the Plan.

CONCLUSION

32 I have reviewed traffic generation data associated with the Fonterra Clandeboye Dairy Factory and concluded that the actual trip generation rate of the Factory is significantly lower than the corresponding industrial trip rate in TRAN-S20 of the PDP.

33 I have sourced traffic volumes and calculated the capacity of local and State Highway corridors in the vicinity that are frequented by Site traffic and would likely be impacted on by any future development application associated with the Site. I have concluded that all corridors are currently operating well below capacity and will continue to do so for the foreseeable future.

34 The current industrial trip rate in TRAN-S20 is based on an increment in GFA, and in my view is not a suitable threshold for requiring a transportation assessment for development at the site. This is because the Site has a much lower traffic generation rate when calculated on GFA. I further note that the surrounding transport network has substantial spare capacity so would not be sensitive to small increments in traffic. If the industrial threshold were applied, my expectation is that subsequent transport assessments would be focusing on an inconsequential increase in traffic activity in the order of one vehicle every 3-5 minutes. I do not consider this appropriate or necessary.

35 I have recommended the 'mixed use and other activity' trip rate within TRAN S-20 be relied on. This corresponds to approximately one vehicle every minute (for a basic ITA) or two vehicles per minute (for a full ITA). In my view this is an appropriate threshold which is comparable with thresholds for other activities in terms of the number of vehicles generated and corresponding potential to impact on the surrounding transport network.

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David John Robert Smith

5 July 2024

ATTACHMENT ONE

Fonterra Clandeboye Trip Generated Survey (extract from Beca assessment) summary

Vehicle Type	Peak Day	7 Day Average	Peak Hour[6]	Ave Hour[7]
Light vehicles (staff)	972	832	360	208
Milk tankers	1160	983	59	41
Service vehicles	28	14	1	1
All vehicles	2156	1828	420	249

[6] Highest recorded hour coinciding with a staff shift change

[7] Average hour coinciding with a staff shift change

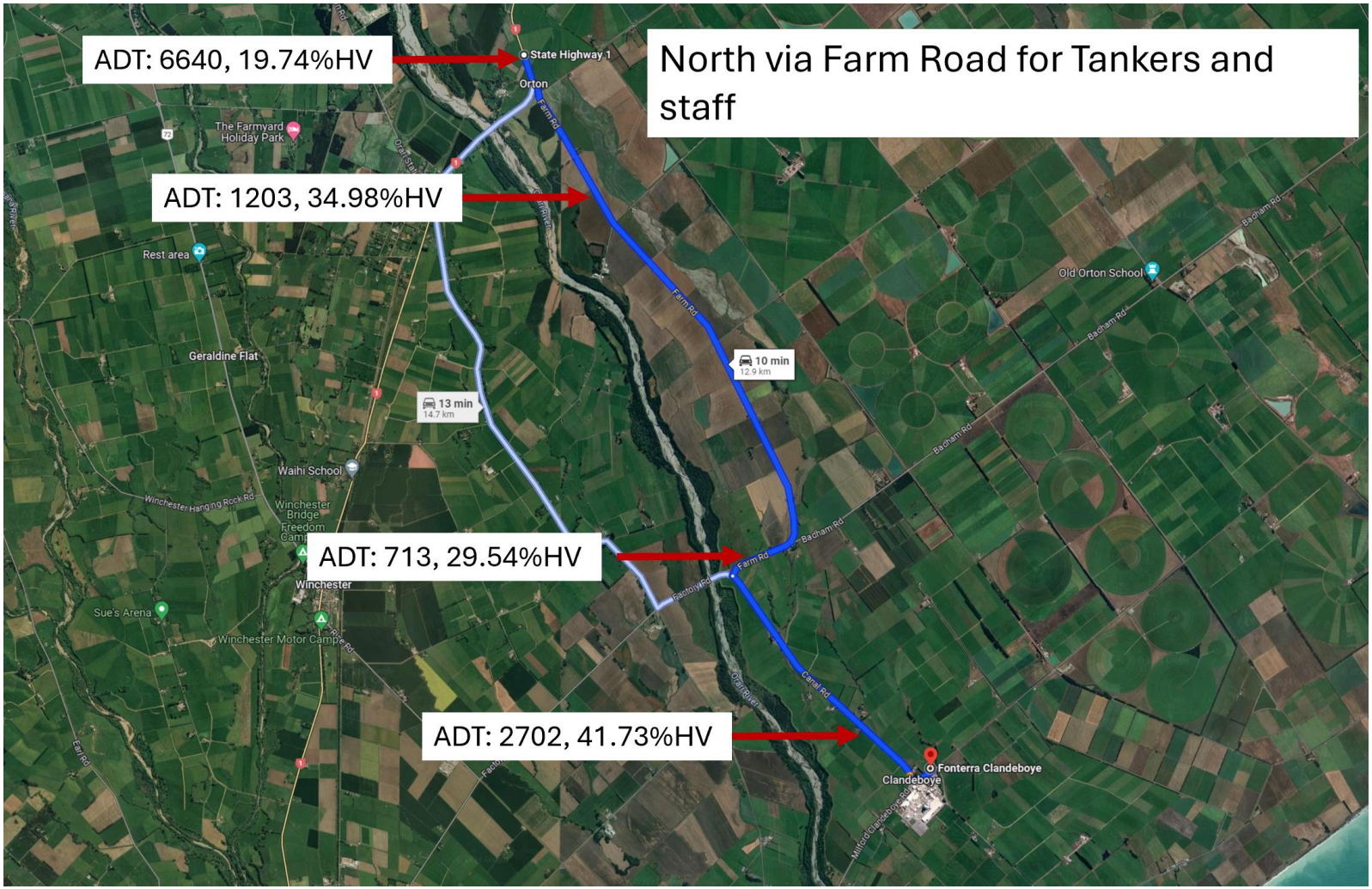
ATTACHMENT TWO ESTIMATED TRAFFIC VOLUMES ALONG KEY ROUTES

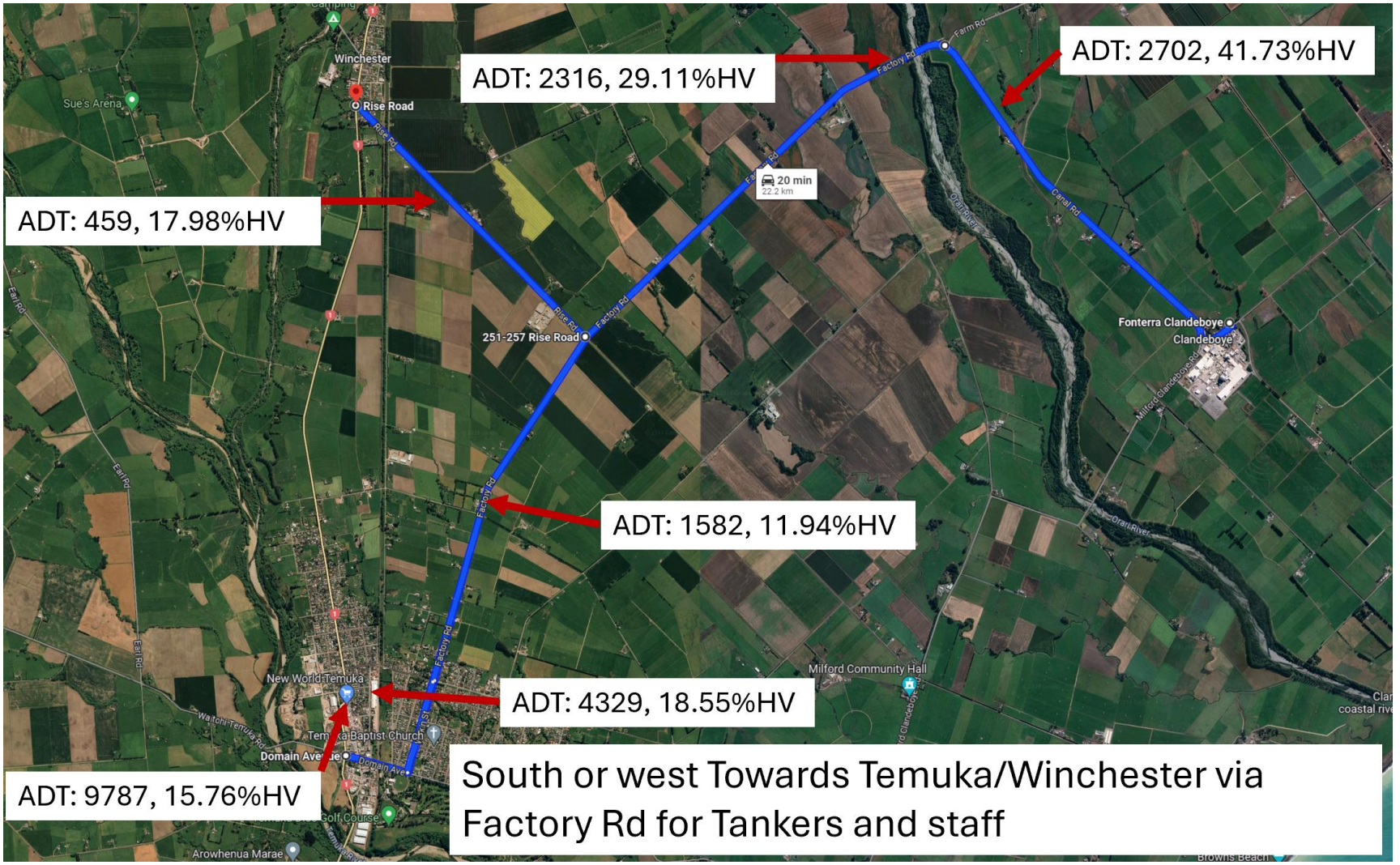
Page 1 This is the route to travel to/from SH1 north for all tankers, service vehicles and staff.

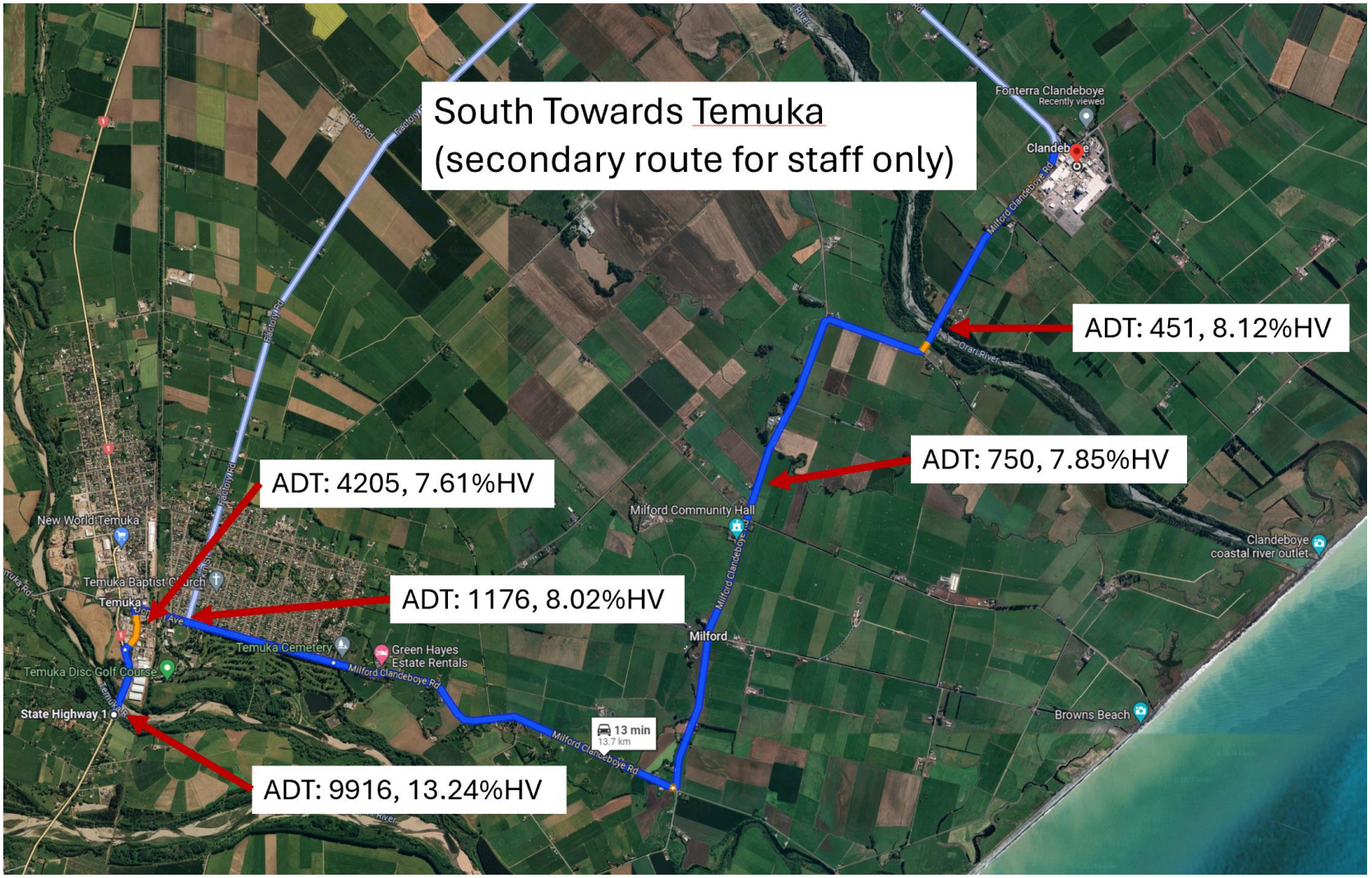
Page 2 This is the route to travel to/from SH1 south and inland towards Geraldine for all tankers and service vehicles, and is the primary and recommended route for staff. The Rise Road link to Winchester is the most direct route into Geraldine and inland South Canterbury.

Page 3 This is the secondary route to/from SH1 south which some staff only take.

(source of all maps/aerial photography: Google Maps)


ADT: 6640, 19.74%HV
State Highway 1
Orton
North via Farm Road for Tankers and staff
The Farmyard Holiday Park
ADT: 1203, 34.98%HV
Rest area
Old Orton School
Badham Rd
Farm Rd
Geraldine Flat
10 min
12.9 km
13 min
14.7 km
Waihi School
Winchester Hanging Rock Rd
Winchester Bridge Freedom Camp
ADT: 713, 29.54%HV
Winchester
Sue's Arena
Winchester Motor Camp
Canal Rd
ADT: 2702, 41.73%HV
Fonterra Clandeboye
Clandeboye


ADT: 2316, 29.11%HV
ADT: 2702, 41.73%HV
ADT: 459, 17.98%HV
ADT: 1582, 11.94%HV
ADT: 4329, 18.55%HV
ADT: 9787, 15.76%HV
South or west Towards Temuka/Winchester via Factory Rd for Tankers and staff
Winchester
Rise Road
Sue's Arena
251-257 Rise Road
Factory Rd
Farm Rd
Canal Rd
Fonterra Clandeboye
Clandeboye
20 min
22.2 km
Earl Rd
Orari River
New World Temuka
Milford Community Hall
Arowhenua Marae


South Towards Temuka
(secondary route for staff only)
ADT: 451, 8.12%HV
ADT: 750, 7.85%HV
ADT: 4205, 7.61%HV
ADT: 1176, 8.02%HV
ADT: 9916, 13.24%HV
Fonterra Clandeboye
Recently viewed
Milford Community Hall
Clandeboye coastal river outlet
New World Temuka
Temuka Baptist Church
Temuka
Temuka Cemetery
Green Hayes Estate Rentals
Temuka Disc Golf Course
State Highway 1
Milford
Browns Beach
13 min
13.7 km
Milford Clandeboye Rd
Orari River