Before the Hearing Commissioners
appointed by the Grey District Council and
West Coast Regional Council

Under	the Resource Management Act 1991
In the matter of	Resource consent applications by TiGa Minerals and Metals Ltd to establish and operate a mineral sands mine, and associated activities on State Highway 6, Barrytown (RC-2023-0046; LUN3154/23)

Statement of evidence of Nicholas Peter Fuller

19 January 2023

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Qualifications and experience

1 My full name is Nicholas Peter Fuller.

2 My qualifications include a Bachelor of Engineering (Honours) in Civil Engineering.

3 I am a Principal Transport Engineer at Novo Group Limited, which is a specialist transport engineering and planning consultancy that provides resource management related advice to local authorities and private clients. I have worked on resource management traffic planning and engineering projects for over 20 years. My experience during this time includes development planning, preparing Traffic and Transport Assessments for resource consents and Plan Changes, preparation of Project Feasibility and Scheme Assessment Reports for Council's and the New Zealand Transport Agency.

4 My role in relation to TiGa Minerals and Metals Limited's (**TiGa**) application to establish and operate a mineral sands mine and associated activities at SH6 Barrytown (**Application and Application Site**) has been to provide advice in relation to transport safety and efficiency. I prepared the Integrated Transport Assessment report (ITA) to the Assessment of Environment Effects (**AEE**) accompanying the Application.

5 My assessment is based upon the proposal description attached to the evidence of Ms Katherine McKenzie as **Appendix 1**.

6 In preparing this statement of evidence I have considered the following documents:

(a) the AEE accompanying the Application;

(b) submissions relevant to my area of expertise;

(c) planning provisions relevant to my area of expertise; and

(d) section 42A report.

7 I was originally engaged to provide transport advice on this project in 2019 for the previous Application for a mineral sands mine at the Application Site. I have subsequently been retained to provide transport advice and assessment for the current Application. I have visited the site several times over the course of my engagement.

8 I have undertaken informal consultation with Waka Kotahi (the New Zealand Transport Agency) regarding the transport effects of the proposed activity. This primarily relates to the design of the Site access arrangements.

Code of Conduct for Expert Witnesses

9 While this is not a hearing before the Environment Court, I confirm that I have read the Code of Conduct for expert witnesses contained in the Environment Court of New Zealand Practice Note 2023 and that I have complied with it when preparing my evidence. Other than when I state I am relying on the advice of another person, this 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 that I express.

Scope of evidence

10 I have prepared evidence in relation to:

(a) the existing transport environment of the Application Site and the anticipated transport safety and efficient effects of the proposed activities;

(b) the key findings of my assessment of effects;

(c) matters raised by submitters to the Application;

(d) matters raised in Grey District Council's (GDC) staff reports (reports issued under s42A of the RMA); and

(e) proposed conditions of consent.

Changes from previous Application

11 The transport components of the proposed activity are set out in the ITA and summarised at paragraph 16 of this evidence.

12 **Table 1** below summarises the key transport aspects of the proposal.

Table 1: Transport Activities

Activity	Proposal
Hours of Trucking	There will be no trucking of Heavy Mineral Concentrate during the hours of darkness, defined as being 30mins after sunset and 30 mins before sunrise. No trucking at school pick-up / drop-off (nominally between 08:30 to 09:00 and 15:00 to 15:30 although to be agreed with Barrytown School).
Trucks per Day	50 truck and trailer movements.
Truck Movements per Hour	Up to 5 truck and trailer movements per hour to facilitate night-time restrictions.
Truck Routes	Potentially to / from the north and south.
Staff Numbers	*Mining Contractor* The shift numbers and times are indicatively 18 staff from 07:00 to 17:00 and 12 staff from 14:00 to 22:00. *Processing Plant* 19 staff from 06:00 to 18:00 plus 8 staff from 18:00 to 06:00.
Staff traffic generation	19 car movements per hour at peak times and 140 car movements per day. This is based on all staff driving to the Site, whereas the proposal includes a potential staff bus service that would reduce the number of staff vehicle movements.
Staff parking demand	49 vehicles (maximum) at times of shift change.
Equivalent Car Movements[1]	390 equivalent car movements per day.
Parking & Loading	All parking and loading will be accommodated on-site.
Access	Similar layout to the previous Application, although located further north to avoid the need to remove trees to achieve sight lines and addresses neighbour concerns regarding loss of vegetation.
Transport Management Plan	Draft proposed, as per **Attachment 1**.

The existing environment

13 The Application Site will take access from State Highway 6 (SH6), which is identified as a Strategic Route in the Grey District Plan. SH6 has a 7m wide sealed carriageway accommodating two-way traffic flow. The speed limit is 100km/h in this area.

[1] 50 truck and trailer movements = 25 truck and trailers to and from the site. This is multiplied by 10 to get 250 Equivalent Car Movements. The 140 staff vehicle movements is then added to this number to get up to 390 Equivalent Car Movements.

14 The existing traffic volumes are estimated as being in the order of 1,156 vehicles per day and 96 vehicles per hour at peak times (16:00 to 17:00). This is from the highest available traffic count data from Waka Kotahi, which was recorded in 2018.

15 No crashes have occurred on SH6 within a 100m radius of the proposed Site access location in the most recent five-year period available.

Assessment of effects

Transport Summary of Activity

16 The proposed activity will take access from SH6 via a new intersection arrangement, as illustrated in Appendix 1 of the Transport Assessment. Trucking of material may be either to the north (Port of Westport) or south (Port of Greymouth) or a rail load out at each town.

17 The activity is predicted to generate 25 truckloads of material per day, which equates to 50 truck and trailer movements per day. The following limitations are proposed with regard to truck movements associated with the activity:

(a) Truck movements associated with both routes (northbound and southbound) shall be limited to no more than three movements per hour between 05:00 and 07:00; and

(b) Truck movements will occur between the period starting 30 minutes before sunrise and ending 30 minutes after sunset each day.

18 The shortest day for trucking material is ten hours, which leads to five truck and trailer movements per hour on average at that time. There is scope within this to have trucks avoid departing the Site during the school drop-off and pick-up hours without affecting the overall hourly volumes.

19 Approximately 57 full time equivalent jobs will be created by the Mine, although not all staff would be on-site all of the time and the operation would have staff on shifts. I estimated the following traffic generation associated with staff travel to / from the Application Site:

(a) A peak hour traffic generation of 19 vehicles per hour occurring at 06:00 to 07:00 and 18:00 to 19:00. This represents the arrivals and departures for the day shift at the processing plant; and

(b) A peak parking demand for 49 light vehicles between approximately 14:00 to 17:00. This occurs when the two mining contractor shifts overlap and the 19 processing plant staff are on-site.

20 Further to the preparation of the ITA, it is now also proposed to include a Transport Management Plan to advise truck drivers of key locations where additional attention needs to be paid to other road users (such as cyclists, pedestrians and at locations of tight road geometry). This TMP is included in **Attachment 1** and also includes:

(a) A requirement for incident reporting for mine staff as well as issues raised by the Community Liaison Group;

(b) The intention for a bus service to get mine staff to and from the Site;

(c) Avoiding trucking around school drop-off and pick-up times; and

(d) Reporting of pavement defects to the New Zealand Transport Agency.

Parking & Loading

21 The car parking demand at the application site has been estimated as being 49 cars, associated with the staff at the site. This is a worst-case assessment, as it assumes all staff drive to the Site, whereas a private bus service is proposed that will reduce the number of light vehicles to / from the Site.

22 There will also be a loading requirement at the site. There is more than sufficient space provided on the site to accommodate car parking and loading associated with the proposed activities on metalled areas. This is also a common approach to accommodating parking and loading at mine sites.

23 I consider that all car parking and loading will be satisfactorily accommodated on-site.

Access Arrangements

24 The proposed access arrangement has been designed as an intersection, as required by the NZ Transport Agency *Planning Policy Manual*[2]. The proposed arrangement provides a dedicated right turn bay for vehicles heading into the Application site, as well as widening to better accommodate vehicles turning left into the Site. This arrangement has been agreed in principle with the NZ Transport Agency, as indicated in their submission (no. 138). This submission identifies the access arrangement as that shown on plan T1001-I through the proposed amendments to the draft Conditions.

[2] Appendix 5B of the NZTA *Planning Policy Manual* requires an intersection design where the site generates greater than 100 equivalent car movements per day and the proposed activity has a generation of 390 equivalent car movements per day.

25 The access has sufficient sight distance to comply with the District Plan and NZTA *Planning Policy Manual*. This enables drivers exiting the site to identify safe gaps in traffic. I have also reviewed the capacity of the access arrangement and consider that it will operate satisfactorily.

26 Overall, I consider the access arrangement to provide safe and efficient access for the proposed activity.

Wider Network Effects

27 I have considered the effects of the traffic generated by the proposed activity on the wider transport network. I consider that the increase in traffic is sufficiently low that it remains within the capacity of the network. The additional 24 vehicles per hour that would be generated at peak times is, in my opinion, a low volume that would not lead to noticeable safety or efficiency effects.

28 I also note that Waka Kotahi (the Road Controlling Authority for SH6) have not raised any concerns with regards to the safety or efficiency effects of the proposal on their road network. It is also proposed to include a Transport Management Plan to alert truck drivers to locations where additional care needs to be taken.

Matters raised by submitters

Waka Kotahi

29 This submission did not raise any significant concerns regarding the transport effects of the proposed activity on the State highway network. The submission seeks amendments to Condition 14.1 and the Advice Notes under Condition 14.2. These clarify which is the correct plan for the proposed access arrangements and update the appropriate contact details within Waka Kotahi for on-going liaison with regards to the design and construction of the access. I consider these changes are appropriate.

Barrytown School Board of Trustees

30 Two transport safety and efficiency comments were identified in this submission. The first of these is with regards to concerns around traffic operations at the time of school bus travel. I do not anticipate any concerns in regarding this because the interactions of all vehicles with school buses is already covered by the New Zealand Road Code. This requires that all drivers slow down to 20km/h when passing a school bus.

31 I also note that the Applicant has proffered that no trucks would depart the Site during drop-off and pick-up periods for the school bus, which is anticipated to be 08:30 to 09:00 and 15:00 to 15:30. This is considered to be sufficient to provide separation between trucking from the Site and interactions with the school bus.

32 The second safety and efficiency concern sought assurance is that there will be no trucking operations from this Application Site along Cargill Road. I confirm that Cargill Road is not on the proposed trucking routes.

R Williams

33 This submission highlights several concerns that I address in turn. I note that these all relate to effects on SH6 and that Waka Kotahi (the Road Controlling Authority) have not raised concerns regarding these matters.

Pinch-points

34 There are several locations of pinch points on the road network and concerns have been raised with regards to road safety in these areas. These locations have been highlighted in the TMP so that truck drivers are aware of the need to take additional care of other road users. The pinch-points in particular occur at tight bends in the road, so the trucks will need to be travelling slowly at these locations to negotiate the bends.

35 Whilst I acknowledge that there are narrow segments of road network along both the northern and southern trucking routes, this road is a State Highway and is available for all road users including truck traffic. Furthermore, the purpose of the State Highway network is for the movement of people and goods nationwide, so the use of this road for trucks should be expected.

Cycle safety

36 The safety of cyclists has also been specifically raised as a concern in this submission and many others. I note that Waka Kotahi has completed a shared path between Waikori Road to the Truman Tack access, through Punakaiki (including segments provided through the Dolomite Point development). This provides an off-road route where there may be a focus for cyclists.

37 Whilst cyclists may encounter trucks on the remainder of the route, the frequency of Mine trucks travelling in the same direction as the cyclists would be in the order of two to three per hour. These truck drivers would need to take care whilst passing the cyclists, as would all other road users.

38 The TMP is proposed to be regularly updated. As such, additional locations can be added if truck drivers are regularly encountering cyclists along the trucking routes.

39 I discuss the effects on cycle pedestrian and cycle safety further when I respond to matters raised in the Grey District Council Section 42A report at paragraph **Error! Reference source not found.**.

A Alford

Road Capacity

40 The first concern raised in this submission is with regards to my calculation of road capacity provided in the ITA, which suggested a capacity of 1,620 vehicles per hour. The review in the ITA considered the route as a whole on the basis:

(a) a typical lane width of 3.2m;

(b) there is no clearance of each side of the road, and

(c) moderate terrain (i.e. some flat and some hilly sections).

41 A more conservative assessment that considers the whole route to have 'long sustained' steep grades would lead to a capacity of 1,224 vehicles per hour. This compares to a peak traffic volume on the road network (with the proposal) of 120 vehicles per hour, so even a conservative assessment indicates there is ample traffic capacity on SH6 to accommodate the proposal.

Austroads Guides

42 A concern has been raised in that the ITA has not referred to *Austroads Guide to Traffic Management Part 4: Network Management Strategies*. I consider this to be a document that assists Road Controlling Authorities (such as Waka Kotahi) plan the use of their road network and balance the differing needs of all road users. In my experience, this document is not used when considering the effects of proposed land use developments.

43 This submission also references the Austroads *Guide to Traffic Management Part 12: Traffic Impacts of Developments* and queries why this was not referenced in the ITA. In my experience, this is not a document that is typically referenced as there are other more specific New Zealand guidelines that are available and relevant. This was referenced in the ITA and includes the NZTA *Integrated Transportation Assessment Guidelines*. I consider the scope of the assessment provided to be acceptable given the volume of traffic generated and note that Waka Kotahi have not raised concerns regarding the scope of the ITA.

General – Road Safety including Pedestrian & Cycle Safety

44 Many submissions raised concerns regarding road safety and this included pinch-points, pedestrians, cyclists and school bus travel. These matters have been covered when addressing the above submissions and again below at paragraph **Error! Reference source not found.**.

General – Road Maintenance

45 Many submissions questioned the effects on the formation of SH6 and the increased maintenance requirements. Waka Kotahi are responsible for the maintenance of this road and they have not objected. I also understand that the cost of maintenance is covered through Waka Kotahi funding and Road User Charges (which are specifically collected for diesel trucks based on the travel distance). As such, the cost of road maintenance is not directly attributed to the residents in the vicinity of the trucking route.

Matters raised by WCRC and GDC staff reports

46 I have reviewed the Grey District Council Section 42A report as it relates to transport matters. I note that the report generally accepts that the transport effects of the proposed development are acceptable, although additional information is specifically requested at Point 10. I have responded to that request in the Supplementary information provided in Attachment 2.

47 In summary, I note that NZTA has already undertaken works to provide safe pedestrian and cycling facilities on the trucking routes where there is an elevated demand for these modes. Much of the remainder of the network is arguably not conducive to walking and cycling, although this needs to be balanced with the low demands for these modes.

48 I have reviewed the existing crash history of the trucking route for pedestrian and cycle crashes and note that no crashes were reported in the rural areas during the most recent ten-year period. Again, this is consistent with the low volumes of pedestrians, cyclists and the traffic being dispersed over the course of a day.

49 I have reviewed promotional material regarding cycling on the West Coast and there does not appear to be specific encouragement for cycling on the trucking routes. Whilst the proposed Mine site will increase the truck volumes on SH6, I do not consider the increase of two to three trucks per hour per direction to notably increase the exposure of cyclists to crashes.

50 The proposed TMP identifies a range of measures for implementation by the Mine associated with their truck drivers. These highlight locations where drivers need to take care, particularly when passing pedestrians, cyclists and school buses.

51 Although the arrangement of the majority of the trucking route is not ideal for cycling and walking, I consider that the proposed Mine truck traffic on this route would not notably compromise the safety of these modes.

Proposed consent conditions

52 The proposed Conditions include several that relate to transport matters. In brief, these are:

(a) Condition 12.1 –Sets the hours of trucking material off-site as not occurring during the hours of darkness, which are defined as between 30 minutes after sunset to 30 minutes before sunrise;

(b) Condition 14 – Relates to the design and construction of the Site access;

(c) Conditions 15.1 to 15.7 – Set out the maximum number of truck movements per hour and per day, the hours of trucking (including the need to avoid school drop-off and pick-up times), plus the maximum number of light vehicle movements per day; and

(d) Condition 15.8 - Requires the preparation and implementation of the TMP for the Site.

53 I have reviewed the proposed conditions as they relate to transport matters and consider these to be appropriate.

Conclusion

54 Overall, I consider the transport effects of the proposed Mine development to be no more than minor and acceptable.

Nicholas Peter Fuller

Dated this 19 day of January 2024

Attachment 1: Draft Transport Management Plan

Transport Management Plan

TIGA MINERALS & METALS LTD

Barrytown Flats
Greymouth District

January 2024

Transport Management Plan
Prepared for

TiGa Minerals & Metals Ltd

Barrytown Flats
Greymouth District

Document Date:	**19/01/2024**
Document Version/Status:	Revision C | DRAFT
Project Reference:	0746-001
Project Manager:	Nick Fuller, Principal Transport Engineer
Prepared by:	Nick Fuller, Principal Transport Engineer
Reviewed by	Rhys Chesterman, Director and Traffic Engineer/Planner

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Appendices

Introduction

1. To provide a Transport Management Plan (TMP) for the TiGa Minerals and Metals Ltd (TiGa) trucking operation at Barrytown in the Grey District. The approximate Site location is illustrated in **Figure 1**.

Figure 1: Site Location

2. Two trucking routes are potentially available from the Site. The first is to Westport (to the north via State Highway 6) and the second is to Greymouth (to the south via State Highway 6). The following TMP is generic to both routes, unless specifically stated otherwise.

3. Both the Buller Port in Westport and the Grey Port in Greymouth are being developed for bulk and container transport of materials. While this development is still underway, the Heavy Mineral Concentrate (HMC) from the Site will be transported south by truck to a rail loadout, where it will then be transported by rail to a port on the east coast of the South Island for export. When the Buller and Grey Ports become fully operational for bulk transport, the transport logistics options will be re-assessed.

Objectives

4. The TMP objective is to ensure the safe and efficient operation of the road transport network between the Site and either the Port of Greymouth or the Port of Westport, or a rail loadout at each town (as appropriate).

Scope

5. This document applies to heavy vehicles travelling to and from the mine site in **Figure 1**.

Roles & Responsibilities

Operations Manager

(a) The Operations Manager is responsible for the implementation and enforcement of this procedure.

(b) The Operations Manager must authorise any personnel to perform any duties of this procedure and ensure that they are competent to complete their duties.

(c) Approve any 'permits to work' prior to starting tasks if required (or delegate authority).

Employee / Contractor

(a) All workers shall ensure their own fitness for work at the commencement of every shift.

(b) To only operate a vehicle for which they have been trained and deemed competent.

(c) To undertake any site and driver specific inductions prior to undertaking trucking.

Transport Management Plan Details

6. The Transport Management Plan (TMP) is in place for activities involving heavy vehicles travelling to / from the site for the purpose of HMC transport.

Incident Reporting

7. All vehicle incidents (including a near miss) must be reported to the Project Manager on an Incident Report form. This must be completed by the employee / contractor involved in the incident immediately if practical, but no later than the end of that shift or visit.

8. A register of incidents will be maintained by TiGa and a copy of this register will be made available to Council upon request. This will also include transport incidents (including a near miss) that are raised by stakeholders at the Community Liaison Group.

9. This TMP shall be updated by TiGa should a trend in road safety incidents be identified (such as three or more instances of the same incident) that indicates the existing measures are insufficient to adequately address road safety issues being reported. The update will include practicable measures to mitigate the identified issues, or a requirement to raise concerns with the appropriate Road Controlling Authority.

10. Truck drivers are also to report regular observations of cyclists in the road along the trucking route to the Project Manager. This TMP will be updated (if required) to identify these locations on the plans in **Appendix 1 and 2** so that all drivers are aware of these locations and the need for care with regards to cyclists.

Staff Travel

11. TiGa will encourage the use of a private bus service for all operators, which will collect personnel from pre- determined locations in Greymouth and along the way to the Site. Personnel from outside of Greymouth will either make their way to pick up locations or drive to the Site.

Heavy Vehicle Operating Hours

12. Truck movements[1] associated with removal of heavy mineral concentrate to and from the Site must be limited to 50 per day and 5 per hour (both averaged over a one week period) between the period starting 30 minutes before sunrise and ending 30 minutes after sunset each day[2].

13. The truck movements associated with the removal of heavy mineral concentrate shall be limited to no more than 3 per hour between 0500 and 0700 each day.

14. No heavy vehicles will leave the site during school drop-off and pick-up periods at Barrytown School. These will be agreed with the School, but are nominally 08:30 to 09:00 and 15:00 to 15:30.

Vehicle Interactions

15. New Zealand Road Codes apply at all times. Drivers should be aware this is an area of extensive tourist activity, and it should be expected to encounter local residents and tourist in cars, campervans, with caravans, cyclists and walkers/ runners along the trucking routes. Drivers will need to take care, especially when passing cyclists and walkers/ runners, providing at least 1.5m separation to cyclists when passing.

16. Drivers must slow and drive no faster than 20km/h until they are well past parked school buses, regardless of which direction they are approaching the bus from.

17. Drivers will also be expected to pull over to let following vehicles pass where this is safe and practical to do so.

Locations of Care

18. The diagrams in **Appendix 1** (Northern Route) and **Appendix 2** (Southern Route) identify locations where drivers will need to take additional care of other road users. This includes locations where there are:

    (a) Tight road geometry;
    (b) Pedestrians anticipated to be crossing the road;
    (c) Cyclists anticipated; and
    (d) Schools.

19. It is expected that these plans will be updated to reflect ongoing changes in road conditions and adjacent activity.

[1] A movement is defined as being a movement either to or from the site. A truck and trailer unit entering and leaving the site is therefore 2 movements.
[2] Sunrise and Sunset times will differ throughout the year, and are determined by sunrise and sunset times at Westport, which can be found at the following website: https://www.sunrise-and-sunset.com/en/sun/new-zealand/westport/2023/june

Reporting of Pavement Defects

20. All staff will advise the Operations Manager where they identify that maintenance is required to State Highway 6. The Operations Manager will liaise with the New Zealand Transport Agency so they are aware of it and can add it to their maintenance schedule.

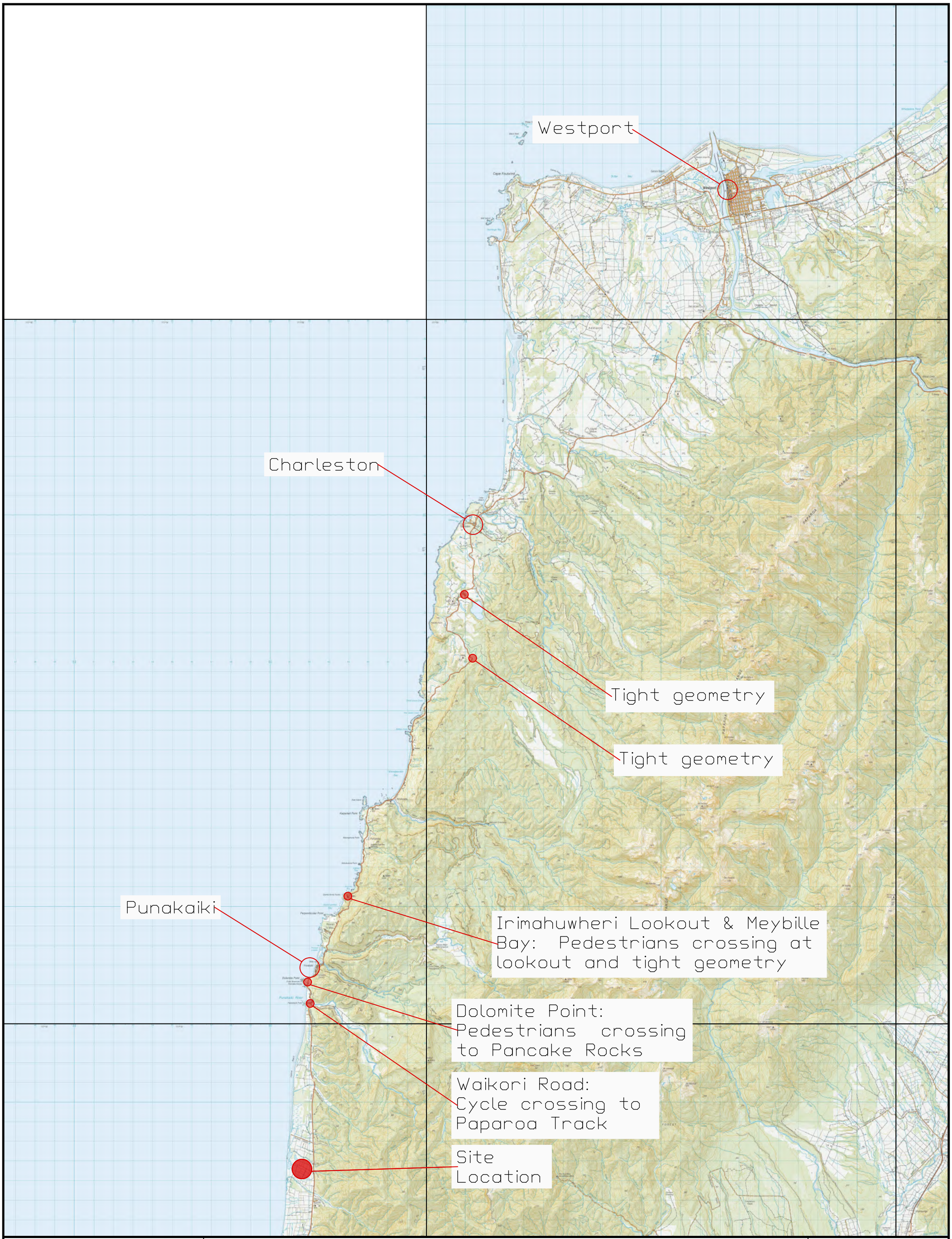
Reporting of Wildlife Interactions

21. Drivers will report all encounters with tāiko and other wildlife by all mine related vehicles throughout the year to the Operations Manager. In the event that any native wildlife collides with a mine related vehicle, the Avian Management Plan will be reviewed with a view to avoiding any further mortality.

22. Reports are to include the date, time, approximate location and number of birds (if known). The Operations Manager will be responsible for maintaining an incident log and upon receiving a report of a bird strike will notify the Department of Conservation as soon as practicable.

Appendix 1

Northern Route



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Barrytown Mineral Extraction Site
TiGa Minerals & Metals Ltd

Northern Route Constraint Locations

For Information

746-001 - TMP Routes - Rev A

Sheet
746-001-DWD1001-A

Scale Not to Scale
Date 28/11/2023
ByN Fuller
Project #746-001

Appendix 2

Southern Route

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Barrytown Mineral Extraction Site
TiGa Minerals & Metals Ltd

Southern Route Constraint Locations

For Information

746-001 - TMP Routes - Rev A

Sheet
746-001-TR1002-A

Scale Not to Scale
Date 28/11/2023
ByN Fuller
Project #746-001

Attachment 2: Supplementary Pedestrian & Cycle Assessment

18 January 2024

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MEMO

FROM: Nick Fuller, Principal Transport Engineer

PROJECT REF: 746-001

BARRYTOWN MINERAL EXTRACTION
TIGA MINERALS & METALS LTD
SUPPLEMENTARY TRANSPORT INFORMATION

1. The purpose of this memo is to provide the additional information requested at point 10 of the Grey District Council's Section 42A report for the above proposal. That request is as follows:

   Please provide an assessment by a suitably qualified and experienced person that addresses the actual and potential adverse effects on the safety of pedestrians and cyclists on State Highway 6 resulting from the increased traffic generated by the activity. As well as other relevant information, it should comment on:

   a. The condition of the carriageway of the coast road (SH6) and any pedestrian and cycling facilities and subsequent their suitability for pedestrians and cyclists;

   b. The evidence for pedestrian and cyclist use of SH6 including Strava records, school bus drop off points and promotion of cycling in the area.

   c. Driver behaviour.

   d. Relevant statistics and guidance material.

   e. Measure to manage any adverse effects.

Existing Pedestrian & Cycling Facilities

2. Plans are provided in **Attachment A** that set out the existing pedestrian and cycle facilities along the routes between the Mine Site and the Port of Westport and Port of Greymouth. In brief. these indicate:

   i. Northern Route:

      (a) A shared path at the start of the Paparoa Track leading north to visitor accommodation;

      (b) A shared path from Dolomite Point (the Pancake Rocks) to the Truman Track; and

      (c) A shared path on the SH67 bridge across the Buller River and footpaths within Westport.

ii. Southern Route:

(a) A footpath through part of Runanga, where there is development on the western side of the State highway; and

(b) Footpaths throughout Greymouth, starting at the SH6 bridge across the Grey River.

3. The suitability of these facilities (or lack of facilities) is discussed later in this memo.

Pedestrian & Cycle Usage

Cycle Use

4. I am not aware of any cycle counts along State Highway 6 on the route that the Mine trucks would take. I note that the New Zealand Transport Agency (NZTA) has published a series of maps that review cycle volumes from Strava and heavy vehicle volumes to identify locations of significant use by both users[1]. The only available map in the vicinity of the Mine site and route is at Greymouth, which suggests State Highway 6 is a popular route from Greymouth northwards to Taylorville Road. I note that only roads with greater than 500 heavy vehicles per day are highlighted on these maps.

5. Information on Strava suggests that there is a focus of cycling demand around Punakaiki and Dolomite Point (for the northern route) as well as around 10 Mile and 17 Mile, plus Runanga to Rapahoe (and back) for the southern route. The number of 'attempts'[2] of these routes varies, but can be up to 1,350 and date back to 2011. This suggests there are approximately 104 'attempts' per year. That said, I do not know what percentage of all cyclists would use Strava to log their rides so I cannot draw conclusive usage information regarding the number of cyclists on the State Highway, although I consider these volumes to be low.

Pedestrian Use

6. I have also reviewed the running routes on Strava to identify potential locations of runners. The hill to the south of Dolomite Point appears to be a location used by runners, (with 564 attempts by 391 people at the 320m section from the accommodation up the hill). There is a sealed shoulder at this location that I assume the runners use to keep out of the carriageway. Similarly, there is a segment of SH67 on the approach to Westport that has attracted 979 attempts by 681 people and appears to be on the Buller Marathon route). The southern route has sporadic locations with no more than 50 attempts each, suggesting minimal demand along these segments.

7. I anticipate there would be a pedestrian demand around Dolomite Point and Punakaiki, which is accommodated by the shared path. There would also be a limited demand for walking within Charleston, Barrytown, Rapahoe and Runanga. That said, there is little in terms of commercial activity in these locations, again suggesting that pedestrian demands

[1] https://www.nzta.govt.nz/walking-cycling-and-public-transport/cycling/cycling-in-new-zealand/heavy-vehicle-road-cyclists-maps/

[2] This is the number of times users have undertaken the ride, rather than the number of Strava users that have undertaken the rise. As such, riders can undertake several 'attempts' at a ride.

would be low. Pedestrians are also able to use the shoulders to walk through these areas, so they will not be within the carriageway.

8. Overall, I considered that pedestrian demands along the trucking routes are generally low.

School Bus Routes

9. Various school bus routes have been identified along the routes taken by trucks associated with the proposed Mine Site, as follows:

   i. Barrytown School bus route runs along SH6 between Golden Sands Road (to the south) and Hartmount Place in Punakaiki (to the north);

   ii. Grey Main School, John Paul II High School, St Patrick's School (all Greymouth) – runs between Greymouth and Punakaiki;

   iii. John Paul II High School and St Patrick's School (all Greymouth) – runs between Rununga and Greymouth;

   iv. Buller High School & Westport South School – runs between Charleston and Westport.

10. The above routes are illustrated in **Attachment B**.

Promotion of Cycling in the Area

11. I have reviewed information promoting cycling on the West Coast. The main route promoted is the *West Coast Wilderness Trail*, which runs between Ross and Greymouth and therefore not along the proposed trucking routes (see **Figure 1**).

Figure 1: West Coast Wilderness Trail[3]

[3] Source: https://www.westcoastwildernesstrail.co.nz/explore-the-trail/trail-overview-map/

12. The *Kawatiri Coastal Trail* is also promoted as a cycling option. Currently, the only segment completed on the trucking route is in Charleston and this appears to be away from the State highway. The remainder of this route is not well described, but appears to largely follow the coast and not the State highway, so I would not anticipate this to increase the cycle numbers on the northern trucking route.

Driver Behaviour

13. The New Zealand Road Code requires that drivers provide 1.5m separation between the vehicle and the cyclist when overtaking, with drivers being required to ensure there is a clear space to accommodate safe passing.

14. The New Zealand Road Code sets out requirements for passing school buses. This requires that drivers must slow and drive no faster than 20km/h until they are well past the bus, regardless of which direction they are approaching the bus from.

Relevant Statistics & Guidance Material

Crash History

15. I have reviewed the reported crashes on the proposed trucking routes to identify reported crashes involving pedestrians and cyclists in the most recent ten-year period available. This review identified:

    i. Northern Route:

        (a) No cycle related crashes; and

        (b) No pedestrian crashes.

    ii. Southern Route:

        (a) No cycle related crashes; and

        (b) Two pedestrian crashes, both in the vicinity of the Tainui Street / Makay Street intersection within urban Greymouth.

16. The above indicates there is no existing trend relating to pedestrian or cycle crashes along the proposed trucking routes.

Relevant Guidance Material

Safety Issues for People Who Cycle

17. This information was published by the NZTA[4] on their website. This identifies that the typical crash for cyclists in rural areas is being struck from behind on a straight road. The key contributing factor to this type of crash is a lack of shoulder, where the number of crashes is illustrated as notably dropping where as little as 0.1m of shoulder width is

[4] https://www.nzta.govt.nz/walking-cycling-and-public-transport/cycling/cycling-standards-and-guidance/cycling-network-guidance/cycle-network-and-route-planning-guide/principles/safety-issues-for-people-who-cycle/

provided. This has been identified as being a particular issue related to heavy vehicles, because of the additional width of those vehicles.

18. Accepting the above, I note that no cycle crashes have been reported on the trucking routes in the most recent ten-year period. This suggests that the low traffic volumes along with the low number of cyclists leads to a low exposure rate for cycle crashes. Whilst the proposed Mine will increase the number of trucks on the road, I do not consider the increase of two to three trucks per hour[5] to notably increase the exposure of cyclists to crashes. I also note that the Mine Consent is sought for a finite period (twelve years), which means that these truck volumes will eventually cease.

Austroads Guidance

19. I have reviewed the Austroads design guides to understand at what point a cycle facility is required. Much of the guidance is based on the assumption that a cycle facility is being constructed and therefore focuses on the design of that facility. That said, the Guide to Traffic Management (Part 4 – Network Management) recommends that cycling within the carriageway is not accommodated where vehicle speeds are above 60km/h. This would suggest that very little of the trucking route is acceptable for on-road cycling, regardless of the Mine project.

20. Whilst I accept the above is the guidance provided by Austroads, I also note that the NZ Transport Agency is promoting cycling on a range of State highways that do not meet this criteria as illustrated in **Figure 2**. This includes segments of State Highway 7 (Hanmer Springs to Reefton) and State Highway 6 (Westport to Murchison) for example.

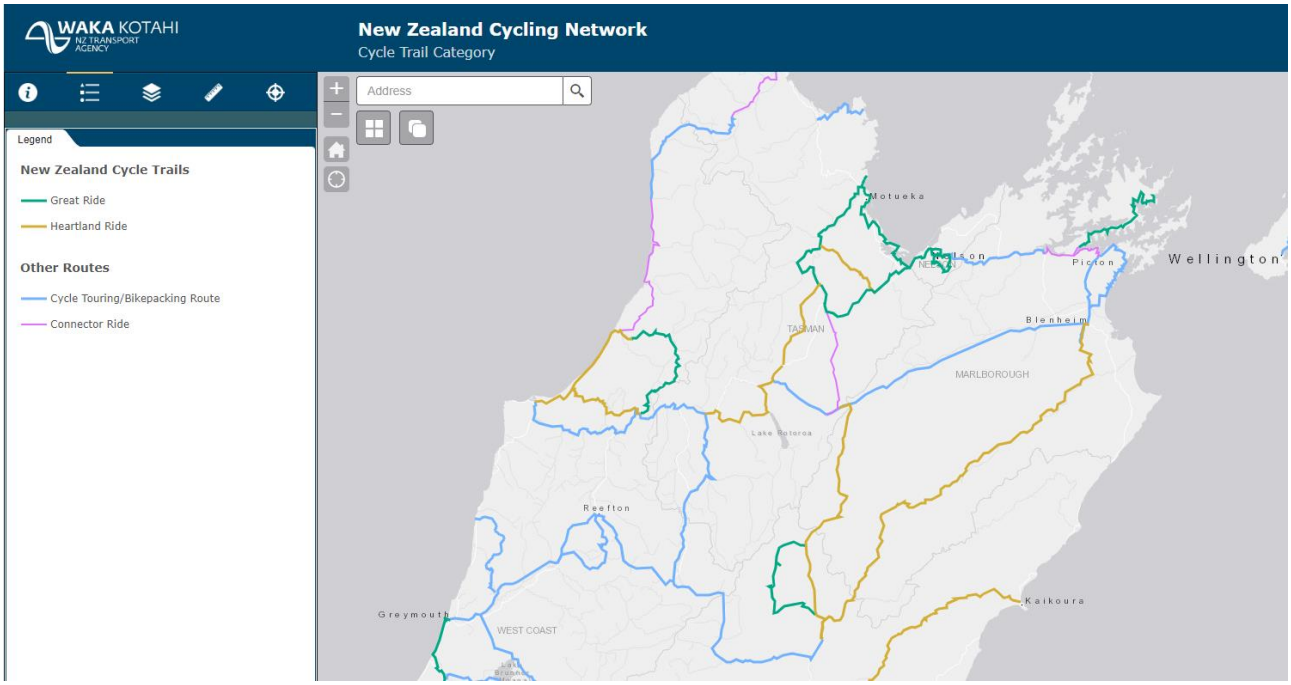


Figure 2: Extract of NZTA New Zealand Cycling Network

[5] Based on there being five trucks per hour in two directions.

Mitigation Measures

21. A Traffic Management Plan has been prepared that will need to be adhered to by Mine truck drivers. This includes the following measures to assist in mitigating road safety concerns:

    i. Identifies pinch-points in the road network, where drivers will need to take care;

    ii. Requires drivers to report where they regularly see cyclists so other drivers can be aware of these locations;

    iii. Avoids truck traffic departing the Site around school pick-up and drop-off times for the Barrytown School;

    iv. Reminding drivers to take care when passing cyclists and provide 1.5m separation to those cyclists; and

    v. Reminding drivers to slow to at least 20km/h when passing parked school buses.

Summary

22. In summary, it is apparent that NZTA has undertaken works to provide safe pedestrian and cycling facilities on the trucking routes where there is an elevated demand for these modes. Much of the remainder of the network is arguably not conducive to walking and cycling, although this need to be balanced with the low demands for these modes.

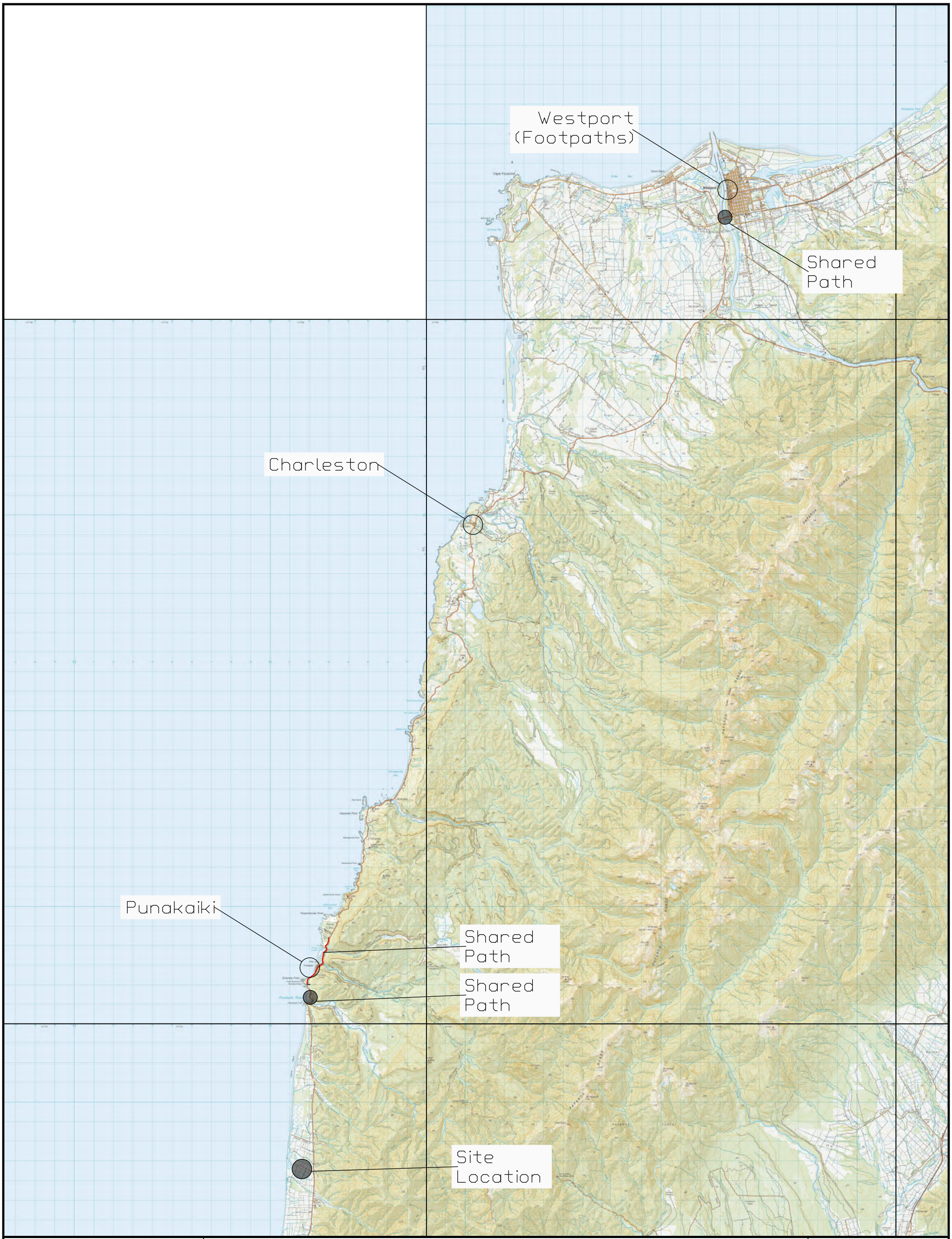
23. The existing crash history of the trucking route has been reviewed, with no pedestrian or cycle crashes reported in the rural areas during the most recent ten-year period. Again, this is consistent with the low volumes of pedestrians, cyclists and traffic dispersed over the course of a day.

24. I have reviewed promotional material and there does not appear to be specific encouragement for cycling on the trucking routes. Whilst the proposed Mine site will increase the truck volumes on these roads, I do not consider the increase of two to three trucks per hour per direction to notably increase the exposure of cyclists to crashes.

25. A Traffic Management Plan has been proposed that identifies a range of measures for implementation by the Mine associated with their truck drivers. These highlight locations where drivers need to take care, particularly when passing pedestrians, cyclists and school buses.

26. Although the arrangement of the majority of the trucking route is not ideal for cycling and walking, I consider that the proposed Mine truck traffic on this route would not notably compromise the safety of these modes.

Attachment A: Pedestrian & Cycle Facilities



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Barrytown Mineral Extraction Site
TiGa Minerals & Metals Ltd

Northern Route: Existing Pedestrian & Cycle Facilities

For Information

746-001 - TMP Routes - Rev A

Sheet
746-001-TR1003-A

Scale Not to Scale
Date 15/01/2024
ByN Fuller
Project #746-001

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Novo Group Limited PO Box 365 Christchurch 8014 NovoGroup.co.nz	**Southern Route: Existing Pedestrian & Cycle Facilities**	Scale Not to Scale
	For Information	Date 15/01/2024 ByN Fuller
	746-001 - TMP Routes - Rev A	Project #746-001

Attachment B: School Bus Routes

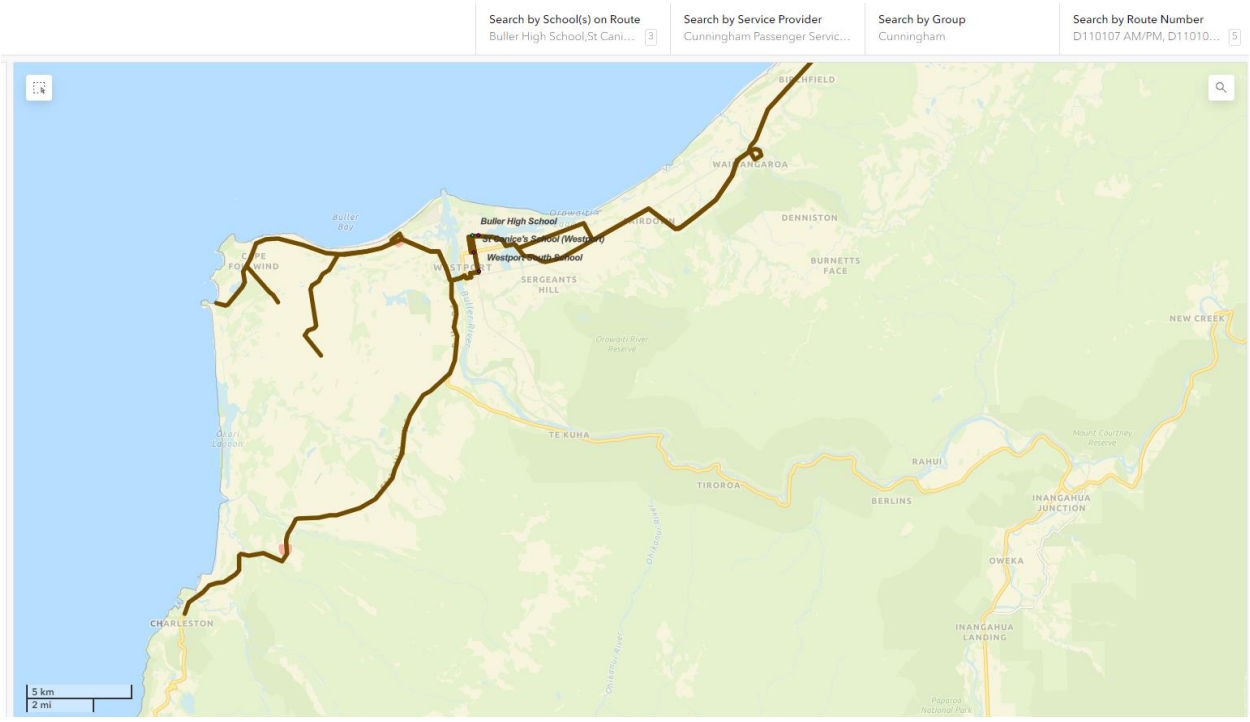

Figure 3: Westport School Bus Routes

Figure 4: Barrytown School Bus Route

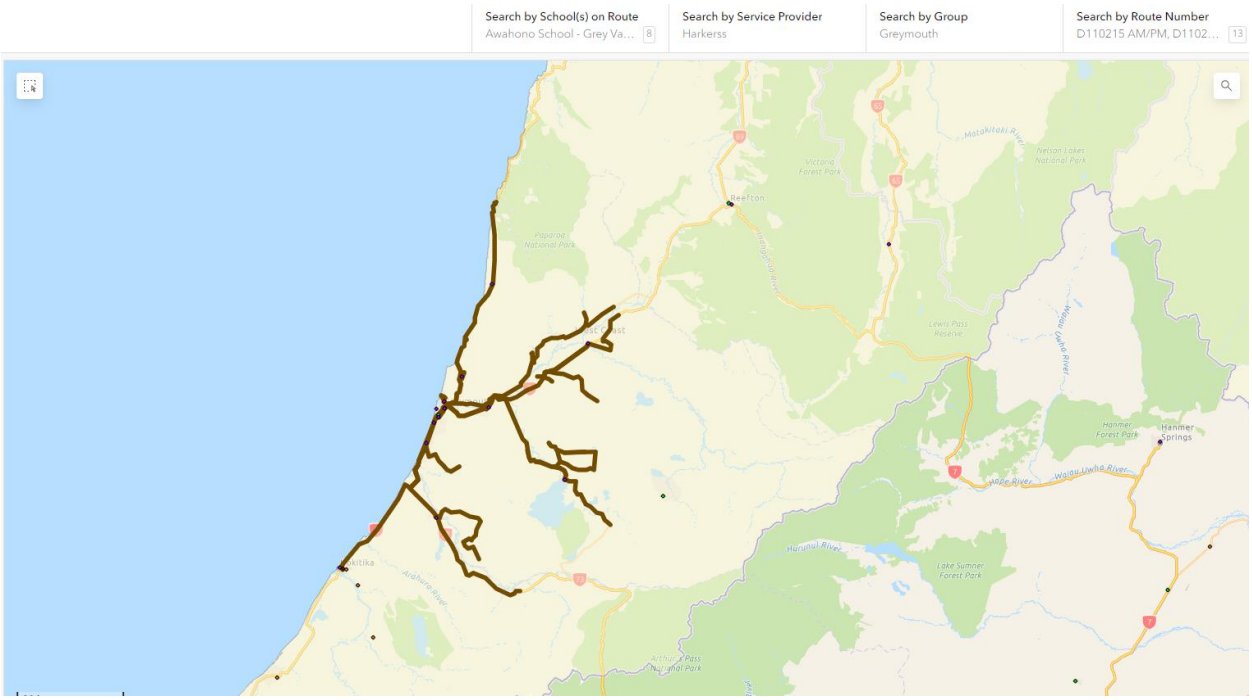

Figure 5: Greymouth School Bus Routes