



Planning | Surveying | Engineering | Environmental

Integrated Transportation Assessment

Allen Fabrics Limited

239 East Mine Road, Huntly, New Zealand

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TABLE OF CONTENTS

1	Introduction	1
2	Site Location.....	1
3	Existing Road Network	4
3.1	Physical Environment.....	4
3.2	Traffic Volumes	7
3.3	Road Safety	11
4	Sustainable Travel Modes	11
4.1	Walking and Cycling	11
4.2	Public Transport	11
5	Committed Environmental Changes	12
6	Development Proposals	12
7	Assessment of Effects	14
7.1	Traffic Effects	14
7.2	Access Effects.....	22
7.3	Parking Effects.....	24
7.4	Walking and Cycling	25
7.5	Road Safety	25
8	Consultation and Submissions	26
9	Planning Framework	27
9.1	Objectives and Policies	27
9.2	Rules.....	28
10	Conclusions and Recommendations	33

TABLE OF TABLES

Table 1: Proposed District Plan Transportation Objectives/Polices Assessment	27
Table 2: Proposed District Plan Compliance	29

TABLE OF FIGURES

Figure 1: Site Location	2
Figure 2: Area of Proposed Rezoning	3
Figure 3: East Mine Road Looking West	4
Figure 4: East Mine Road Level Crossing Looking West.....	5
Figure 5: Great South Road Looking North.....	6
Figure 6: McVie Road Looking South	7
Figure 7: Surveyed Traffic Volumes - Weekday AM Peak Hour.....	8
Figure 8: Surveyed Traffic Volumes - Weekday PM Peak Hour	9
Figure 9: Surveyed Traffic Volumes - Saturday Peak Hour	10
Figure 10: Proposed Zoning	13
Figure 11: Modelled Intersection Layout.....	19

1 Introduction

- 1.1.1 CKL has been engaged by Allen Fabrics Limited (AFL) to assess the effects of a proposed Plan Change to change the zoning of the former Huntly East coal mine. The site is located within the Waikato District. The Operative Waikato District Plan (ODP) is currently being reviewed with the Proposed Waikato District Plan (PDP) being notified in July 2018. The proposed Plan Change is part of the submission to the PDP.
- 1.1.2 At present, the site subject to this submission is included within the rural zone as stipulated in both the ODP and PDP. The southern portion of the overall site is included in the New Residential Zone under the ODP and the Residential zone in the PDP, however this is outside of the scope of the submission and not addressed in this assessment. It is proposed to change part of the rural zoning within the site to a specific Kimihia Lakes Zone to enable that part of the site to be developed as an outdoor recreation and education park. The exact details of the future development are yet to be confirmed however it is likely that the site will predominantly serve as a centre for outdoor education for school trips. It is also anticipated that it will provide an active amenity space for the local community.
- 1.1.3 Overall, five amendments to the rules of the PDP are proposed in order to ensure that the transportation effects of the Plan Change are suitably managed and that the anticipated future development of the site can comply with the PDP. With these amendments in place, it can be concluded that there are no traffic or transportation reasons to preclude approval for the proposed Plan Change.

2 Site Location

- 2.1.1 The approximately 159ha site is located at the end of East Mine Road to the northeast of the urban Huntly area as outlined in blue in Figure 1. The aerial image shows the Waikato Expressway (WEX) to the east of the site as indicated by the dashed red line, while the solid red line represents the main road through Huntly (Great South Road). This still retains an active State Highway 1 (SH1) designation, however, this is expected to revert back to Waikato District Council control once the revocation process is completed.

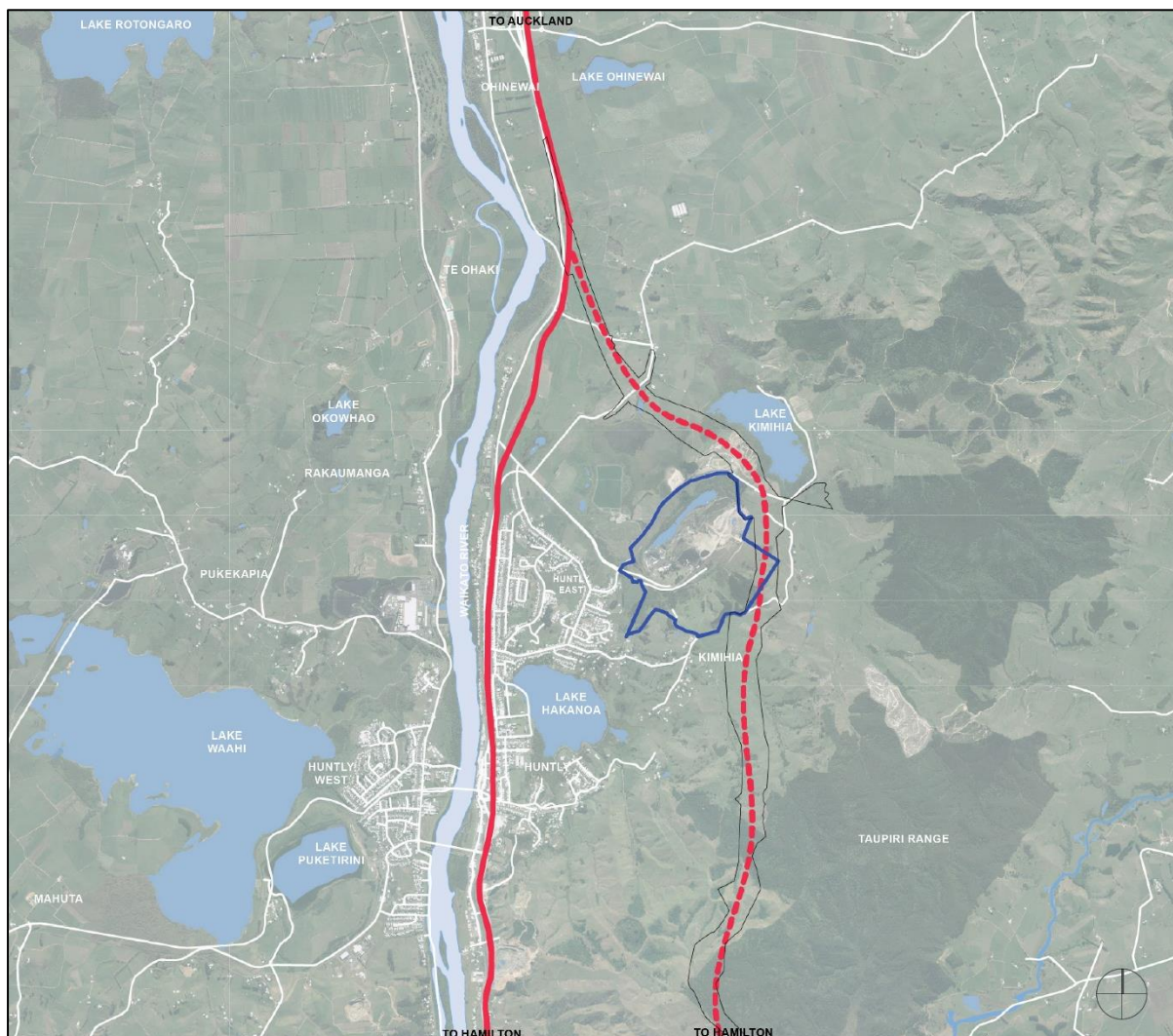


Figure 1: Site Location

2.1.2 Figure 2 below shows the area of the site which is proposed to be rezoned from Rural to Kimihia Lakes Zone under the PDP. This report only assesses the traffic and transportation effects of this proposed rezoning.

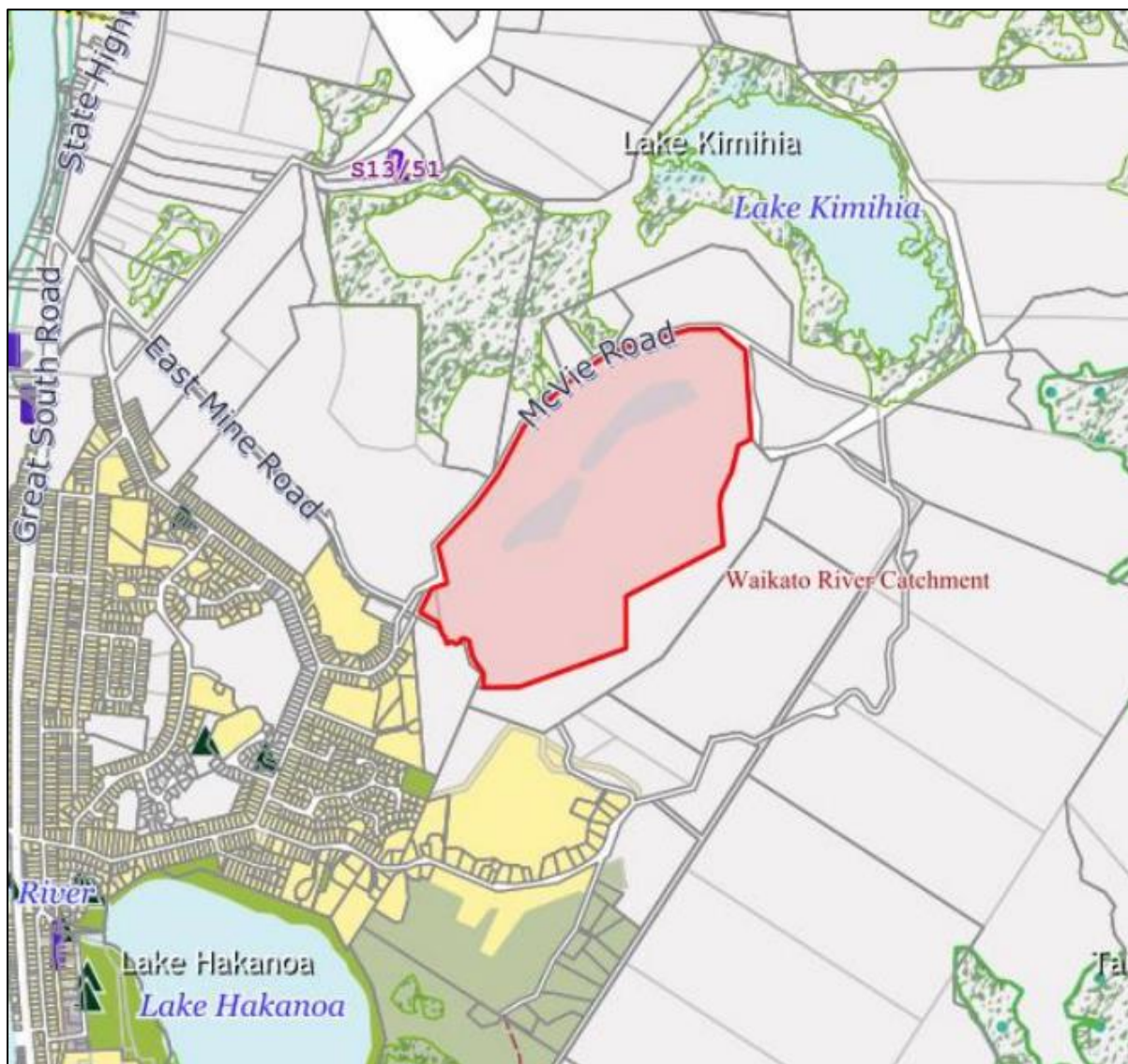


Figure 2: Area of Proposed Rezoning

- 2.1.3 The former mine is located within the Plan Change Area and this is currently being allowed to refill naturally to recreate a lake. It is expected that this lake will not be full for at least five years and will cover a large portion of the site. Mining activities no longer occur from the site.
- 2.1.4 A rail spur off the North Island Main Trunk Line provided access for rail vehicles to the mine to transport coal for Huntly Power Station. There is the potential for this to be developed in conjunction with Waikato District Council as a walking and cycle trail to Huntly town centre, however this is not proposed as part of the proposed rezoning as it requires land outside the control of both AFL and Council.
- 2.1.5 The surrounding area is predominantly rural in nature with the northern suburbs of Huntly to the south and west. The Huntly speedway is located just north of the site.

3 Existing Road Network

3.1 Physical Environment

- 3.1.1 East Mine Road runs east-west and provides the existing means of access to the site from Great South Road. At the time of writing this report, Great South Road is still part of the SH1 designation despite the fact that the Huntly Bypass section of WEX was completed in March 2020. It is expected that the SH1 designation will be changed to the bypass route in the near future. Regardless, the change in technical designation is not considered to have a practical effect on traffic volumes or patterns in the area over and above the changes that occurred following completion of WEX.
- 3.1.2 East Mine Road is a two-way, two-lane road with a posted speed limit of 100km/h. It is classified as a Local Road by both the ODP and PDP. The carriageway is approximately 10m wide with a painted dashed centreline. The public road reserve ends just east of the crossroads intersection with McVie Road and the entrance to the site is currently gated. Figure 3 shows East Mine Road looking west from the gates to the site.



Figure 3: East Mine Road Looking West

- 3.1.3 A level crossing with the North Island Main Truck Line is present on East Mine Road approximately 100m east of Great South Road. There are two tracks at the level crossing which includes lights, bells and half-arm barriers. Figure 4 below shows the existing level crossing looking west towards Great South Road.



Figure 4: East Mine Road Level Crossing Looking West

3.1.4 Great South Road is classified as a National Route by the ODP. With the completion of the Huntly bypass, and while not specifically stated in the PDP, it is anticipated that the hierarchical ranking of Great South Road will be reduced to Regional Arterial route once it is no longer part of the State Highway network. In the vicinity of East Mine Road, Great South Road is a two-way, two-lane road with 1m median separating the opposing traffic flows and 1.5m sealed shoulders on both sides of the carriageway. A right turn bay is provided at the intersection to East Mine Road and the posted speed limit is 70km/h. Figure 5 shows Great South Road when looking north from East Mine Road.



Figure 5: Great South Road Looking North

- 3.1.5 McVie Road is a two-way, two-lane local road that runs along the western and northern boundaries of the site. To the south of East Mine Road, it has a carriageway width of approximately 8m and forms a crossroads intersection with East Mine Road. The posted speed limit reduces to 50km/h on the southern side of East Mine Road in advance of the existing residential areas while the 100km/h speed limit still applies to the north. The northern arm of McVie Road provides access to the Huntly Speedway and has a carriageway width of around 7m.



Figure 6: McVie Road Looking South

3.2 Traffic Volumes

- 3.2.1 A survey was undertaken of the intersection between East Mine Road and Great South Road on Thursday 17 September 2020 from 7am to 9am and 4pm to 6pm. This was considered to represent a typical weekday and was during only a Level 1 status of the COVID-19 lockdown. The survey was also undertaken on Saturday 19 September 2020 from 11am to 3pm to capture the typical weekend peak traffic volumes.
- 3.2.2 Figure 7 to Figure 9 below show the peak hour traffic volumes through this intersection for the weekday morning, evening and weekend peak hours respectively. By way of summary,

East Mine Road has a peak hour volume of 65-75 vehicles per hour (vph) and Great South Road carries 340-400vph.

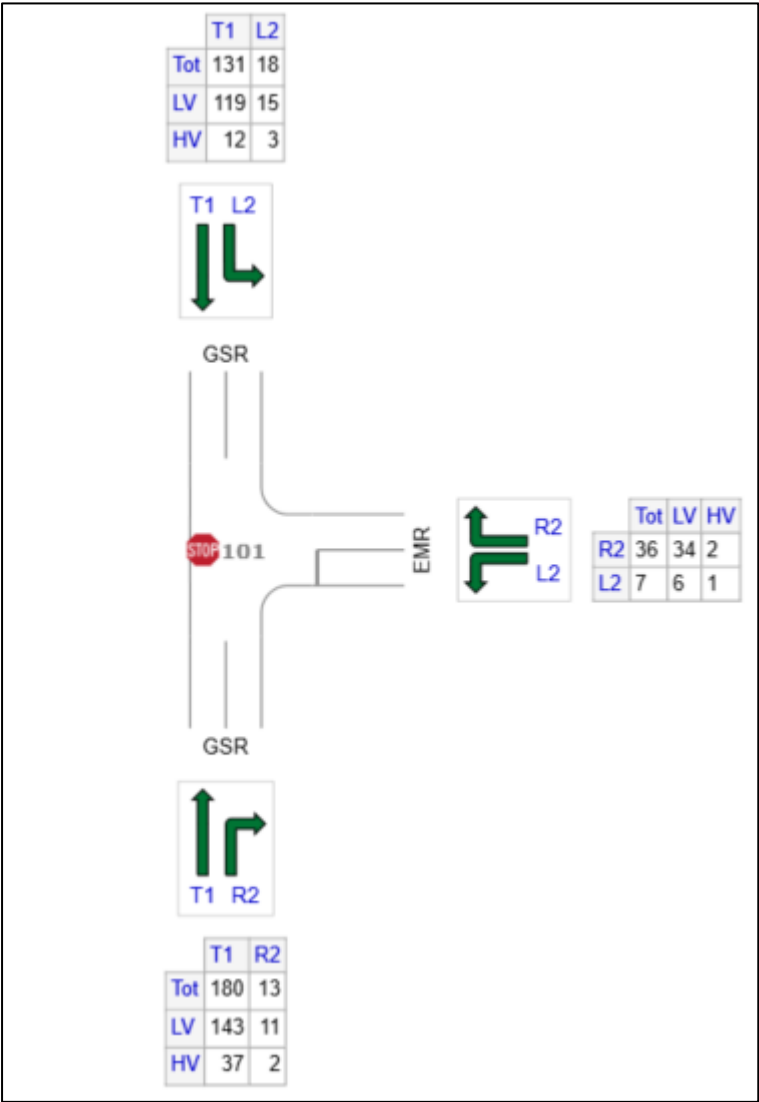


Figure 7: Surveyed Traffic Volumes - Weekday AM Peak Hour

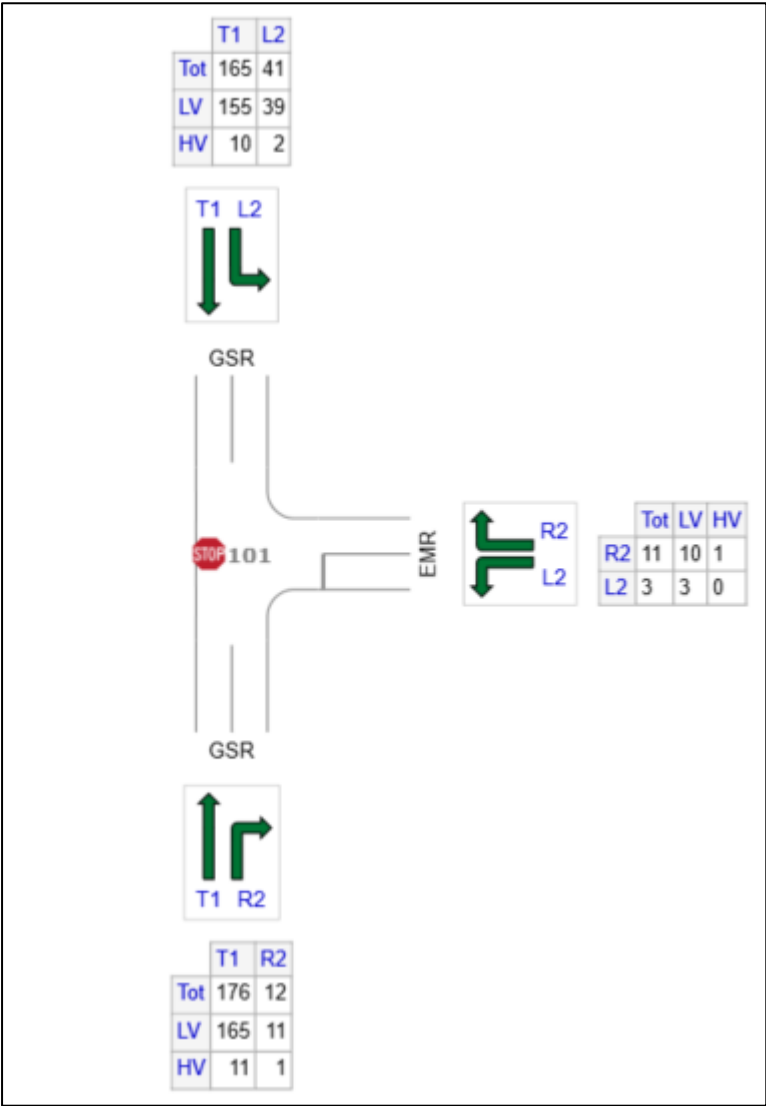


Figure 8: Surveyed Traffic Volumes - Weekday PM Peak Hour

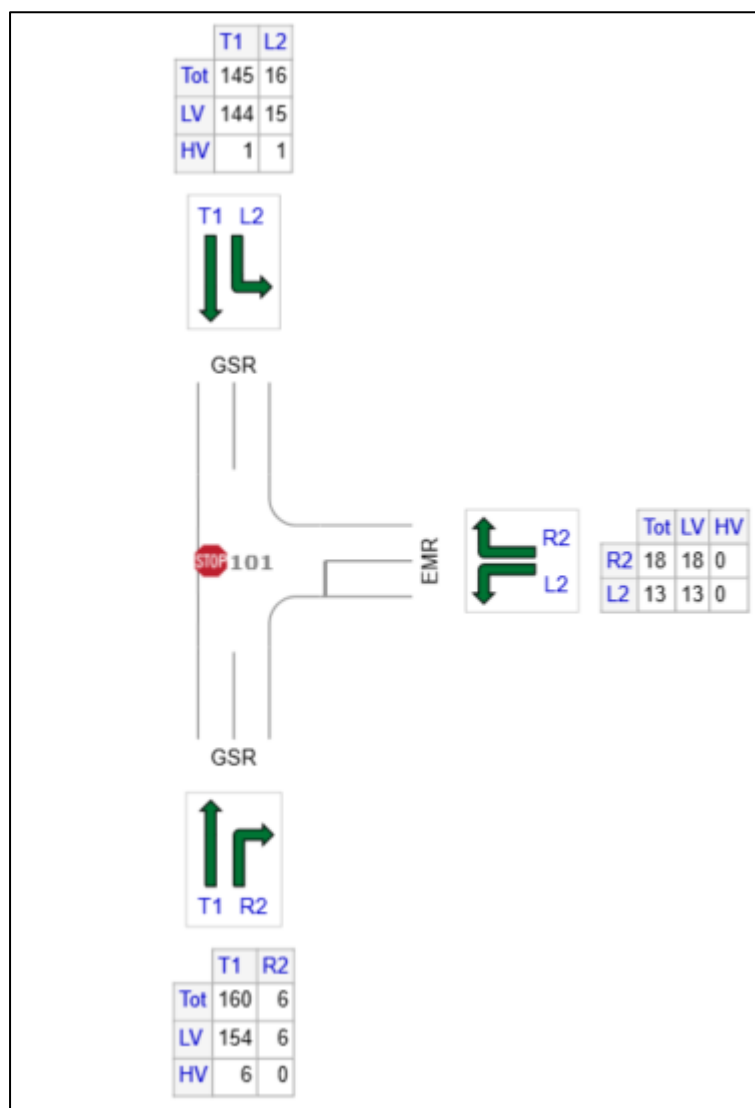


Figure 9: Surveyed Traffic Volumes - Saturday Peak Hour

- 3.2.3 Daily traffic volumes for East Mine Road have been sourced from the MobileRoads database. The latest counts are provided from January 2020 which is prior to any lockdown activity. East Mine Road is reported as carrying some 630 vehicles per day (vpd). The observed peak hour volumes represent 10%-12% of the daily traffic volumes. This is within the typical range that would normally be expected.
- 3.2.4 No daily traffic data is available for Great South Road post completion of the Huntly bypass and that is also not affected by any lockdown activities. Great South Road carried some

24,300vpd¹ and 1,900vph² prior to completion of the Huntly bypass. The current traffic volumes indicate that demand on this road has reduced significantly to around 35% of previous volumes. Similarly, it is reasonable to anticipate that the traffic volumes on East Mine Road have also decreased following closure of the mine.

3.3 Road Safety

- 3.3.1 A search was made of the NZTA's Crash Analysis System for all crashes that had been reported along East Mine Road over the last five-year period. This included a 50m radius around its intersection with Great South Road. The search found that only one crash had been reported within the study area and was located on East Mine Road approximately 1.2km from Great South Road.
- 3.3.2 This crash did not result in any injuries. The reason for the crash was unknown however no road factors were identified as being potential contributors. As such, no existing road safety issues or trends have been identified in the vicinity of the site.

4 Sustainable Travel Modes

4.1 Walking and Cycling

- 4.1.1 Currently there are no specific provisions for pedestrians or cyclists in the area around the proposed site. This is typical for a rural environment. There are footpaths on the southern section of McVie Road some 140m from the intersection with East Mine Road.

4.2 Public Transport

- 4.2.1 Currently there are no provisions for public transport within 600m of the site. Only school buses and interregional services currently service the Huntly area.

¹ AADT published by NZTA for 2018 (24,344 vpd)

² Hourly count data extracted from NZTA TMS Database for February 2020

5 Committed Environmental Changes

- 5.1.1 Huntly Train Station (located approximately 2.5km from the site) is proposed to be upgraded as part of the Te Huia passenger rail service between Hamilton and Auckland. The overall project was planned to be completed by February 2021 but has been recently delayed due required track work in Auckland. Updated timing announcements are due in December 2020.
- 5.1.2 The planned Huntly Station upgrade includes raised platforms, new shelters and a park and ride facility. When operational, the Te Huia service will provide an alternative transport option for those commuting between Huntly, Hamilton and Auckland.
- 5.1.3 It is understood that the potential footpath and cycle path network upgrade in Huntly is in the planning stages that that Waikato District Council will continue to develop their plans over coming months.
- 5.1.4 It is possible that an interchange with the Huntly bypass could be constructed just east of the site at the McVie Road overbridge. However, there are no current commitments or known construction timeframes for such an interchange to be constructed, although it is understood that discussions have been held with Waka Kotahi NZTA.

6 Development Proposals

- 6.1.1 Through the update to the Waikato District Plan, it is proposed to rezone the part of site that is currently included in the Rural zone to a specific zone referred to as the Kimihia Lakes Zone in order allow the site to be developed into an outdoor recreation and education park. The southern part of the site which is already included within the Residential zone in the PDP will remain unchanged.
- 6.1.2 Figure 10 below shows the proposed zoning extent of the Kimihia Lakes Zone which encompasses 159ha.

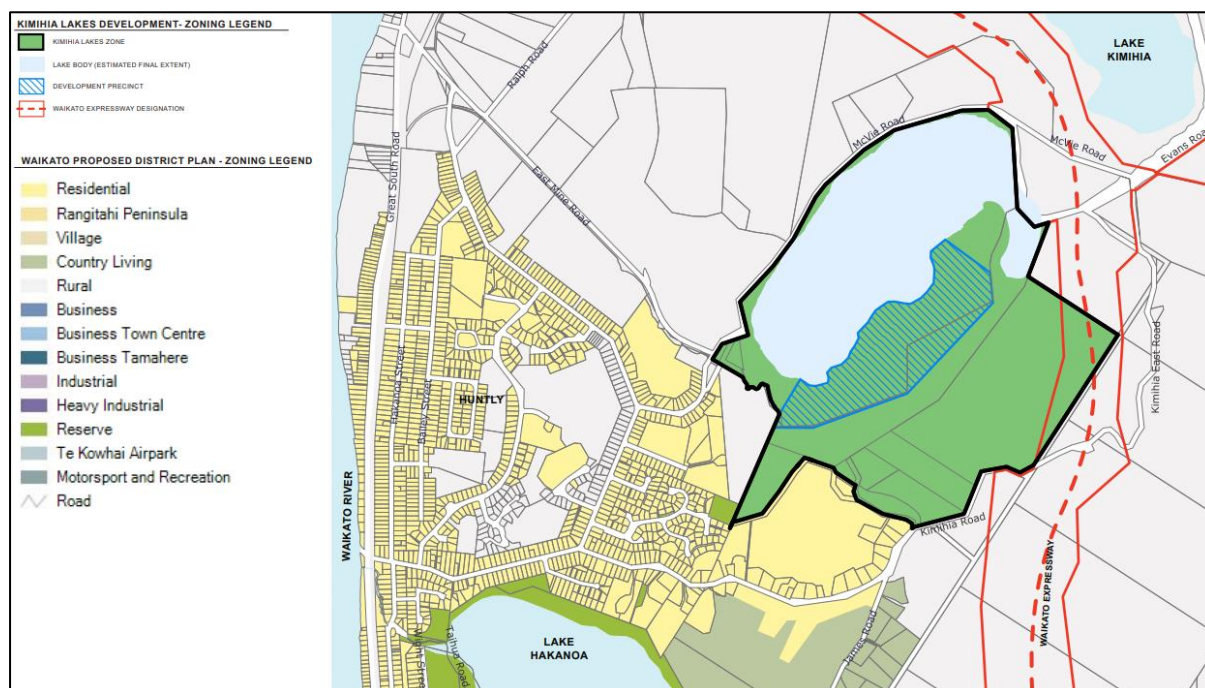


Figure 10: Proposed Zoning

6.1.3 As outlined in the Kimihi Lakes Development Masterplan, the primary vision of future development within the Plan Change area is the development of a multi-purpose park including the rehabilitation and restoration of the site, the inclusion of complementary activities including water-based recreation (swimming, kayaking, waka ama etc.), overnight camping (60 sites) and motel (6 units, assuming 2 x double beds) and bunkhouse style accommodation (4 x 25 dormitories), a coalfields museum, aquatic activity hub, multi-purpose community centre activity hub including a 60 - 80 seat cafe and informal use of the site for other activities such as walking, cycling and picnicking. To enable suitable future proofing, the Plan change also seeks to provide for the ongoing development of similar activities beyond what is currently outlined in the Kimihi Lakes Development Masterplan.

6.1.4 The site was formerly used for mining activities. Mining activities have now ceased, and the mine pit is now being allowed to flood to recreate a lake. It is expected that the lake will take at least five years to fill and will cover a large portion of the site. The lake will be a key feature and attraction of the proposed park.

6.1.5 Access to the site is via the existing extension of East Mine Road. No other connections are proposed or likely to be necessary to support future development within the Plan Change area.

7 Assessment of Effects

7.1 Traffic Effects

- 7.1.1 Initially, it was proposed for large scale type events to be held within the site which may have had crowds in excess of 5,000 people. It is no longer proposed for such events to be held within the site as a permitted activity, however smaller event may be held (for example waka ama) which could accommodate around 1,000 people at any one time. This assessment has focussed on the traffic effects that are likely to occur during typical operation of the site and has also considered the point at which network effects may be more than minor to identify whether a limit on the number of people on site is a necessary control mechanism to manage traffic effects.
- 7.1.2 The primary users of the park are expected to be schools on school camps and day trips. Most students are unable to drive themselves and as is most common with school trips would travel to the site by bus. It is also proposed to provide a shuttle service between the site and Huntly Train Station so that students can use a train service to travel to the site. Using vehicles with higher occupancies would reduce the overall number of trips generated onto the road network, thereby further reducing the change of the number of trips generated being above the capacity of the road network. It is also expected that the site will provide a key recreation amenity for the local community and may form a more regional attraction, particularly during weekends and school holidays.
- 7.1.3 Limited published traffic generation data is available for outdoor adventure park type activities. The Waka Kotahi NZTA Research Report 453 (RR453) *Trips and Parking Related to Land Use* and the New South Wales Roads and Maritime Authorities *Guide to Traffic Generating Developments* do not include any activities that would reflect the proposed activities within the Plan Change area. The Institute of Transportation Engineers (ITE) *Trip Generation Manual* includes trip rates for a Public Park (Land Use 411) which is considered to be the activity that best represents the proposed Plan Change.
- 7.1.4 The typical peak trip rates for the Public Park activity occur on a Saturday. The peak hour is reported as generating 0.1 trips/ha with 0.79 trips/ha generated over the course of the day. With the proposed Plan Change area covering 159ha, this equates to 16 trips being generated in the peak hour and 125 trips over the course of the day.

- 7.1.5 A conservative first principles trip generation has been based on the economic analysis of the proposed Plan Change prepared by Strateg.Ease, which estimates that up to 121,000 people may visit the site per year from 2038. Conservatively assuming that all visitors only visit the site during the weekends, this would equate to 1,163 people visiting the across the course of a day i.e. not all at the same time. Adopting the conversion rate of 10% between peak hours and daily traffic as measured for existing traffic volumes on Great South Road, this would equate to 116 people arriving or departing from the site in any one hour. While a higher vehicle occupancy is likely as the park is likely to attract larger groups of people rather than single people, a conservative vehicle occupancy would be two people per vehicle which equates to a peak hour traffic generation of 58vph. Adopting the same basis would give a 582vpd.
- 7.1.6 In addition, a first principles consideration of traffic generation has been undertaken based on an estimated potential 166 beds, motel units and campsites may be provided. Conservatively assuming that all rooms/campsites are booked, the occupants of a room/campsite drive themselves to the site and that all guests arrive within one hour, the site could generate up to 166 vehicles in the peak hour. This is highly conservative as some guests are likely to be bussed to the site, temporary accommodation facilities typically operate at about 80% occupancy and all guests are unlikely to all leave or depart within a single hour. The assessed daily trip generation is 282vpd based on the RR453 motel trip rate of 1.7 trips/bed.
- 7.1.7 Trips associated with the coalfields museum have been assessed based on published data from ITE for this activity. It is understood that the museum is likely to include outside exhibits and information boards and potentially also indoor exhibition space. It has been estimated that the museum has a gross floor area (GFA) of 500m². Based on the published trip rates, this equates from ITE of to some 0.71trips per hour /100m², 4vph would be expected. Using the same estimation of this representing 10% of the daily demand would lead to an assessment of 40vpd.
- 7.1.8 The community centre hub is expected to include a café. It is unlikely that a café on site would generate standalone trips due to its location and relationship to other development. However, for robustness, the RR453 restaurant trip rates of 0.6 trips per hour per seat and 3.7 trips per day per seat have been applied, resulting in traffic demands of 48vph and 296vpd.
- 7.1.9 Consideration has also been given to use of this space as a function venue for weddings etc. Under this use, it is reasonable to expect that the café is less likely to be open to other

customers. Assuming the capacity of the area is double the seated capacity of the café format, then some 160 people could be expected. Higher car occupancy or the use of group transport options such as buses or minivans is also a reasonable assumption. Overall it is assessed that the assumption of the café generating only external trips (i.e. no customers drawn from within the park users) is robust enough to cover traffic demands associated with a function.

- 7.1.10 School trips have also not been specifically considered in terms of traffic generation. Whilst they are the target market, the group travel characteristics of these types of users means that they are likely to generate less traffic than assuming individual / family use of the site. It is also expected that school groups will be staying overnight and will therefore be accounted for within the dormitory or camping accommodation. It should also be noted that no cross visitation has been assumed within the assessment of daily and peak hour traffic generation. This ensures that a robust assessment of potential traffic effects has been made. The assessed peak hour and daily traffic generation rates are presented in Table 1 below. An assessment of number of attendees per activity has also been provided for ease of comparison with other technical reports. This also allows for consideration of the number of people that can be accommodated on site at any one time based on the road network capacity.

Table 1: First Principles Conservative Traffic Generation Assessment

Activity	Peak hour (vph)	Daily (vpd)	People per day
Park	58	582	1,163
Accommodation (166 beds/camp sites)	166	282	244
Museum (500m ²)	4	40	80
Community centre hub / Café/restaurant (80 seats)	48 (café) 40 (function)	296 (café) 160 (function)	148 (café) 160 (function)
Total	276	1,200	1,635

- 7.1.11 Given the limited published trip generation data available and that trip rates for outdoor parks vary greatly depending on the types of activities on offer, amenities available or the price for entry, a reverse approach has been taken to determine the traffic effects of the proposed Plan Change where the road network has been analysed to determine its capacity and then a calculation has been made as to whether the available capacity of the road network would be greater than the feasible trip generation of the site.

- 7.1.12 It is acknowledged that Huntly International Speedway also gains access to the wider road network via the East Mine Road / Great South Road intersection. Approximately 14 events are held at the speedway during the summer racing season. These typically occur on weekend afternoon/evenings. With the Plan Change site predominantly catering for schools' outdoor education, it is unlikely that events at the speedway will coincide with peak activities at the subject site.
- 7.1.13 All traffic from the Plan Change area is most likely to use the intersection from East Mine Road onto Great South Road. This is the most direct route to the wider road network particularly those coming from outside of Huntly. It is possible that some staff may use Russell Road or McVie Road to travel to the site however this is likely to be a minority and would only relate to staff who live in the northern Huntly area. The assumption that all trips generated by the site would use the East Mine Road / Great South Road intersection is therefore conservative.
- 7.1.14 Analysis has been undertaken on this intersection to understand its performance in the 2030 future year which forecasts the expected traffic conditions ten years into the future. The Waka Kotahi NZTA Economic Evaluation Manual states that arterial roads in an urban setting have a default growth rate of 2% per annum. This has been applied to the through traffic volumes on Great South Road.
- 7.1.15 A SIDRA model has been developed of the intersection between Great South Road and East Mine Road. The existing traffic volumes on Great South Road have been factored up to the 2030 forecast year to create the base case scenario. Traffic volumes from East Mine Road have then been increased until one of three parameters has been reached as listed below:
- Any movement within any peak hour reaches Level of Service (LOS) E
 - The 95th percentile queue length on East Mine Road exceeds 100m
 - The queue length for the right turn into East Mine Road exceeds 70m.
- 7.1.16 LOS E is considered to be the point at which notable delays may form at the intersection and drivers may take shorter gaps when entering the main traffic stream resulting in an increased risk to road user safety. The 100m queuing criteria on East Mine Road ensures that the queuing is unlikely to extend across the level crossing. The 70m queuing criteria for the right turn into East Mine Road ensures that the queuing does extend beyond the turning bay and affect northbound through traffic.

- 7.1.17 The traffic to East Mine Road has been distributed based on a first principles approach. Given that the recreational park is a trip attractor, most trips are likely to be inbound in the morning and outbound in the evening. With potential visitor accommodation within the site, there may be some traffic that travels in the opposing tidal direction. An 80%/20% split has been adopted where 80% of trips are inbound and 20% are outbound in the morning peak hour. This trend then reverses for the evening peak. A 50%/50% split was applied to the weekend peak as traffic patterns are typically not as tidal.
- 7.1.18 The site is situated to attract visitors both from Auckland and Hamilton. While Auckland has a larger population base, the site is closer to Hamilton and staff are more likely to live in the Huntly area. Therefore, traffic has been split 50%/50% to the north/south when turning into or out of East Mine Road.
- 7.1.19 From the modelling undertaken, it was found that the morning peak hour and evening peak hours performed at very similar levels and were both generally busier than the Saturday peak. The weekday evening peak was the first to reach one of the three threshold metrics with the LOS E for the right turn out of East Mine Road occurring once more than 870 total vehicle movements were added through the intersection.
- 7.1.20 The generation of 870 vehicles in a peak hour is approximately the equivalent of a 19,543ha Public Park. For context this is about 195 times larger than Lake Rotoroa and its surrounds in Hamilton or 118 times larger than Cornwall Park in Auckland. Given the location of the site away from major metropolitan areas, it is unlikely that the proposed rezoning would generate as many trips as Lake Rotoroa or Cornwall Park. With regard to the typical trip rates for a Public Park provided in item 7.1.4, a generation of 870 trips in a single hour is 58 times greater than what would be expected for a typical public park of this size. It is also over 3 times the expected traffic generation of 270vph the site based on the robust first principles traffic generation assessment undertaken.
- 7.1.21 For further context, 870 peak hour trips represent a similar level of traffic generation as half of all trips generated by the approximately 1,600 dwellings in Huntly East. This illustrates how unlikely it is that the proposed Plan Change would generate more trips than the road network can accommodate.
- 7.1.22 Figure 11 shows the modelled layout of the intersection and Table to Table summarise the modelling results for the three peak periods and provide a comparison between the 2030 base case scenario, the first principles approach to assessing traffic generation. The '870 scenario'

shows the tipping point of the Great South Road / East Mine Road intersection from the base case LOS D to the 'fail' case where LOS E is reached.

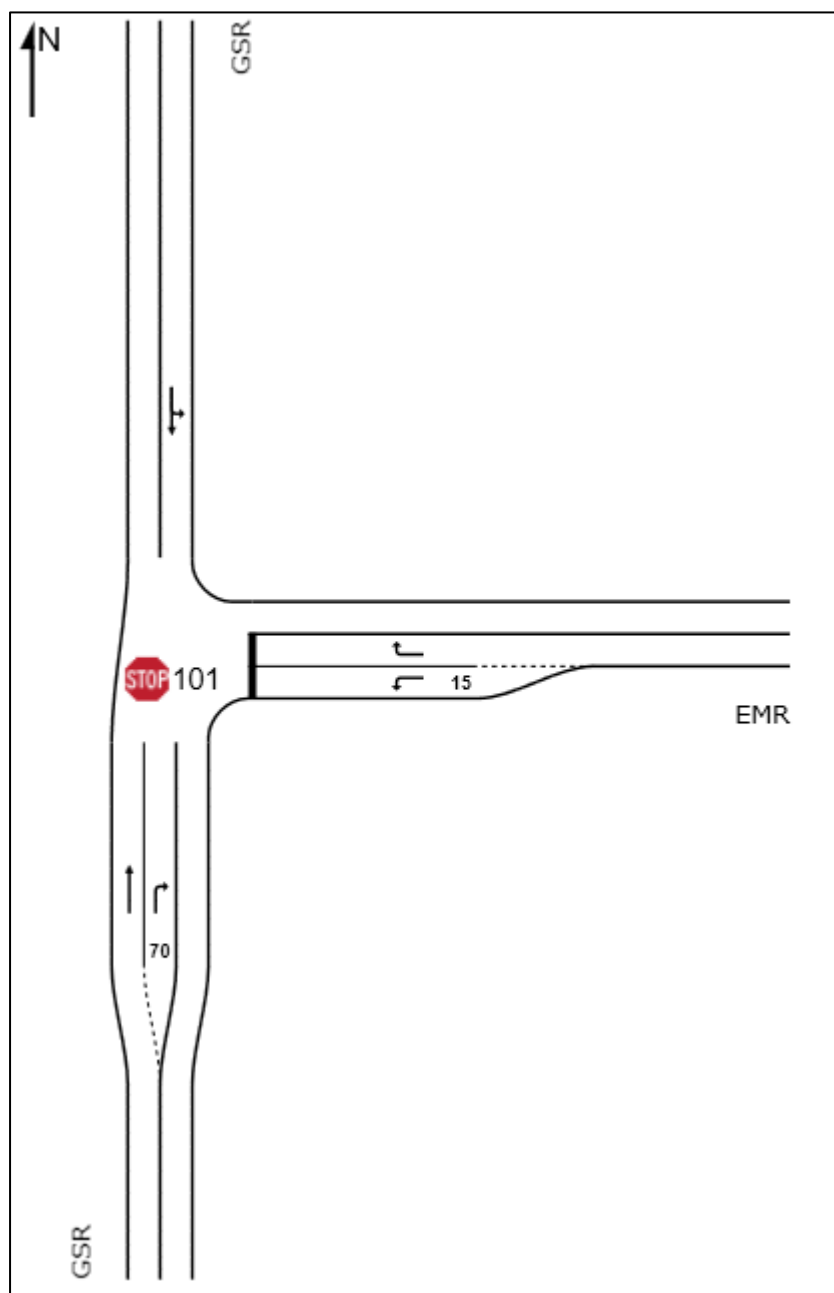


Figure 11: Modelled Intersection Layout

Table 2: Modelling Results – 2030 Weekday AM Peak

Approach	Movement	Base Scenario			First Principles Scenario			870 Scenario		
		Ave Delay (s)	LOS	95% Q (m)	Ave Delay (s)	LOS	95% Q (m)	Ave Delay (s)	LOS	95% Q (m)
Great South Road (south)	Through	0.0	A	0.0	0.0	A	0.0	0.0	A	0.0
	Right	7.1	A	0.3	7.8	A	3.8	11.6	B	23.1
East Mine Road (east)	Left	9.9	A	0.2	9.9	A	1.0	10.0	A	2.8
	Right	12.0	B	1.8	14.7	B	4.1	33.7	D	20.1
Great South Road (north)	Left	6.6	A	0.0	6.6	A	0.0	6.6	A	0.0
	Through	0.0	A	0.0	0.0	A	0.0	0.0	A	0.0
All Vehicles		1.6	NA	-	3.0	NA	-	8.9	NA	-

Table 3: Modelling Results –2030 Weekday PM Peak

Approach	Movement	Base Scenario			First Principles Scenario			870 Scenario		
		Ave Delay (s)	LOS	95% Q (m)	Ave Delay (s)	LOS	95% Q (m)	Ave Delay (s)	LOS	95% Q (m)
Great South Road (south)	Through	0.0	A	0.0	0.0	A	0.0	0.0	A	0.0
	Right	7.2	A	0.3	7.4	A	1.0	7.8	A	2.8
East Mine Road (east)	Left	9.3	A	0.1	9.4	A	2.9	9.7	A	10.9
	Right	12.5	B	0.6	14.2	B	7.8	34.9	D	84.8
Great South Road (north)	Left	6.4	A	0.0	6.5	A	0.0	6.4	A	0.0
	Through	0.0	A	0.0	0.0	A	0.0	0.0	A	0.0
All Vehicles		1.1	NA	-	3.0	NA	-	12.9	NA	-

Table 4: Modelling Results – 2030 Weekend Peak

Approach	Movement	Base Scenario			First Principles Scenario			870 Scenario		
		Ave Delay (s)	LOS	95% Q (m)	Ave Delay (s)	LOS	95% Q (m)	Ave Delay (s)	LOS	95% Q (m)
Great South Road (south)	Through	0.0	A	0.0	0.0	A	0.0	0.0	A	0.0
	Right	6.8	A	0.1	7.2	A	1.7	8.1	A	6.5
East Mine Road (east)	Left	9.2	A	0.3	9.2	A	2.0	9.4	A	6.3
	Right	10.9	B	0.8	12.5	B	4.4	23.5	C	29.0
Great South Road (north)	Left	6.5	A	0.0	6.5	A	0.0	6.5	A	0.0
	Through	0.0	A	0.0	0.0	A	0.0	0.0	A	0.0
All Vehicles		1.1	NA	-	2.8	NA	-	8.5	NA	-

7.1.23 The above results show that intersection performance of the conservative first principles scenario would be similar to the existing intersection performance. It is therefore assessed

that the road network is able to accommodate the traffic volumes associated with the proposed Plan Change.

7.1.24 Adding 870vph through the intersection, the queuing on East Mine Road extends up to 85m which is still two to three car lengths from the level crossing. The queue length for the right turn movement into East Mine Road is less than 30m and therefore well within the area of the right turn bay.

7.1.25 Rule 14.12.1.4 of the PDP includes maximum trip generation thresholds for various zones within the District. None of these currently apply to the proposed rezoning. Therefore, it is recommended to add a clause within this rule to ensure that future development is able to comply with this rule.

- There is a maximum 850 vehicle movements per hour and no more than 15% of these vehicle movements are heavy vehicle movements.

7.1.26 The 850 vehicle threshold has been adopted based on the analysis undertaken in this report and rounded down to the nearest 50vph. This provides some further buffer to ensure that the road network is able to accommodate the traffic volumes associated with the Plan Change. Day to day, it is expected that traffic volumes will be well below this threshold. The 15% limit for heavy vehicles is based on the existing limit for rural activities and ensures that the rule aligns in style with the rules that relate to other zones.

7.1.27 In terms of future development on site, the currently assessed peak hour traffic demand is 276vph. The network capacity threshold of 850vph allows for future development within the Kimihia Lakes Zone and identifies the point at which physical mitigation works are expected to be required. The activities proposed to be permitted within the new zone could theoretically treble in scale from a network capacity perspective, or could allow for additional activities that are aligned to the principles of the Kimihia Lakes Zone. This allows for future development within the Zone within known traffic demand parameter.

7.1.28 Similarly, consideration has been given to the number of people that be accommodated on site at any one time. Our assessment at Table 1 shows 1,635 people being on site over the course of a day. This assessment is robust and makes no allowance for cross visitation between activities such as park users also camping etc. or for the use of group transport options for school trips and such like. The relationship between the number of people on site and the assessed vehicles per day is 1.36 i.e. that is that average car occupancy across the day. Therefore, in the peak hour, based on an assessed traffic generation of 276vph, 375 people

would be expected to arrive. The 850vph threshold is the point after which some form of mitigation is likely to be required at the Great South Road / East Mine Road intersection. This is 3.08 times the assessed typical traffic generation, which itself is a robust assessment of traffic generation. Converting that to 'people demand' would give a value of 1,154 arriving in a single hour. As such, from a traffic perspective, it would seem reasonable to limit activities on site to no more than 1,100 attendees at any one time, under event type conditions unless active traffic management or journey management (e.g. remote park and ride or timed pre-booking of on-site parking) is provided. An addition to Rule 22.1.2 (P2) of the PDP is advised, as follows:

- “In the Kimihi Lakes Zone, any activity attracting more than 1,100 people in any given hour must provide a Traffic Management Plan (TMP) for approval by the Road Controlling Authority/ies. This TMP must include, but is not limited to:
 - proposed timing and scale of activities, including contact details for activity organiser
 - consideration of events at the Huntly Speedway
 - details of active traffic management at the Great South Road / East Mine Road intersection
 - details of journey management initiatives reducing traffic demand at the Great South Road / East Mine Road intersection
 - details of temporary on-site parking provision
 - details of how off-site parking is to be controlled to avoid parking occurring on the local road network. ”

7.1.29 This wording recognises the expected revocation of SH1 status for Great South Road and the change in Road Controlling authority from Waka Kotahi NZTA to Waikato District Council.

7.2 Access Effects

7.2.1 Access to the Plan Change site will be maintained via the existing connection to the East Mine Road / McVie +Road intersection. No other external roading connections are proposed for in the Plan Change area. Given this access has been used for mining activities, it is considered that it is suitably designed to accommodate the conversion of the site to recreational activities including potentially catering for buses.

7.2.2 Rule 14.12.1.1.(1)(e) of the PDP states that on a site with legal access to two roads, the activity only accesses the road with the lower classification in the road hierarchy. Where the roads have the same classification, access is only to the road with the lower average daily traffic movements. It is noted that the site has frontage to McVie Road which carries less traffic than East Mine Road. In order to allow for the access to the site to be permissible activity, it is recommended to amend the wording of this rule with the additional text underlined as follows:

- “On a site with legal access to two roads, the activity only accesses the road with the lower classification in the road hierarchy in Tables 14.12.5.5 and 14.12.5.6 (where the roads have the same classification, access is only to the road with the lower average daily traffic movements) except in the Kimihia Lakes Zone where this rule does not apply.”

7.2.3 Rule 14.12.1.1.(1)(b) states that all sites must have a vehicle crossing built to specific requirements. Given that access is already established via an extension to a public road, these standards are not considered to be appropriate for the Plan Change site. It is therefore recommended that this rule should not apply to the existing site access via East Mine Road. Allowing the rule to still apply to the site is considered appropriate should other vehicle crossings be proposed in the future. A proposed clause within this rule is as follows:

- Rule 14.12.1.1.(1)(b)(ii): Rule 14.12.1.1(1)(b) does not apply to the existing East Mine Road access serving the Kimihia Lakes Recreation and Events Zone.

7.2.4 The internal road network and vehicle manoeuvring areas are yet to be designed. These details would be assessed once a new facility or building is proposed for development to occur within the site. Any internal roads and car parking areas would remain in private ownership. The landowner will also be responsible for maintaining these roads and car parking areas to an appropriate standard.

7.2.5 While no plans are confirmed at this stage, it is understood that Waikato District Council is proposing to upgrade the pedestrian and cycle network in the Huntly area. There is opportunity to redevelop the rail spur as a shared path linking site to Huntly town centre. As such, any shared path would ultimately be vested with Waikato District Council and therefore consultation will be required at the resource consent stage to ensure that the path is of an appropriate design.

7.2.6 Rule 14.12.1.8 of the PDP relates to the design of off-road shared paths. It is recommended that an activity specific condition is added to this rule which states that no activity specific

conditions shall apply to the Kimihia Lakes Zone given these paths and other tracks would fall under the new ‘recreation activity and facilities’ definition proposed as part of this Plan Change. This will then allow any paths within the site to be designed based on the expected users of those paths which is considered to be appropriate as these will not be public paths but rather destination paths such as those within mountain biking parks.

- 7.2.7 No other changes to the PDP are considered to necessary to ensure that appropriate access is provided to and within the Plan Change area.

7.3 Parking Effects

- 7.3.1 The internal design of the site is yet to be confirmed. The PDP does not include specific parking rates for an outdoor education facility. The “Community facilities, conference facilities and places of assembly” activity is considered to be the activity that is closest to reflecting the Plan Change area. The required minimum parking rate for this activity as stated in the PDP is one space per 15sqm floor area or 1 space per 5 people the facility is designed to accommodate. Given the outdoor nature of the site, floor area will not be relevant to the parking demands and therefore the number of people the facility is expected to accommodate would be the relevant parameter to determine parking requirements.
- 7.3.2 At this stage, the number of people the facility will be designed to accommodate is unknown. It has been assessed through this ITA that the Great South Road / East Mine Road can accommodate some 850vph which is assessed as representing 1,100 people.
- 7.3.3 The PDP requirement of providing 1 space per 5 people that a community facility is designed to accommodate would result in up to 200 parking spaces being required for the site. The size of the site is considered to be large enough to provide a suitable number of parking spaces.
- 7.3.4 The original submission to the PDP included a proposed clause that stated at least 1,500 parking spaces should be provided within the site irrespective of activity type, intensity of development or the number of people likely to be in attendance. A provision of 1,500 parking spaces, using the 1 space per 5 occupants parking rate of the PDP, would be the equivalent of a community facility accommodating up to 7,500 people. For context, the population of Huntly is approximately 8,500 people. Providing 1,500 parking spaces is therefore considered excessive and it is therefore recommended to not include this rule in the PDP. However, it is acknowledged that activities on site may attract larger crowds on occasion subject to PDP Rule 22.1.2 (P2) and this assessment demonstrates that extensive parking can be accommodated on site temporarily and that an off-site parking effects is unlikely to occur.

7.3.5 The design of the internal parking layout will be undertaken at the resource consent stage of the future development. The dimensional design standards for parking spaces within the PDP are considered appropriate for the site and as such no changes or special amendments to Table 14.12.5.11 are considered necessary.

7.3.6 Overall, the parking rules of the PDP are considered to be able to be appropriately applicable to future development within the site.

7.4 Walking and Cycling

7.4.1 The site is within walking distance of the northern dwellings in Huntly. It is therefore possible that people may walk or cycle to the site to enjoy the outdoor park and lake. At present, there is limited infrastructure and connectivity between the site and the existing urban area.

7.4.2 There is potential for the existing rail spur to be converted into a shared path and it is understood that Council is investigating the option to upgrade the wider footpath and cycle path network. Any such changes would likely increase the amount of people visiting the site via walking or cycling who would otherwise have not made a trip. As such, the proposed Plan Change would increase usage of any upgrades to the footpath network and similarly and upgrades to the footpath infrastructure would increase patronage to the site.

7.4.3 The rail spur lies outside the control of both Council and Kimihia Lakes Community Trust and delivery of such a route would require the cooperation of a third party. As such, it is not considered appropriate to require this infrastructure as part of the rezoning. However, adequate walking and cycling connections to the site are required. As a minimum, it is recommended that the footpaths on McVie Road are extended to the site to connect with the on-site walking and cycle path network.

7.5 Road Safety

7.5.1 The proposed Plan Change is unlikely to generate high traffic volumes in excess of what was previously experienced on the surrounding road network when Great South Road was still the primary route between Auckland and Hamilton. No specific safety issues have been identified in the vicinity of the site and the traffic volumes generated by the future development are likely to be less than what was experienced prior to the completion of the Huntly bypass and when the mine was still operational. As such, the proposed Plan Change is considered to have a less than minor effect on road safety.

8 Consultation and Submissions

- 8.1.1 Through the submission process and subsequent correspondence, it is noted that Waka Kotahi NZTA raised concerns that the site could be seen from the Huntly bypass³. The concern related to the fact that the activity within the site may distract drivers on WEX.
- 8.1.2 A hill is located between the lake within the Plan Change area and the Huntly bypass. This means that the newly formed lake will not be readily visible from the bypass and therefore the main on-site activities which occur on and around the lake would not be visible to motorists and therefore would not be a distraction to motorists.
- 8.1.3 The internal design of the site is not yet confirmed however it is possible that some structures or passive recreation such as walking and biking may be visible from the bypass. It is not uncommon for building structures to be visible from major roads and it is noted that the new Taupiri interchange includes many structures and prominent advertising signs facing motorists. Any signage proposed within the subject site would be assessed in accordance with the Traffic Control Devices Manual to ensure that any potential for distraction is minimised. Such assessment would be undertaken at a resource consent stage and the inclusion or exclusion of signage is not considered to affect the primary recreational activities anticipated by the proposed zoning.
- 8.1.4 Waka Kotahi NZTA also responded to the PDP submission prepared by Allen Fabrics Limited. Waka Kotahi NZTA opposed the submission on the grounds that rules for special or temporary events are inappropriate for a permitted activity in this rule category. Consideration has been given to this as discussed in Section 7.1. A maximum hourly traffic generation threshold of 850vph with an associated people demand of 1,100 has been discussed and an amendment to PDP Rule 22.1.2 (P2) proposed whereby a TMP is required for any activity occurring on site that is expected to attract more than 1,100people in any given hour.
- 8.1.5 It is proposed to add a section to Rule 14.12.1.4 to the PDP that states no more than 850 vehicle movements can be generated per hour from the site. It is unlikely that the site would generate traffic volumes to this extent, however, this ensures that the road network is able to accommodate the traffic volumes associated with the site.

³ Email from Mike Wood (Waka Kotahi NZTA) to Andrew Cumberpatch (Boffa Miskell), 4 September 2020

8.1.6 From further consultation, no other transportation related concerns were raised by Waka Kotahi NZTA.

9 Planning Framework

9.1 Objectives and Policies

9.1.1 An assessment has been made against the transportation objectives and policies outlined in section 6.5 of the Proposed District Plan. This assessment is summarised in Table 1 below.

Table 1: Proposed District Plan Transportation Objectives/Policies Assessment

Objective/Policy	Comment	Compliance
6.5.1 Objective – Land Transport Network a) An integrated land transport network where: i) All transport modes are accessible, safe and efficient ii) Adverse effects from construction, maintenance and operation of the transport network are managed	The proposed Plan Change is considered to align with this objective given that it includes provision for pedestrians, cyclists, private vehicles. Many visitors are likely to arrive by bus thereby reducing reliance on individual car trips	Complies
6.5.2 Policy – Construction and Operation of the Land Transport Network a) Promote the construction and operation of an efficient, effective, integrated, safe, resilient and sustainable land transport network through: (i) Corridor, carriageway and intersection design which is appropriate to the road function as specified in the road hierarchy and in accordance with relevant guidelines; (ii) The appropriate design and location of sites accesses; (iii) Traffic signage, road marking, lighting, rest areas and parking as appropriate; (iv) Provision for pedestrians and cyclists that addresses accessibility, including off-road facilities and connections; (v) Corridor and carriageway design which is sufficient to enable provision of public transport; (vi) Provision for other infrastructure, including where suitable low impact design stormwater facilities; (vii) Provision for stock underpasses where suitable access is not readily available;	The proposed Plan Change is considered to align with this policy given that no changes are proposed to public road reserves and no public roads are proposed within the Plan Change area.	Complies

(viii) Discouraging the installation of new at grade road and pedestrian rail level crossings: A. Controlling the location of buildings and other visual obstructions within the sightline areas of rail level crossings; and B. Railway crossing design in accordance with the requirements of the rail operator.		
6.5.3 Policy – Road hierarchy and function Provide a hierarchy of roads for different functions and modes of land transport while recognising the nature of the surrounding land use within the district.	The Plan Change respects the road hierarchy by not providing direct property access to the state highway network	Complies
6.5.4 Policy – Road standards Ensure that the construction and operation of roads is consistent with their function in the road hierarchy.	The construction of internal roads and vehicle manoeuvring areas are expected to be consistent with their function	Complies
6.5.5 Policy - Road safety Ensure that structures, lighting, signage and vegetation are located and designed so as to not compromise the safe and efficient operation of the land transport network, or obscure RAPID numbers.	Lighting, signage etc are expected to be designed to the appropriate standards thereby not compromising the safe or efficient operation of the land transport network	Complies
6.5.6 Policy – Network utility location Encourage the location of network utility infrastructure within transport corridors where the function, safety and efficiency of the transport network will not be compromised.	No new public roads proposed however utility connections can be provided in an appropriate manner	Complies
6.5.7 Policy – Vehicle access Control the location of new vehicle accesses to sites adjacent to other accesses and rail level crossings to improve the safety and efficiency of the land transport network.	No new vehicle crossing to the public road network are proposed.	Complies

9.1.2 Overall, the proposed Plan Change is considered to align with the objectives and policies of the PDP. No changes to these policies are proposed as part of the Plan Change.

9.2 Rules

9.2.1 Table 2 below summarises the proposed Plan against the transportation criteria from Section 14.12 of the notified version of the PDP noting rules where a change is proposed as discussed in this report.

Table 2: Proposed District Plan Compliance

Rule	Requirement	Proposed	Compliance
14.12.1.1 Vehicle Access for All Activities			
1a	The site has a vehicle access to a formed road that is maintained by a road controlling authority	Site has access to East Mine Road	Complies
1b	The site has a vehicle access that is constructed to comply with the relevant requirements of Table 14.12.5.1, Figure 14.12.5.2, Table 14.12.5.3 and Figure 14.12.5.4	Access road is extension of public road and therefore compliance with these figures is unlikely.	Rule amended
1c	No new vehicle access shall be created from Newell Road (south of Birchwood Lane)	Newell Road not near site	N/A
1d	No access, access leg or right-of-way shall run parallel to any road within 30m of the road	No parallel access roads expected	Compliance achievable
1e	On a site with legal access to two roads, the activity only accesses the road with the lower classification in the road hierarchy in Tables 14.12.5.5 and 14.12.5.6 (where the roads have the same classification, access is only to the road with the lower average daily traffic movements)	The following is recommended to be added to this rule to ensure compliance is achieved: “...except in the Kimihi Lakes Zone where this rule does not apply.”	Rule amended
1f	New vehicle accesses/entrances are not to be constructed to any site from the following roads	No listed roads are near site	N/A
1g	No new vehicle access shall be created within 30 metres of a railway level crossing	No nearby level crossing	Compliance achievable
14.12.1.2 On-Site Parking and Loading			
1a	The parking requirements in Table 14.12.5.7 and 14.12.5.11,	Community facilities, conference facilities and places of assembly is activity that is likely to best reflect on-site development	Compliance achievable
1b	On-site bicycle space requirements in Table 14.12.5.10,	Parking spaces expected to meet design standards	Compliance achievable
1c	Any on-site car parking spaces for non-residential activities within the Residential Zones must be set back at least 3m from the road boundary of the site and screened by planting or fencing	Plan Change area is not related to residential zone	N/A
1d	On-site car parking spaces and loading bays are to be provided in accordance with the requirements of Table 14.12.5.7, Figure 14.12.5.8 and Table 14.12.5.11 and be located on the same site as the activity for which they are required;	Parking spaces expected to meet design standards	Compliance achievable
1e	On-site car parking spaces and loading bays are formed	Parking spaces expected to meet requirements	Compliance achievable
1f	On-site car parking spaces and loading bays are to be permanently marked if five or more parking spaces are required;	Parking spaces expected to meet requirements	Compliance achievable

1g	On-site car parking spaces and loading bays are not to be located on any shared access or residential court;	Parking spaces expected to meet requirements	Compliance achievable
1h	Vehicles occupying any on-site car parking or loading spaces must have ready access to the road (or relevant access or right of way) at all times, without needing to move any other vehicle occupying other on-site car parking or loading spaces;	Parking spaces expected to meet requirements	Compliance achievable
1i	On-site car parking spaces and loading bays are not required on sites with sole frontages to the following	No listed roads are near site	N/A
14.12.1.3 On-Site Manoeuvring and Queuing			
1a	On-site manoeuvring space shall be provided to ensure that no vehicle is required to reverse onto a road	Future development expected to comply	Compliance achievable
1b	A 90 percentile car, as defined in Figure 14.12.5.8, can enter and exit all parking spaces without making more than one reverse movement, excluding spaces required for a dwelling	Future development expected to comply	Compliance achievable
1c	On-site manoeuvring space for any heavy vehicle shall comply with the tracking curve (relevant for the type of activities to be carried out on the site and trucks to be used),	Future development expected to comply	Compliance achievable
1d	On-site manoeuvring space shall be formed	Future development expected to comply	Compliance achievable
1e	On-site queuing space shall be provided in accordance with Table 14.12.5.12 for vehicles entering and exiting any on-site car parking, loading or manoeuvring space	Future development expected to comply	Compliance achievable
1f	On-site manoeuvring and queuing spaces are not required on sites with vehicle accesses/entrances to the following:	No listed roads are near site	N/A
14.12.1.4 Traffic Generation			
1a	Within the Residential, Village or Country Living Zones there is a maximum of 100 vehicle movements per day, and no more than 15% of these vehicle movements are heavy vehicle movements;	Plan change not related to these zones	N/A
1b	Within the Rangitahi Peninsula Zone	Site not in this zone	N/A
1c	Within the Business Zone Tamahere, Business Zone or Business Town Centre Zone	Site not in these zones	N/A
1d	Within the Rural Zone	Site no longer proposed to be within this zone	N/A
1e	Within the Industrial Zone and Heavy Industrial Zone (excluding the Huntly Power Station and Huntly Quarry)	Site not in this zone	N/A
1f	From the Huntly Power Station	Site not in this zone	N/A
1g	From the Huntly Quarry	Site not in this zone	N/A

1h	Within Precincts A and B of the Te Kowhai Airpark Zone	Site not in this zone	N/A
1i	Within Precincts C and D of the Te Kowhai Airpark Zone	Site not in this zone	N/A
2	Within the Kimihi Lakes Zone there is a maximum of 850 vehicle movements per hour and no more than 15% of these vehicle movements are heavy vehicle movements	Specific rule added to achieve compliance	Clause added
14.12.1.5 Operation, maintenance and minor upgrading of existing public roads			
1a	The works occur within the road or unformed road	No public works proposed outside road reserve	Compliance achievable
1b	Works within the road must be: i) Incidental to, and serve a supportive function for, the existing public road; or ii) Required for the safety of road users; or iii) Required for the safety of adjacent landowners or occupiers;	Upgrade works will be support future development	Compliance achievable
1c	Lighting shall be designed and located to comply with the Australia New Zealand Roadway Lighting Standard 1158, (series) – Lighting for Roads and Public Spaces: 2005	Lighting expected to comply with these standards	Compliance achievable
1d	Any earthworks must comply with Rule 14.3.1.3	Earthworks expected to comply	Compliance achievable
14.12.1.6 New Public Roads			
1a	The public road is located within road or unformed road	No public road within the site	N/A
1b	The public road is not located within an Identified Area	No public road within the site	N/A
1c	The design requirements of Table 14.12.5.14 or 14.12.5.15, based on their function within the Road Hierarchy as set out in Table 14.12.5.5	No public road within the site	N/A
1d	Within road or unformed road located within the Tamahere Country Living Zone	Site is not in this zone	N/A
1e	Within road or unformed road located within the Rangitahi Peninsula Zone, the relevant access and road requirements of the Rangitahi Structure Plan take priority over the conditions in Table 14.12.5.14 or 14.12.5.15 in the event of any conflict	Site is not in this zone	N/A
1f	Within road or unformed road located within the Te Kauwhata Structure Plan area	Site is not in this zone	N/A
1g	Any earthworks must comply with Rule 14.3.1.3	Earthworks expected to comply	Compliance achievable
14.12.1.7. Access and New Roads – Te Kowhai Airpark Zone			
1a	Airpark roads which are to be vested in Council must comply with the following conditions: The design requirements of Table 14.12.5.14 or 14.12.5.15, based on their function within the Road Hierarchy as set out in Table 14.12.5.5,	Site is not in this zone	N/A

2	Road alignment and the taxiway network within the Te Kowhai Airpark Zone shall be in accordance with Appendix 9 – The Te Kowhai Airpark Framework Plan	Site is not in this zone	N/A
3	The western boundary of the Te Kowhai Airpark Zone shall provide for future connectivity options (vehicular and / or pedestrian) in accordance with the location identified in Appendix 9 – The Te Kowhai Airpark Framework Plan.	Site is not in this zone	N/A
4	Any earthworks must comply with Rule 14.3.1.3.	Site is not in this zone	N/A
14.12.1.8 Off-Road Pedestrian and Cycle Facilities			
I	Have a minimum 2.0m width	Off-road paths expected to comply with this standard	Compliance achievable
li	Are formed	Off-road paths expected to comply with this standard	Compliance achievable
lii	Comply with the relevant setback standards for the applicable zone	Off-road paths expected to comply with this standard	Compliance achievable
lv	Any earthworks must comply with Rule 14.3.1.3	Earthworks expected to comply	Compliance achievable
V	Are not located within an Identified Area.	Off-road paths expected to comply with this standard	Compliance achievable
2	No activity specific conditions shall apply to the Kimihi Lakes Zone	Specific rule added to achieve compliance	Clause added
14.12.1.9 Stock Underpasses			
1a	Any earthworks must comply with Rule 14.3.1.3	No stock underpasses proposed	N/A
1b	Are not located within an Identified Area	No stock underpasses proposed	N/A

9.2.2 Overall, it is proposed to amend one rule of the PDP and to add two other clauses to ensure that future development is able to comply with the PDP and that the traffic effects can be managed appropriately.

9.2.3 In addition, it is proposed to amend Rule 22.1.2 (P2) such that any activity on site attracting more than 1,100 people in any given hour is subject to preparing and gaining approval for a Traffic Management Plan as discussed in Section 7.1.

10 Conclusions and Recommendations

10.1.1 It is proposed to rezone the former East Huntly mine to allow for the development of an outdoor recreation park. The key feature of the park will be a lake which is created through the flooding of the former mine. Based on the assessment undertaken, it is assessed that:

- Based on a conservative first principles approach, the Plan Change area may generate some 270vph. Further assessment has found that the surrounding road network can accommodate up to 870vph. It is unlikely that the site will generate this many vehicle movements and therefore the road network is assessed as being able to accommodate the trips generated by future development.
- Previously it was proposed to allow for large scale events to occur within the site. It is no longer for such events to be a permitted activity within the site. Any activities where more than 1,100 people are expected to be on site in any given hour will require a TMP to be approved by the relevant Road Controlling Authority/ies.
- Access to the site will be provided via the existing connection to East Mine Road. This access is assessed as being appropriate for future development given that it used to cater for large trucks associated with the former mining activities.
- The site is considered to be large enough to provide sufficient parking spaces in accordance with the PDP standards.

10.1.2 As part of the proposed Plan Change, the following changes are recommended as part of the PDP:

- Rule 14.12.1.1.1b should be amended to allow the site to be developed without having to provide a vehicle crossing that complies with the PDP standards given that the site access is an extension to the public road.
- Rule 14.12.1.1.1e is recommended to add the following text to the end of the existing rule as written: "...except in the Kimihi Lakes Recreation and Events Zone where this rule does not apply."
- A new section to Rule 14.12.1.4 should be added to ensure a maximum trip generation threshold applies to the proposed zoning. This would read as follows: "Within the Kimihi Lakes Recreation and Events Zone there is a maximum of 850 vehicle movements per hour and no more than 15% of these vehicle movements are heavy vehicle movements"

- A new section to Rule 14.12.1.8 is recommended to ensure that any paths within the site do not have to comply with any activity specific rules.
- A new section to Rule 22.1.2 (P2) is proposed to require a Traffic Management Plan to be prepared and approved by the relevant Road Controlling Authority/ies for any activity on site expected to attract more than 1,100 people in any one hour.

10.1.3 With the above recommendations in place, it is considered that the proposed Plan Change would result less than minor transportation effects. It is concluded that there are no traffic or transportation reasons why the Plan Change could not be approved.

CKL