Safety Assessment Undertaken for the Proposed Rangitikei District Council's Plan Change 1165, 1151 and 1091 State Highway 1N, Marton Section 42A

Applicant	Rangitikei District Council
Address	Marton

Part 1: Background			
Assessment by:	Heather Liew	**LUD number**	2019-700
Reviewed by:	Dan Tate		

Brief Description of the Proposal:

A plan change is proposed to rezone the land use in the area located southeast of Marton, from Rural to Industrial. The purpose of this memo is to review matters relating to the Rangitikei District Council's Plan Change to rezone Marton from Rural to Industrial area. The main document reviewed is "Traffic Impact Assessment – Rangitikei District Council Industrial Plan Change" prepared by WSP Opus. The report is reviewed in conjunction with "Section 42A Report" and evidence prepared by Mr Greg Carlyon on behalf of the Rangitikei District Council (Regulatory) in the matter of the Rangitikei District Plan Change (Marton)".

Site Location

The site identified for the Proposed Plan Change is located approximately 4 km to the south-east of Marton (refer to Figure 1). The site includes the following lots: Pt Lot 2 DP 336499, Pt Lot 1 DP 11224, Pt Lot 2 DP 11224, Pt Lot 1 DP 10342, Lot 1 DP 82685, Pt Lot 4 Plan 25, Pt Lot 5 Plan 25, Pt Lot 6 Plan 25, Pt Lot 7 Plan 25, and Pt Lot 9, Deeds Plan 25.2.

Figure 1: Area of Plan Change

The site encompasses an area of 217ha. Access is via local roads, SH 1N and SH3.

The site is bounded to the south by Makirikiri Road and Wellington Road. The site is bounded to the west by the Marton- New Plymouth Line and Wellington Road, bounded to the north by Wings Line (between Wellington Road and SH 1N) and bounded to the east by SH 1N (between Makirikiri Road and Wings Line).

Further Information

The Transport Agency made a submission to the proposed plan change on 23 September 2019. The matters raised in the submission are:

- Staging of the development and proposed methods of mitigation the site related impacts and the cumulative impacts of the development(s).
- Consideration of the potential impacts of incremental subdivision and development to avoid cumulative effects. Carrying forward conditions from industrial zones to manage the subdivision and the development of sites will ensure that the industrial area is consistent with other industrially zoned land and manages the effects of the change in use from Rural to Industrial.
- Ask that the plan change include clear direction that there will be no additional access points from the State Highway.
- Seek the inclusion of objectives and policies which aim to ensure that all new lots have safe and adequate vehicle access from the roading network and require an interconnected transport network that provides a variety of routes for walking, cycling, passenger transport and motor vehicles. These policies should align and support the safe system and multi modal priorities of the GPS.

Since the submission, a traffic impact assessment was prepared by WSP Opus to address and confirm the existing network conditions, assess the trip generation from the development and assess the effects of traffic generated from the development from operational and safety of the road network (mainly highway).

Supplementary evidence for the hearing, prepared by Mr Greg Carlyon, on behalf of Rangitikei District Council, was released on 2 June 2020. This new information is assessed at the end of this report.

The information provided to date does not address the following matters:

- Traffic modelling to demonstrate that the effects on the operation and safety of the highway is less than minor, particularly the intersections of Makirikiri Road/ SH 3 and Pukepapa Road/ SH 3.
- Funding mechanism for mitigation of the site related impacts and the cumulative impacts of the development(s) particularly on the highway. Areas of particular concern are the Makirikiri Road/ SH 3, Pukepapa Road/ SH 3.

Traffic Impact Assessment:

The report is based on generic assumptions due to the information available. A specific Traffic Impact Assessment (TIA) is required once a preferred option for the Plan Change is decided. It is expected that a more detailed analysis is required to review the viability of each options at the intersections. The Transport Agency reserves the right to review each intersection subject to a more detailed assessment provided, including the viability of a roundabout at Makirikiri Road/ SH 1 Intersection.

Part 2: Safety Assessment

Characteristics of the corridor on SH 1N between Wings Road to Makirikiri Road

SH 1N:

- One lane of traffic in each direction, with an approximate lane width of 3.5m
- Sealed shoulders on both sides of the road approximately 1m in width
- No pedestrian facilities
- Grass swales on the northbound side of SH 1N

The Wings Road / SH 1N Intersection:

- This T-intersection is a give-way contolled intersection
- There is approximately 10m of widening which is sufficient for two vehicles to pull out of the live lane and manoeuvre around a vehicle waitng to turn right.
- There is dedicated right-turn bay from SH 1N.

The Makirikiri Road / SH 1N Intersection:

- This T-intersection is a give-way contolled intersection
- There is approximately 10m of widening which is sufficient for two vehicles to pull out of the live lane and manoeuvre around a vehicle waitng to turn right.
- There is dedicated left-turn auxiliary lane from SH 1N.
- There is no dedicated right-turn bay from SH 1N.

SH 3:

- One lane of traffic in each direction, with an approximate lane width of 3.5 m.
- Sealed shoulders on both sides of the road approximately 1m in width
- No pedestrian facilities
- Grass swales on the northbound side of SH 1N

The Pukepapa Road / SH 3 Intersection:

- This T-intersection is a give-way contolled intersection
- There is approximately 10m of widening which is sufficient for two vehicles to pull out of the live lane and manoeuvre around a vehicle waitng to turn right.
- There is dedicated right-turn bay from SH3 east.

The Makirikiri Road / SH 3 Intersection:

- This T-intersection is a give-way contolled intersection
- There is approximately 10m of widening which is sufficient for two vehicles to pull out of the live lane and manoeuvre around a vehicle waitng to turn right.
- No dedicated turning bays from SH3 onto Makirikiri Road.

Crash history

Data of crashes within vicinity of the intersection to SH 1N and 3 were extracted from Transport Agency Crash Analysis System (CAS) during the latest full five year (2015 – 2019). The crashes are summarised in the Table 1 below:

Table 1 : Summary of Crash Severity

	Total	Crash Severity			
		Fatal	Serious	Minor	Non-Injury
SH 1N (between Wings Road and Makirikiri Road)	2	-	-	1	1
SH 3 (between Pukepapa Road and Makirikiri Road)	26	-	2	3	21
Makirikiri Road/ SH1	4	-	2	1	1
Wings Road/ SH 1N	0	-	-	-	-
Makirikiri Road/ SH3	4	-	-	3	1
Union Line/ SH 3	2	-	-	2	-
Pukepapa Road/ SH3	1	-	-	-	1

This indicates that although there has been a crash history in the area in the past, the intersections are operating relatively safely at present. SH 3 corridor between Pukepapa Road and Makirikiri Road has the most crashes recorded. This section is longer compared to the other sections/ intersection considered.

Existing vehicle movements from side road:	Makirikiri Road (SH1N): 1650 vpd Wings Road (SH 1N): 352 vpd Makirikiri Road (SH3): 450 vpd Pukepapa Road (SH3): 1,200 vpd	**Proposed increase in vehicle movements**	Estimated vehicle movements in Year 20 (Existing movements + Development) Makirikiri Road (SH1N): 22,081 vpd Wings Road (SH 1N): 2,991 vpd Makirikiri Road (SH3): 1127 vpd Pukepapa Road (SH3): 11,877 vpd	
		Total vehicle movements		
Types of vehicles	There will be significant increase of passenger vehicles and HCV (heavy commercial vehicles) as a result of the development.	**AADT of SH** ***Any peak flows of note?***	SH 1N: 6,380 vpd (13.9% HCV) (2018) SH 3: 6,503 vpd (12.3% HCV) (2018)	
Posted speed limit	100 km/h	**Operating speed limit and 85th percentile if available**	90 – 100km/h (estimated 85th Percentile based from the horizontal alignment)	
Minimum sight distance standard Table App5B/1 or App5B/2 (m)	282m	Actual measured sight distance (m)	Left	Right
			Exceeds 282m	Exceeds 282m
		Measured on site, on the desktop or by the applicant?	Desktop assessment	
Minimum accessway spacing required Table App5B/3 (m)	N/A – no new proposed access onto highway	**Distance to other accessway(s) or intersection(s) (m)**	**Left**	**Right**
			–	–
		Measured on site, on the desktop or by the applicant?	–	
Existing geometric design standard	T-intersection (stop controlled) with limited to no isolated widening	**Required geometric design standard Table App5B/4**	N/A	
Deceleration lane required?	Yes	**Intersection upgrade or turning lane required?**	Yes – Intersection of Makirikiri Road and SH 1N Monitor other intersections	

Adequate car-parking provided	N/A	**Ability to adequately manoeuvre on site**	Yes
Associated signs in accordance with sign policy	None identify – SH has permanent warning signs for the presence of the side road	**Safety requirements of cyclists and pedestrians**	N/A – expected that there will be low volume of pedestrian and cyclists
Additional considerations (including whether Austroads has been considered)			
N/A			

Part 3: Final comments and recommendation

Considerations
(Where standards are not met but proposal is deemed acceptable on safety grounds please explain why)

Assessment of Traffic Impact Assessment prepared by WSP Opus, 26 November 2019

1.0 Access on to Highway

SH 1N and SH 3 are national and regional arterials. The long-term strategy for these roads is to maintain the current speed limit at 100kph. Therefore, the number of accesses on this section of highway(s) shall be minimised for safety reasons. A condition must be set that *no new access onto highway area permitted*.

2.0 Traffic Impact Assessment Report by WSP Opus:

The TIAprepared by WSP Opus was based on generic assumptions due to limited information available at the time. One of the assumptions made in the TIA was that "*Approximately 17 hectares of land will be included within the 100m "exclusion zone" on the eastern boundary of the site, leaving 200 hectares (or 2,000,000m^2) of site area*." This exclusion zone only applies to Option 5 of the Plan Change. The traffic generation for other options would likely be less conservative for the option ('Option 1 – rezoning to Industrial as per current District Plan) that is being consulted.

The TIA should assess all options considered. A specific TIA is required once a preferred option for the Plan Change is decided. It is expected that a more detailed analysis is required that reviews the viability of each option at the intersections. The Transport Agency reserves the right to review its position on this plan change subject to more detailed assessment provided, including the viability of a roundabout at Makirikiri Road/ SH 1N Intersection.

I generally agree with the recommendations in the WSP Opus TIA outlined under Section 4.2.2 Future Network Operations and Section 7 Conclusions.

The assessment of the recommendations to intersections is reviewed below in Section 3 Assessment of Intersections.

3.0 Assessment of Intersections:

3.1 Makirikiri Road / SH1

WSP Opus states that *"The modelling shows that the intersection operates well within acceptable operability in existing conditions and within 20 years of general traffic growth. If the development traffic is included this causes a Level of Service[1] (LoS) of F on Makirikiri Road and on the SH1 southbound approach. This poor LoS is caused by:*

[1]Level of Service measures the quality of service provided by a section of road corridor or intersection, as a function of density of vehicles, speed, delay and congestion. The LoS ranges from A to F, with LoS A being freeflow traffic and LoS F being heavily congested.

- *Right turning vehicles blocking through traffic in the southbound direction on SH1 because of the high volume of traffic left turning off SH1 that they give-way to, and*

- *The high volume of traffic wanting to right turn out of Makirikiri Road resulting in high delays for this movement. The average delay in the peak can reach as much as 60 minutes on the Makirikiri Road.*

A right turn bay on SH1 would improve the LoS for the SH1 southbound movement to LoS A but the Makirikiri Road right turn out movement would likely need a more significant change of form to improve the LoS, such as a seagull type treatment, roundabout, or signals."

Comments:

The modelling shows that the effects of the proposed development on the operation and safety of roading network to be more than minor. The intersection of Makirikiri Road/ SH 1N will reach its capacity before 50% of the development has occurred. Some form of treatment is required before the intersection reaches capacity.

The collective risk at the intersection increases with the heavy vehicles and traffic volumes. The WSP Opus report identified that this intersection would have the highest crash rate as a result of the development. The reduction of Level of Service will also increase driver frustration and encouraging them to take higher risks at the intersection. From a Safe System approach, the most appropriate solution would be a roundabout. In order to realise the benefits of the roundabout, it must be installed prior to the occupation of any site. A roundabout would also improve the Level of Service and operation of the intersection.

3.2 Wings Line / SH 1N

The WSP Opus report states that "*The Modelling shows that the intersection operates well within acceptable operability in existing conditions and within 20 years of general traffic growth.*

If the Development traffic is included this causes a LoS of E in the AM peak on the Wings Line approach with an average delay of 38secs and LoS F in the PM peak. This modelling assumes right turn traffic from Wings Line give-way to some traffic left turning off SH1.

The LoS E and F may be reduced by providing more delineation between the traffic left turning off SH1 and those travelling through much like that provided at the Makirikiri Road intersection. Some peak spreading may occur that will minimise the average delays further, so its possible Wings Line will need little or no upgrade. However, delays are expected to be significant at the Makirikiri Road/ SH1 intersection and therefore some rerouting to the Wings Line right turn onto SH1 is likely.

Therefore, addressing delays at the Makirikiri Road / SH1 intersection will be important to ensure the Wings Line intersection operates acceptably."

Comments:

In the Plan Change, it is proposed that Makirikiri Road be the main access route to the industrial area. Wings Line is proposed to remain as a relatively 'low volume' traffic route. Supplementary evidence prepared by Mr Carlyon stipulates that all accesses shall be via Makirikiri Road only. The effects of the development on Wings Line/ SH 1N intersection are likely to be less than minor.

3.3 Makirikiri Road / SH3

The WSP Opus report states the following:

"*The Modelling shows that the intersection operates well within acceptable operability in existing conditions and within 20 years of general traffic growth. Makirikiri Road is the only approach that is not an A in the 20-year growth scenario, which has a LoS B.*

With development traffic the intersection will operate with LOS F on Makirikiri Road in all periods. This is because of the increase in traffic turning out of Makirikiri Road causing delays for this movement but also the lack of turning facilities on SH3 meaning it is not clear to Makirikiri Road traffic who they should give way to (i.e. cannot distinguish between traffic left turning into Makirikiri Road and traffic travelling straight.).

It should be noted, that this is a worse case traffic operation as this scenario assumes all SH3 bound traffic use Makirikiri Road. Traffic will likely use multiple routes including Pukepapa Road, therefore monitoring of the intersections will be necessary to determine which if any will require upgrade."

Comments:

I agree with the recommendation that traffic will likely use multiple routes including Pukepapa Road, therefore monitoring of the intersections will be necessary to determine which, if any, will require an upgrade.
Update (6 June 2020): *New infrastructure Policy A5-1.12: Access into and out of the Industrial Development Capacity Area shall be restricted to Makirikiri Road only.*

The proposed policy will result in majority of the traffic heading towards intersection of Makirikiri Road/ SH1. However, those travelling towards Whanganui may use Makirikiri Road/ SH 3. The numbers may be low but the TIA is outdated and will need to be revised to determine whether the effects of operation and safety on the highway are less than minor. Monitoring of the intersections will be necessary to determine which, if any, will require an upgrade.

3.4 Pukepapa Road / SH3

"The Modelling shows that the intersection operates well within acceptable operability in existing conditions (with no development) and with 20 years of general traffic growth.

If the development traffic is included the SH3 eastern approach will have a LoS of F in the PM peak, as well as the AM peak and a LoS of C on the Pukepapa Road approach. Pukepapa Road approach sees an average delay of 39.8secs in the AM peak. The SH3 western approach maintains a LoS of A across all peaks.

It should be noted, that this is a worse case traffic operation as this scenario assumes all SH3 bound traffic use Pukepapa Road. Traffic will likely use multiple routes including Makirikiri Road, therefore monitoring of the intersections will be necessary to determine which if any will require an upgrade."

Comments:

I agree with the recommendation that traffic will likely use multiple routes including Makirikiri Road, therefore monitoring of the intersections will be necessary to determine which, if any, will require an upgrade.

Update (6 June 2020): *New infrastructure Policy A5-1.12: Access into and out of the Industrial Development Capacity Area shall be restricted to Makirikiri Road only.*

The proposed policy will result in majority of the traffic heading towards intersection of Makirikiri Road/ SH1. However, those travelling towards Whanganui may use Pukepapa Road/ SH 3. The numbers may be low but the TIA is outdated and will need to be revised to determine whether the effects of operation and safety on the highway are less than minor. Monitoring of the intersections will be necessary to determine which, if any, will require an upgrade.

3.5 SH 1N and 3 corridors/ midblock

The modelling shows that SH 1N and SH3 (excluding intersections) will operate within capacity, with the additional flow from the development.

3.6 Walking, Cycling and Public Transport

The site is currently located in a Rural zone. There is limited walking and cycling facilities as well as limited public transport facilities. There is limited information on how the transport network is integrated to provide a variety of routes for walking, cycling, public transport and motor vehicles.

3.7 Construction Traffic Management Plans

I support the recommendation that the use of Construction Traffic Management Plans (CTMP) to manage onsite activity; in particular, the building or upgrading of the local roading network should be considered. *CTMP should outline how activities would be managed on site and should include (but not be limited to):*

- *Site 1 – Makirikiri Rd / Stage Highway 1N*
  Will likely need an upgrade at or before 50% of the site is developed

- *Site 2 – Wings Line / Stage Highway 1N*
  May not need any upgrade depending on route choice and operation of the Makirikiri Road intersection with SH1.

- *Site 3 – Makirikiri Rd / Stage Highway 3*
  May not need any upgrade depending on route choice

- *Site 4 – Pukepapa Rd / Stage Highway 3*
  May not need any upgrade depending on route choice.

Comments:

The safety assessment has also identified the potential for a notable increase in injury related crashes at the Makirikiri Rd/SH1N, Makirikiri Rd/SH3 and Pukepapa Rd/SH3 intersections; however, it is noted that crash risk at the SH3 intersections will be dependent on actual future route choice and traffic distribution to the west of the development.

4.0 Conclusion

The Traffic Impact Assessment prepared by WSP Opus was based on generic assumptions due to information available at the time. New supplementary evidence for the hearing requires all new accesses to be via Makirikiri Road. The assumptions in the TIA will need to be updated, as the long term effects on Makirikiri Rd/ SH3 and Pukepapa Rd/ SH3is inconclusive. A more detailed traffic impact assessment with revised assumptions is required. The Transport Agency reserves the right to review its position subject to a more detailed assessment being provided and reviewed.

This proposed Plan Change is considered to result in adverse effects to the current operation and safety of the State Highway network. The report highlights a safety and efficiency concern arising particularly at Makirikiri Road/ SH 1N and the effects of this must be mitigated as part of the Plan Change. This intersection will reach its capacity (LoS F) before 50% of the development (in terms of land area) is reached. The development has the potential to significantly increase crash rates at this intersection. Therefore, it is recommended that treatments to the intersection must be implemented prior to the occupation of the site.

The safety assessment has also identified the potential for increase in injury related crashes at the, Makirikiri Rd/SH3 and Pukepapa Rd/SH3 intersections. Monitoring of these intersections will be necessary to determine if any will require an upgrade.

Inclusion of objectives and policies which aim to ensure the transport network is integrated to provide a variety of routes for walking, cycling, public transport and motor vehicles is required.

The Transport Agency supports the recommendation that the use of Construction Traffic Management Plans (CTMP) to manage onsite activity, in particular, the building or upgrading of the local roading network, should be considered.

Assessment of Evidence prepared by Mr Greg Carlyon, on behalf of Rangitikei District Council for Proposed District Plan Change, released on 2 June 2020

Introduction:

The national 'lockdown' as a direct result of Covid-19, has since provided Council with the opportunity to produce supplementary information, which I received on 2 June 2020. My report now assesses the supplementary evidence by Mr Greg Carlyon.

The evidence aims to address the following:

(a) Further investigation of land response to the concerns of submitters,

(b) Amendments to the proposed plan change that go some way towards addressing those concerns of submitters identified,

(c) Provision of a draft site plan.

The purpose of my comments below is to review the evidence on matters relating to the effects of the proposed plan change on the operation and safety of the State Highway network.

Proposed amendments to the Plan Change related to the State Highway:

Transport
25. The Council will need to resolve/adopt the following mitigations in order to manage transport effects generated by industrial activities on this site:

(a) No connection from the subject site onto Wings Line (local road),

(b) Upgrades to intersection of Makirikiri Road (local road) and State Highway 1 (SH1),

(c) Upgrades to intersection of Makirikiri Road and North Island Main Trunk Line (NIMT),

(d) Upgrades to widen/flatten M□kirikiri Road,

(e) Reduce speed on M□kirikiri Road,

(f) Provide safe foot/bike connection to town along Wings Line, from at least the driveway exit to the Malteurop site,

(g) Control (through regulation) heavy traffic movement to the site, in order that it does not enter and exit through Crofton.

Comments:
Para 25 requires Council to resolve/adopt various mitigation measures to manage transport effects generated by the industrial activities. Council identified upgrades to the intersection of SH1/Makirikiri Road under item 25.b. This will address our concerns on the effects of the proposed activities at the intersection of SH1/Makirikiri Road. The Transport Agency seeks to be included in design options as part of our ongoing engagement with this Plan Change process.

My earlier assessment identified that there are potential effects on other intersections to the State Highway. My earlier assessment recommended the review of the operation and safety of the highway and intersections with local roads when 25% percent of the area is developed. This is to ensure that the operation and safety of the state highway network (including intersections of Makirikiri Road/ SH 3 and Pukepapa Road/ SH 3) are within acceptable levels of service and thresholds. The proposed supplementary evidence however, does not address potential effects on the other state highway intersections.. As such my assessment at 25% development of the site remains.

Para 25 (f) addresses NZTA's request for the inclusion of objectives and policies which aim to ensure the transport network is integrated to provide a variety of routes for walking, cycling, public transport and motor vehicles.

Stage 1 Policies and rules
For any application(s) for resource consent that is considered under this rule, the following persons must be considered to be an affected person for the purpose of notification, unless section 95E(3) of the Act applies:
(a) KiwiRail Holdings Limited (KiwiRail)

(b) NZ Transport Agency

(c) Ng□ti Apa

(d) Whanganui District Health Board

Comments:
It is recommended that the Transport Agency supports this. The Transport Agency would like to be involved with the development of Structure Plan.

New infrastructure Policy A5-1.11: In the establishment and operation of the Industrial Development Capacity Area, adverse effects on safe operation of critical infrastructure and network utilities are avoided by ensuring that upgrades to development infrastructure are functional prior to the increased demand on road and rail networks being realised.

Comments:
Policy A5-1.11 will ensure that the critical infrastructures are in place to ensure effects are managed prior to the increased demand on transport network. The infrastructure upgrade must include the treatment at the intersection of Makirikiri Road/SH 1.

New infrastructure Policy A5-1.12: Access into and out of the Industrial Development Capacity Area shall be restricted to Makirikiri Road only.

Comments:
Policy A5-1.12 will reduce access points on to the highway. The intersection of Makirikiri Road will be the main access point onto the highway. While the majority of traffic will use the intersection of Makirikiri Road and SH 1, there could be effects on the other intersections on the state highway network, being the intersections of Makirikiri Road/ SH 3, Pukepapa Road/ SH 3. Traffic assessment will need to be revised to ensure that the effects of the development on these intersections are less than minor.

New infrastructure Policy A5-1.13: In the establishment and operation of the Industrial Development Capacity Area an integrated stormwater management approach shall be designed and implemented. The network shall conform with the Auckland Council Water Sensitive Design for Stormwater Guidance Document 2015/004 (GD04). As part of the stormwater network, the following will be implemented:

i. A stormwater collection and treatment wetland shall be constructed and maintained on the unnamed tributary of Tutaenui Stream; the wetland shall be sized at 2% of contributing catchment area or 3% of the site (6.51 ha), whichever is greater.

ii. All new impermeable surfaces constructed on the site shall be connected into the designed stormwater network in order to achieve volume neutrality.

Comments:
Policy A5-1.13 sets out the requirements for on-site stormwater management. Any stormwater discharged to the highway will need approval from the Transport Agency.

Summary:

It is recommended that the Transport Agency supports the following policies:

- Policy A5-1.11 upgrades to development infrastructure are functional prior to the increased demand on road and rail networks being realised.
- Policy A5-1.12: access to the industrial site is to be from Makirikiri Road only.

The Transport Agency seeks further assessment of the effects on intersections of Makirikiri Road/ SH 3 and Pukepapa Road/ SH 3.

Any stormwater discharged to the highway will need approval from NZ Transport Agency.

Recommendation/ Summary

The effects of the proposed plan change on the operation of the highway, particularly at Makirikiri Road/ SH1N, are more than minor. The Transport Agency considers the following conditions necessary to mitigate adverse effects on the operation and safety of the highway as follows:

- Construction Traffic Management Plans (CTMP) to be prepared and approved by the appropriate authority to ensure that on-site activity is managed appropriately.
- There will be no additional access points from the State Highway.
- A revised Traffic Impact Assessment specific to the policies and objectives of the Plan Change must be undertaken once a preferred option is chosen. The plan change should review the operation and safety at each of the intersections, based on updated data.
- The Transport Agency reserves the right to review its position on this plan change subject to more detailed assessment being provided and reviewed, including the viability of a roundabout at the Makirikiri Road/ SH 1N intersection to align with Safe System Approach, in addition to monitoring and upgrades to Makirikiri Rd/ SH 3 and Pukepapa Road/ SH 3.
- Treatments to the intersection and highway must be undertaken prior to the occupation of any site to mitigate any increase in collective risk for crashes. Treatment must include the upgrade of Makirikiri Road, to align with the Safe System Approach.
- Review of the operation and safety of the highway and intersections when 25% percent of the area is developed. This is to ensure that the operation and safety of the state highway network (including intersections of Makirikiri Road/ SH 3, Pukepapa Road/ SH 3) are within acceptable levels of service and thresholds.
- Inclusion of objectives and policies which aim to ensure the transport network is integrated to provide a variety of routes for walking, cycling, public transport and motor vehicles is required.

It is recommended that the Transport Agency supports the following policies:

- Policy A5-1.11 upgrades to development infrastructure are functional prior to the increased demand on road and rail networks being realised.
- Policy A5-1.12: access to the industrial site is to be from Makirikiri Road only.

The Transport Agency seeks further assessment of the effects on intersections of Makirikiri Road/ SH 3 and Pukepapa Road/ SH 3. Without a revised TIA and traffic modelling, review of the operation and safety of the highway and intersections when 25% percent of the area is developed is necessary, to ensure that the operation and safety of the state highway network (including intersections of Makirikiri Road/ SH 3, Pukepapa Road/ SH 3) are within acceptable levels of service and thresholds.

Any stormwater discharged to the highway will need approval from the Transport Agency.
Proposed conditions
As per Recommendation/ Summary.
Part 4: Other Internal Safety Comments
Agree / Disagree with Recommendation
Report prepared by Heather Liew, Safety Engineer. 20 March 2020. Revised 6 June 2020.
Explanation (if disagree)
Additional Comments