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Dear Victoria

Plan change - 68 Main Road Hope - Network Tasman - Tasman District

Transportation Assessment

Following your instructions, we are pleased to provide this assessment of the potential effects arising from a private plan change request for Rural 1 land to be used for industrial activities at 68 Main Road Hope in Tasman District. This assessment considers the land under the private plan change and looks at the possible traffic effects from changing the land use.

1. Introduction

Network Tasman have purchased 68 Main Road Hope (Lot 1 DP 20392 and Lo1 DP 19736) which is adjacent to their site to the north east. The plan change seeks to increase the land covered under Schedule 17.5A of the Tasman Resource Management Plan (TRMP) so it can be used for industrial purposes rather than Rural 1 activities.

The applicant seeks to carry out industrial activities on around one hectare of rural zoned land that has been used as a transport depot (along with other uses) and a private residence to increase the area of land covered under 17.5 of the TRMP to a total of 43,907 m2 or by around 29%. The proposed change will see the land use being available for the same activities that are covered under Section 17.5 of the TRMP.

2. Background

In 2012 Network Tasman lodged a private plan change request (PC50) to use rural land for the use for industrial activities. The area included land owned by Network Tasman that had a land area of around 34,000 m2.

As part of Plan Change 50 a thorough transport analysis of the road network was carried out by "Urbis" which are based in Christchurch. The assessment considered the road network and the two access points onto State Highway 6. The performance of the network and the two access points formed the bulk of the analysis in that assessment.

The access arrangements and PC 50 were approved in March 2014.

This analysis of the proposed extension of the industrial land to the south will draw from the assessment provided in the previous plan change request, as most of the information is still relevant.

3. Transport Networks

For the purpose of this assessment Main Road Hope and ease of reference the highway is considered to run in a north south direction. This section looks at the nearby road network, the road environment, the crash history and traffic volumes.

3.1 Road Network

The site is well located to take advantage of the strategic road network with direct access to SH6 and being located close to SH60 (Appleby Highway) via the Three Brothers Roundabout in the north.

Figure 1 shows the adjacent road network.

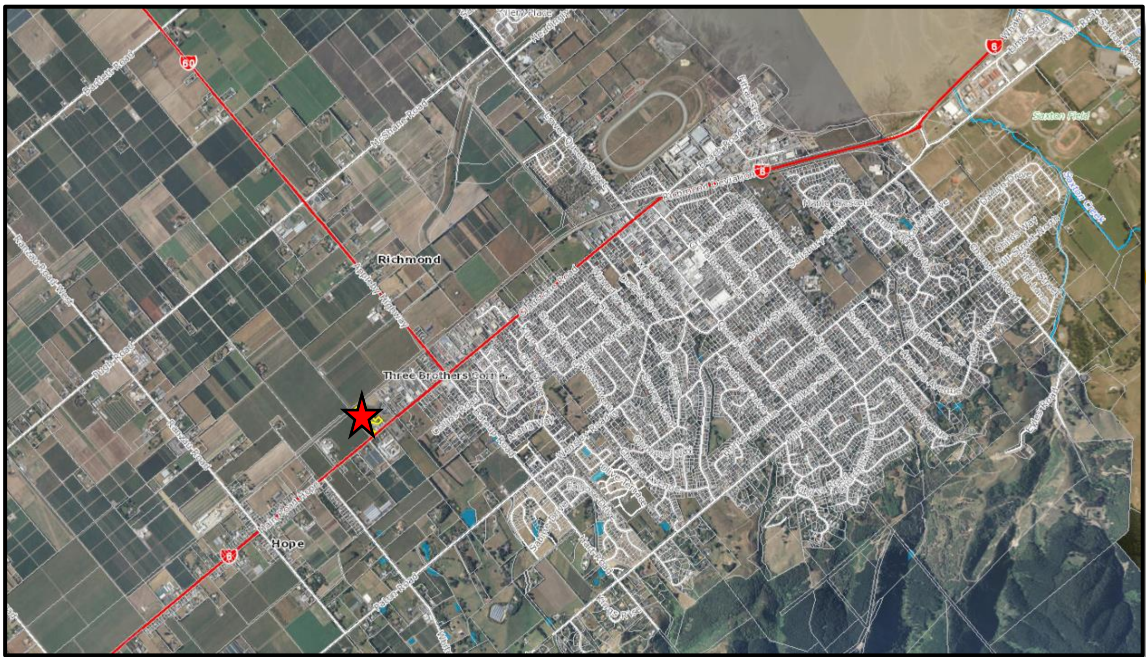

Figure 1: Road Network (Source: Top of the South Maps)

As shown the site is located on the southern fringes of Richmond. The intersection of SH6/SH60/Bateup Road is around 550 metres north of the site. SH6 provides the connection to the north and Nelson, and to the south to the West Coast and Christchurch. SH60 provides strategic access to Motueka and Golden Bay.

The posted speed along Main Road Hope changes from 50km/h to 70 km/h around 100 metres to the north of the development site, with the site frontage having a speed limit of 70 km/h. This posted speed limit has been in place for some time and it is unclear why the speed limit boundary is not further to the south, based on the level of development that exists in front of the site and immediately to the south. There is a Caltex self-serve fuel station in front of the site along with Ewings Eggs and a tomato growing business on the opposite side. The township of Hope is around 700 metres to the south.

3.2 Road Environment

Main Road Hope, adjacent to the site is a two-lane road on the fringes of the Richmond area.

Figure 2 shows the road environment immediately outside the site.

Figure 2: Road Environment

As shown, there is an edge line along both sides of the road with no footpaths. There is a 2.0 metre wide flush median in the centre of the road. This flush median has been widened for the accesses into the Network Tasman offices and Norman Andrews Place to provide right turn bays. The traffic lanes are around 3.5 metres wide with generous sealed shoulders along each side of the road. There are no stopping lines painted along the highway opposite the site. The reason for the broken yellow lines is not clear as there is sufficient width in the shoulder to park cars safely and it is not near intersections or vehicle crossings. There are no footpaths along the frontage of the site with kerb and channel along both sides of the road.

3.3 Traffic Flows

The NZTA count database (TMS) has been used to collate data on traffic flows along SH6. Traffic count data for September 2017 for NZTA site (00600135) has been obtained which shows five-day two-way flows of 11,657 vehicles per day. This count station is preferred to others in the area because it provides the most relative data in terms of flows with minimum changes between the site and the count station. The peak flows for the morning and evening periods were around 1000 vehicles per hour and 1100 vehicles per hour respectively.

For the morning peak the flows towards Richmond were 741 vehicles with 273 vehicles heading towards Brightwater. For the evening peak the flows towards Richmond were 467 vehicles and 629 vehicles towards Brightwater.

3.4 Crash History

A detailed search of the NZTA crash Database was carried out for the five-year period from 2013 to 2017, along with the part year of 2018. The search area included 100 metres either side of the site and the intersection of SH6/SH60/Bateup Road.

Figure 3 shows the collision diagram for the crashes for the study area since 2013.

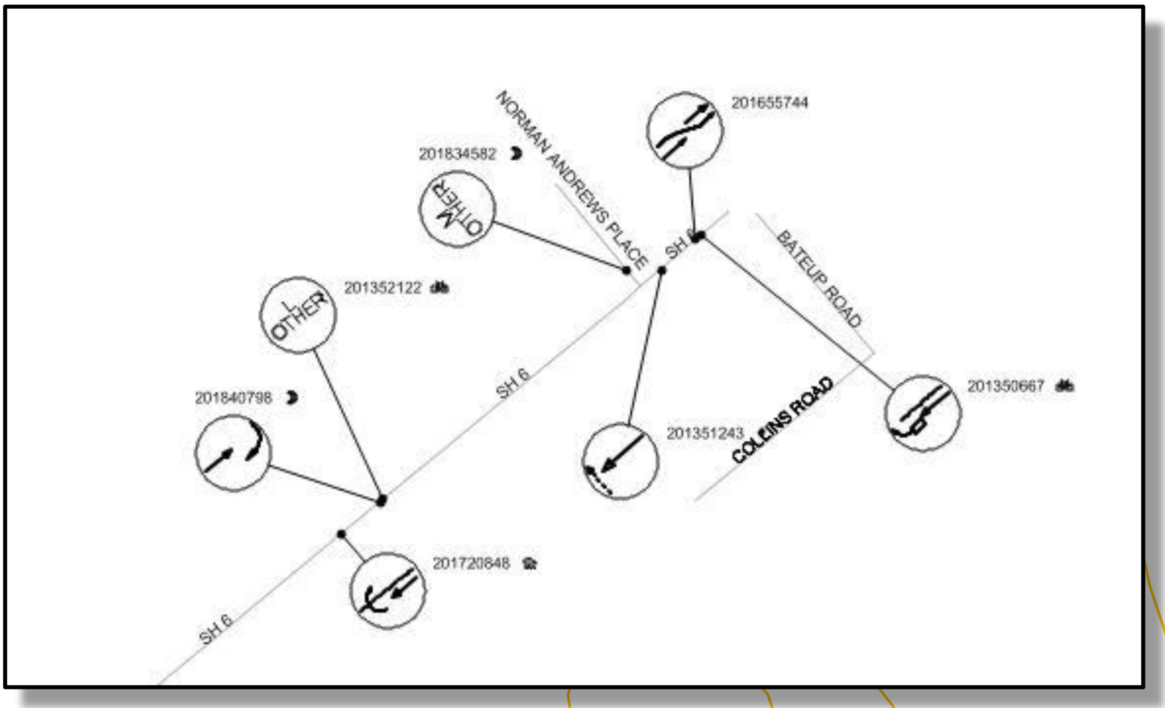

Figure 3: Crash History since 2013 (Source: NZTA)

As shown there have been four crashes north of the site. There have also been two crashes reported in front of the site and one crash around 80 metres south of the site.

The three non-injury crashes (201352122, 201840798 and 201720848) close to the site access have been considered further with the Traffic Crash Reports reviewed to understand if there are any deficiencies in the road network at this location.

Table 1 provides the crash details of the three crashes in front of the site.

Crash ID	Location	Date	Description
201352122	500 metres south of the intersection of SH6/SH60/Bateup Road	21/06/2013	A cyclist riding on the wrong side of the road heading north was stuck by a vehicle exiting a driveway on the east side of the road. The driver did not see the cyclist. This was on the opposite side of the road to Caltex and the site.
201720848	430 metres south of Norman Andrews Place	22/01/2017	Vehicle heading south on SH6 collided with a vehicle carrying out a u turn in the same direction.
201840798	480 metres north of Whites Road	30/05/2018	A vehicle turning right to exit the Caltex service station collided with a vehicle heading north on SH6. The exiting vehicle could not see past a vehicle parked on the road.

Table 1: Detailed Crash Information (Source: NZTA Traffic Crash Reports)

One of the three crashes was related to the existing access with a motorist exiting the service station unable to see approaching traffic due to a vehicle parked on the road. No stopping restrictions would have prevented this crash occurring. The other crashes were driver error or illegal movements.

4. Site Description

The site is located at 68 Main Road Hope at Hope in Tasman District. The site has access to Main Road Hope which is designated as State Highway 60 with NZTA being the road controlling authority for the road. The NZTA have listed the access for 68 Main Road Hope as Crossing Place 68B (CP68B). CP68B notice allows for "stock and/or associated farm vehicles and residential use".

Figure 4 shows the land sought to be included in Schedule 17.5 of the TRMP.

Figure 4: Plan Change Request Site Location (Source: Top of the South Maps)

As shown, the site currently has an existing residential building (now demolished) in the eastern corner. The remaining land on the site has had a number of different uses including transport depot, storage yard and was recently considered as a stock effluent site by NZTA. The site is small and has not been used as rural land for some time.

The site as a stand-alone piece of land which has limited uses due to its relatively narrow width, its past industrial/transport uses and its access.

Figure 5 shows the current access arrangements into the existing site.

Figure 5: Existing Site Access (Source: Top of the South Maps)

The existing site access is located along the south western boundary and forms part of the access into the adjacent Caltex Fuel Stop. The access is around nine metres wide and is formed in gravel. The access provides for two-way movements to the back of the section where the bulk of the land is located. As shown in Figure 2, the land has an unusual shape which would appear to be the result of past subdivisions.

Vehicles entering the site simply use the driveway to gain access to the rear part of the land. Vehicles exiting the site come out the southern access point which is mostly used as an entrance to the Caltex Fuel Stop.

There is a flush median in the middle of the highway that provides a safe waiting area for right turning traffic.

Figure 6 shows the site access to the site and the adjacent Caltex Fuel Stop.

Figure 6: Existing Site Access

As shown the existing crossing is wide to provide for the turning requirements for trucks that use the service station and the existing site. There have been no reported issues with trucks using this to gain access to the land that forms the plan change area.

Figure 7 shows the sight distance to the south for vehicles exiting the existing access.

Figure 7: Sight Distances to the South

As shown, the sight distance to the south is severely limited by the existing vegetation on the adjacent land to the south. The property boundary on the south side of the site access is set very close to the edge of the road. The vegetation shown in the photograph sits on private land. The sight distance of around 30 to 40 metres to the south for a posted speed limit of 70 km/h does not meet the provisions of the Tasman Resource Management Plan (TRMP) or the NZTA Planning Policy Manual (PPM).

Figure 8 shows the site distance to the north for vehicles exiting the site.

Figure 8: Sight Distances to the North

As shown the sight distance of more than 200 metres to the north is provided and easily meets the requirements of the TRMP and PPM.

5. Existing Accesses to Schedule 17.5 Land

Plan Change 50 that formalised the industrial zoning of the land to the north east of the site has two accesses onto State Highway 6. These two accesses were carefully considered as part of the PC50 process which included a thorough assessment using specialised intersection modelling software (SIDRA). The analysis showed that these two intersections would accommodate the flows generated by the Schedule 17.5 land as well as sensitivity testing, which doubles the most likely trip rates that would be expected from industrial activities.

Figure 9 shows the form and layout of these two approved access points into the industrially zoned land.

Figure 9: Schedule 17.5 Land access points. (Source: Top of the South Maps)

As shown, the two access points are well designed with both accesses formed to a typical intersection standard. Both accesses are controlled by give way signs with State Highway 6 traffic having priority of the side access roads. There is a flush median that provides right turn bays for turning traffic to wait safely in the middle of the road and not obstruct through traffic on the highway.

The available sight distances for these two access points in the 50 km/h posted speed limit area are excellent. All road users in this area are able to turn safely from either access point. This has been demonstrated by the crash history which shows there have been no right turning crashes from these accesses.

6. The Proposal

The adjacent land known as the "Hope Depot" was recently approved as part of a private plan change (PC50) to allow other land uses that reflect the activities that where being carried out on the site. The 2012 approved private plan change included land being used for residential activities and industrial activities along with rules and standards which are set out in Schedule 17.5 of the TRMP.

Network Tasman currently owns and operates a number of its activities at the "Hope Depot" along with other business and industrial activities that support the wider rural area. The Network Tasman offices are on the adjoining site at 24 Main Road Hope.

Figure 10 shows the current land owned by Network Tasman and which was subject to the Private Plan Change 50 and the new area for this plan change request.

Figure 10: Network Tasman land subject to PC50: (Source: Top of the South Maps)

The area of land covered under Plan Change 50 owned by Network Tasman is shown in the areas within yellow lines (which formed part of the previous plan change request). The plan change request area is shown by red shading.

The site in front of the applicant's property is a self-serve fuel station owned by Caltex (now owned by Z). Waimea Winery has land which it uses for wine production to the north west and south west. Some of this land for wine production is owned by third parties which Waimea Wines lease.

The main offices of Network Tasman can be seen on the adjacent site with a large building with a light blue roof. Network Tasman has invested in services and transport infrastructure on its land to provide an internal road and accesses onto the adjacent highway.

7. Assessment of Effects

The analysis of the effects of the proposed plan change has been drawn from information/assessment provided in Private Plan Change 50 and updated where it is relevant for this private plan change to allow industrial use of land at 68 Main Road Hope.

The matters assessed include safety, access performance, traffic generation and proposed access arrangements. It should be noted that the narrow nature of the site and the need for vehicles to turn to enter and exit in a forward direction leads to a specifically designed access arrangements to service the site.

7.1 Traffic Generation

Traffic generation is a difficult matter to assess without clearly knowing the nature of the businesses that might set up on the site and the size of the buildings. The Urbis Report provided for Plan Change 50 provided material on expected traffic generation from industrial sites. It stated the following:

> *Research of similar industrial parks in Christchurch indicates that industrial redevelopment of the Hope Depot site will generate traffic at a rate of around 0.2 trips per 100m² of site area. However, the analysis has also considered the effects of the proposal based on two sensitivity tests at rates of 0.3 trips per 100m² of site area and 0.4 trips per 100m² of site area. This approach recognises the potential for office or limited retail activity as anticipated by Schedule 17.5A. A typical industrial HGV flow component is 20% of total site generated flows and this has been used for analysis.*

The analysis provided in Plan Change 50 is relevant to the land which forms part of this proposed land change. These typical traffic generation rates are based on surveys of industrial land.

Furthermore, surveys of other industrial land in the Nelson Region including 750 Lower Queen Street and Wakatu Estate, show similar traffic generation rates. Recent surveys of industrial activities in other parts of the Nelson Region have shown hourly trip rates of around 0.23 trips per hour per 100 m2 of land area. This shows that there is good correlation between the research data and surveys in the Nelson Region.

These same surveys showed that heavy vehicle flows varied significantly depending on the type of activities. For Lower Queen street which has larger more vehicle orientated activities such as Bidvest, Downers and Placemakers storeyard accounted for around 40% of the total volume. Whereas the smaller oriented activities that are within the Wakatu Estate had a 10% heavy vehicle proportion for the total flow. The plan change area is small and more likely to be similar to the Wakatu Estate activities. Accordingly, the heavy vehicle component of the expected number of trips to be generated by the increased land area proposed as part of the plan change would be around three movements in the peak hour and much lower at other times. The total number of truck movements per day would be around 15 trucks.

The Transit Planning Policy Manual has figures of 0.3 movements per 100 m2 for industrial activities which aligns well with surveys of industrial areas around the Nelson region.

Accordingly based on a land area of around 10,000m2 the expected traffic generation would be around 23 to 40 vehicle movements in the peak hour. For the purpose of the assessment a figure of 30 vehicle movements in the peak hour has been used. Heavy vehicle movements are around three in the peak hour.

7.2 Trip Distribution

The trip distribution for vehicles to and from the site will be similar to material provided in Plan Change 50 for the adjacent land to the north.

It was estimated that 60% of site generated traffic would be to and from north of the site (Richmond direction) and 40% to and from the south (Brightwater direction). The site generated flow patterns were assumed to be tidal flows with 70% inwards and 30% outwards split for the weekday peak hour. All trips that would be generated by the activities in Plan Change 50 were added to the network flows for the purpose of analysis (i.e. all trips were new, with no trips attracted from the existing flows passed the site). This would be a worst-case scenario.

This equates to around 13 vehicles coming from the north to the site and eight vehicles from the south coming to the new industrial area in the morning peak hour. There would be five vehicles leaving to go towards Richmond and around four vehicles heading towards Brightwater in the morning peak hour. The reverse pattern is assumed to occur in the evening peak hour period.

It should be noted that some of the trips to the site will use the truck access to access the land under this proposed plan change. As noted above the total number of trucks movements per day is expected to be around 15. Around 50% of these movements will be inward and 50% outward. Therefore, the inward access (CP68B) would have around seven trucks per day with around two trucks entering in the peak hour.

7.3 Traffic Flows

As noted above, traffic count data for September 2017 was obtained which can be used to test the assumptions of the SIDRA modelling provided in PC50. The purpose of this is to test the outputs and how well they correlate with the actual count data.

The Urbis Report carried out extensive work on traffic flows and developing a "design year" for its SIDRA assessment. This "design year" was extrapolated from September 2011 traffic data which traffic growth assumptions were made and added to the base flows. The 2017 design year traffic flow values are provided in **Table 2** along with the count data for the actual September 2017 flows recorded at NZTA Count Station 00600135.

	Urbis 2017 Calculated Flows		NZTA Traffic Count 2017	
	Northbound	Southbound	Northbound	Southbound
Average Weekday AM Peak (0700-0800)	889	231	741	273
Average Weekday PM Peak (1600-1700)	612	848	467	629

Table 2: Comparison table of calculated 2017 flows and actual 2017 flows.

The total flows for the AM peak for the Urbis 2017 and Actual 2017 are 1120 vehicles and 1014 vehicles respectively. The difference between the two flows for the AM peak are relatively close with the actual flows being less than the calculated.

The total flows for the PM peak for the Urbis 2017 and Actual 2017 are 1460 vehicles and 1096 vehicles. The PM flows are separated by around 350 vehicles. The reason for the difference compared to the AM is difficult to determine, however the actual flows are less than the modelled flows.

This is important to note as the analysis prepared as part of PC50 is likely to overstate the effects of the access performance in the outputs from the SIDRA modelling. Accordingly, the SIDRA analysis used in PC 50 is conservative, as is the analysis and assessment below relating access performance.

7.4 Site Access

A number of options have been considered for access to the site which have included maintaining the existing access, restricting the access for particular directions and all vehicles to use the existing accesses that were approved under Plan Change 50.

It is understood that the applicant would like to use the existing driveway to access the plan change land. The assessment of the current access showed this had some difficulties.

The analysis of the current access to 68 Main Road Hope showed some deficiencies that would make it unsuitable for increased use for some movements. The existing access is used as the main entrance to the Caltex Fuel Stop for traffic coming from Brightwater. As noted above, vehicles exiting the site through the existing driveway are unable to see vehicles coming into the Caltex Fuel Stop from the Brightwater direction. This is due to a combination of the adjacent property boundary being very close to the highway road edge and the vegetation within the adjacent property severely restricting sight distance. Accordingly, it is recommended that vehicle exiting the plan change area is prohibited.

The site could be accessed from the already approved crossing points completed as part of Plan Change 50. The accesses are well designed and would be able to accommodate all vehicles that would use the plan change land area. There would need to be a new road/access constructed to connect the plan change area with the land to the north. While this arrangement would achieve access for all vehicles, it does create issues for long vehicles that could be expected to use the industrial land. Due to the small site, relatively narrow width and the location of the access will require around a third of the site needed for turning the long trucks. This would lead to a very inefficient use of the land.

The limitations/restrictions above led to the option for an access arrangement that is a combination of both using the current access (in a restricted way) and the accesses completed as part of Plan Change 50

To maximise the potential of the land and address some of the access difficulties it is recommended/proposed to have service vehicles (long trucks) entering through the existing driveway for 68 Main Road Hope. All other traffic to the site coming off the existing roading to be formed as part of Plan Change 50. This arrangement will allow the longer vehicles to enter the site, use a new road connecting through to the adjacent industrial land and exit onto the highway at Norman Andrews Place. The service vehicle entrance will be restricted and appropriately signage installed.

The long trucks that are proposed to enter the site via 68 Main Rad Hope are provided with excellent sight distances to oncoming traffic. They also have a flush median to wait safely in the middle of the highway while waiting for a gap in the traffic. Following vehicles are able to pass the truck waiting to turn right. This manoeuvre will use the existing over width crossing. Any adverse effects are mitigated by the road geometry and road makings.

Figure 11 shows the indicative road and access arrangements for the plan change site. The truck vehicle tracking is shown in a dotted red line with the proposed access road shown in a solid green line.

Figure 11: Indicative access road and service vehicle tracking

The proposed access for the long servicing vehicles will see the driver enter via the existing southern crossing to 68 Main Road Hope and then travel along the existing access. The goods will be loaded and unloaded on the site and then the truck would proceed on the existing roading associated with Plan Change 50 and exit onto the highway via Norma Andrews Place.

All other traffic will use the existing accesses provided for as part of Plan Change 50 and then the indicative road into the plan change site (green road).

7.5 Access Performance

An assessment based on the analysis provided in the "Urbis" Traffic Impact Report prepared for Plan Change 50 has been used to determine the likely effects for the proposed rezoning of rural land to industrial activities. The "Urbis" TIA provides a useful and thorough analysis of the traffic environment and in particular the performance of the access to the industrial land as part of Plan Change 50. These access points will provide most of the vehicle access and associated movements to the land under the private plan change.

Important considerations for the performance of the intersections should the land be changed to industrial activities include: the traffic generated by industrial activities, the access arrangements and the area of land able for the proposed land use.

As noted above, based on research and surveys the expected peak traffic generation from the site will be around 30 vehicles per hour. This is possibly higher than expected but forms a useful conservative figure for the analysis below. This is based on 0.3 trips per hour per 100m2 site area. It should be noted that the Urbis Report used a range of 0.2 trips per hour per 100m2 (considered most likely) to 0.4 trips per hour per 100m2 (higher end sensitivity test).

The 0.3 trips per hour per 100 m2 for the PC50 site was viewed as the most likely generation rate with some retail activities (higher traffic generators) on the site.

The Urbis Report provided a set of trip distribution calculations and tested the two accesses for Plan Change 50 with SIDRA. The assessment also provided a sensitivity test to different development flows and traffic growth options. For reference Norman Andrews Place is called Crossing Point 57 (CP57) and the southern access into the Network Tasman offices is Crossing Point 66 (CP66).

Firstly, the site is expected to have the same trip distribution as set out in the Urbis Report. The majority of movements will be to and from the north with smaller flows generated from the south. The Urbis Report stated:

In terms of wider origins and destinations, again the influence of the Richmond and Nelson employment and housing areas to the northeast cannot be ignored. That said; the site location on State Highway 6 could make it a favourable site location for activities with trade located southwest of the site – and particularly so if additional rural related activities establish on the site. For the purpose of this assessment it is assumed that 60% of site generated traffic will be to/from northeast of the site and 40% to/from the southwest. Any actual variations from this are considered to be allowed for as a result of the increased volumes analysed in the two sensitivity tests.

This approach to the trip distribution agrees with this assessment's analysis of the likely trip patterns for the proposed plan change. This distribution has been used for the peak hour flow of 30 vehicles for the proposed plan change.

Figure 12 shows the volumes used in the SIDRA analysis for CP57 and CP66 under the three scenarios for the AM and PM peak periods.

	Southwest Access (CP66)						Northeast Access (CP57)					
	SH6 NE		SH6 SW		Site Access		SH6 NE		SH6 SW		Site Access	
	Sbd Through	Right In	Nbd Through	Left In	Right Out	Left Out	Sbd Through	Right In	Nbd Through	Left In	Right Out	Left Out
Weekday AM Peak - Most Likely = 0.2 Rate												
Light	222	10	843	6	3	4	224	29	828	19	8	12
HGV	19	2	68	2	1	1	19	7	64	5	2	3
Weekday AM Peak - Sensitivity Test 1 = 0.3 Rate												
Light	226	14	853	10	4	6	228	43	830	29	12	19
HGV	20	4	70	2	1	2	21	11	65	7	3	5
Weekday AM Peak - Sensitivity Test 2 = 0.4 Rate												
Light	230	19	862	13	5	8	233	58	832	38	16	25
HGV	21	5	73	3	1	2	22	14	65	10	4	6
Weekday PM Peak - Most Likely = 0.2 Rate												
Light	806	4	576	3	6	10	791	12	578	8	19	29
HGV	66	1	46	1	2	2	62	3	46	2	5	7
Weekday PM Peak - Sensitivity Test 1 = 0.3 Rate												
Light	816	6	580	4	10	14	793	19	582	12	29	43
HGV	68	2	47	1	2	4	63	5	48	3	7	11
Weekday PM Peak - Sensitivity Test 2 = 0.4 Rate												
Light	825	8	584	5	13	19	795	25	587	16	38	58
HGV	71	2	48	1	3	5	63	6	49	4	10	14

Table 6: Calculated Design 2017 Site Access Traffic Volumes

Figure 12: AM and PM Traffic Volumes ((Source: Urbis Assessment Dec 2012)

The proposed plan change is expected to generate around 0.3 trips per 100 m2 (same as sensitivity test 0.3 Rate). Of note is that the additional traffic from 0.3 trip per hour per 100 m2 to 0.4 trips per hour per 100m2 is around 80 additional trips in the AM and PM peaks.

The proposed plan change is expected to conservatively generate around 30 trips in the peak hour which is well below the upper limit that was tested in SIDRA. Accordingly, any effects of the proposed plan change would be less than those shown in the sensitivity test with 0.4 trips per 100 m2 and only slightly more than those shown for flows for 0.3 trips per hour per 100m2.

The SIDRA intersection analysis of the three scenarios (0.2, 0.3 and 0.4) was provided in the Urbis Report. Sidra outputs were provided for the two access points and for the AM and PM peaks for the three scenarios.

Figure 13 is an extract from the Urbis Report setting out the SIDRA outputs for the AM peak for CP57 for the three scenarios.

Movement		AM PEAK Most Likely = 0.2 Rate				AM PEAK Sensitivity 1 = 0.3 Rate				AM PEAK Sensitivity 2 = 0.4 Rate			
		Volume	Delay	LOS	Queue	Volume	Delay	LOS	Queue	Volume	Delay	LOS	Queue
SH6 SE Sbd Through	Light	224	0	A	0.0	228	0	A	0.0	233	0	A	0.0
	Heavy	19				21				22			
SH6 SE Right In	Light	29	16.5	C	0.4	43	17.1	C	0.6	58	17.5	C	0.8
	Heavy	7				11				14			
SH6 SE Nbd Through	Light	828	0	A	0.0	830	0	A	0.0	832	0	A	0.0
	Heavy	64				65				65			
SH6 SE Left In	Light	19	7	A	0.1	29	7.1	A	0.1	38	7.2	A	0.2
	Heavy	5				7				10			
NE Access Right Out	Light	8	21.2	C	0.4	12	22.5	C	0.6	16	24.7	C	0.9
	Heavy	2				3				4			
NE Access Left Out	Light	12	21.2	C	0.4	19	22.5	C	0.6	25	24.7	C	0.9
	Heavy	3				5				6			

Table 8: Summary SIDRA analysis output – CP57 CP66 Design Year 2017 AM Peak Period

Figure 13: Access Performance for CP 57 – AM Peak (Source: Urbis Assessment Dec 2012)

As shown, the modelling was carried out for a base year of 2017 for the AM peak for both accesses for three scenarios. All approaches operate at a Level of Service of C or better with vehicle queues of less than one on any approach.

With the traffic generated from the site expected to add volumes that fall between sensitivity rates of 0.3 and 0.4 trips per hour per 100m2, the likely effects would also fall within this range. Accordingly, the operation of CP57 would operate better than the SIDRA outputs set out for sensitivity rate of 0.4. These outputs show that the access CP57 can accommodate the expected flows from the proposed plan change area in the AM peak.

Figure 14 shows the SIDRA outputs PM peak period for the three scenarios for CP57.

Movement		PM PEAK Most Likely = 0.2 Rate				PM PEAK Sensitivity 1 = 0.3 Rate				PM PEAK Sensitivity 2 = 0.4 Rate			
		Volume	Delay	LOS	Queue	Volume	Delay	LOS	Queue	Volume	Delay	LOS	Queue
SH6 SE Sbd Through	Light	791	0	A	0.0	793	0	A	0.0	795	0	A	0.0
	Heavy	62				63				63			
SH6 SE Right In	Light	12	11.2	B	0.1	19	11.4	B	0.2	25	11.4	B	0.2
	Heavy	3				5				6			
SH6 SE Nbd Through	Light	578	0	A	0.0	582	0	A	0.0	587	0	A	0.0
	Heavy	46				48				49			
SH6 SE Left In	Light	8	6.9	A	0.0	12	6.9	A	0.0	16	7	A	0.1
	Heavy	2				3				4			
NE Access Right Out	Light	19	32.8	D	1.3	29	40.8	E	2.3	38	66.5	F	4.6
	Heavy	5				7				10			
NE Access Left Out	Light	29	32.8	D	1.3	43	40.8	E	2.3	58	66.5	F	4.6
	Heavy	7				11				14			

Table 9: Summary SIDRA analysis output – CP57 CP66 Design Year 2017 PM Peak Period

Figure 14: Access Performance for CP 57 – PM Peak (Source: Urbis Assessment Dec 2012)

As shown, CP57 operates generally well except in the 0.4 trips per hour per 100m2 sensitivity test. A Level of Service F occurs for the right and left turn out of CP57. This is a result of there being a single exit lane and right turning vehicles holding up the left turning vehicles. The modelling assumed one exit lane, however in practice the width that has been constructed at CP57 is sufficient to allow left turning vehicles to slip past a right turning vehicle. Therefore, the delays are worse than what would happen in practice. This has been confirmed by observations at the intersection showing the side road delays/Level of Service is better than modelled.

Figure 15 is an extract from the Urbis Report setting out the SIDRA outputs for the AM peak for CP66 for the three scenarios.

Movement		AM PEAK Most Likely = 0.2 Rate				AM PEAK Sensitivity 1 = 0.3 Rate				AM PEAK Sensitivity 2 = 0.4 Rate			
		Volume	Delay	LOS	Queue	Volume	Delay	LOS	Queue	Volume	Delay	LOS	Queue
SH6 SE Sbd Through	Light	222	0	A	0.0	226	0	A	0.0	230	0	A	0.0
	Heavy	19				20				21			
SH6 SE Right In	Light	10	16	C	0.1	14	31.1	C	0.6	19	18.3	C	0.2
	Heavy	2				4				5			
SH6 SE Nbd Through	Light	843	0	A	0.0	853	0	A	0.0	862	0	A	0.0
	Heavy	68				70				73			
SH6 SE Left In	Light	6	7	A	0.0	10	6.9	A	0.0	13	6.9	A	0.0
	Heavy	2				2				3			
NE Access Right Out	Light	3	22.4	C	0.1	4	22.4	C	0.2	5	21.2	C	0.2
	Heavy	1				1				1			
NE Access Left Out	Light	4	22.3	C	0.1	6	22.5	C	0.2	8	21.3	C	0.2
	Heavy	3				5				6			

Table 10: Summary SIDRA analysis output – CP66 CP66 Design Year 2017 AM Peak Period

Figure 15: Access Performance for CP 66 – AM Peak (Source: Urbis Assessment Dec 2012)

The level of service and delays modelled for CP66 shows that the access operates well with relatively small delays on the side access. Vehicle queues are less than one vehicle with average delays being no worse than 22 seconds. With the expected flows from the proposed plan change adding traffic that would be less than the 0.4 trips per hour per 100m2 testing, the access is expected to accommodate the additional flows with no noticeable effect on junction performance.

Figure 16 shows the SIDRA outputs PM peak period for the three scenarios for CP66.

Movement		Most Likely = 0.2 Rate				Sensitivity 1 = 0.3 Rate				Sensitivity 2 = 0.4 Rate			
		Volume	Delay	LOS	Queue	Volume	Delay	LOS	Queue	Volume	Delay	LOS	Queue
SH6 SE Sbd Through	Light	806	0	A	0.0	816	0	A	0.0	825	0	A	0.0
	Heavy	66				68				71			
SH6 SE Right In	Light	4	11	B	0.0	6	11.7	B	0.1	8	11.2	B	0.1
	Heavy	1				2				2			
SH6 SE Nbd Through	Light	576	0	A	0.0	580	0	A	0.0	584	0	A	0.0
	Heavy	46				47				48			
SH6 SE Left In	Light	3	7	A	0.0	4	6.9	A	0.0	5	6.8	A	0.0
	Heavy	1				1				1			
NE Access Right Out	Light	6	29	D	0.4	10	25.9	D	0.5	13	30.3	D	0.8
	Heavy	2				2				3			
NE Access Left Out	Light	10	28.8	D	0.4	14	26	D	0.5	19	30.4	D	0.8
	Heavy	3				5				6			

Table 11: Summary SIDRA analysis output – CP66 Design Year 2017 PM Peak Period

Figure 16: Access Performance for CP66 – PM Peak (Source: Urbis Assessment Dec 2012)

As with CP57 the access develops a higher delay in the evening peak period as a result of right turning traffic holding up left turning traffic. The Level of Service for the exit movement is within normally accepted parameters for a side road onto a busy arterial road. The additional traffic generated by the change in land use would be less than the intersection performance as set out in the 0.4 trip per hour per 100m2 testing. As with CP57 some cars will be able to slip past a right turning vehicle which would reduce modelled delays. Accordingly, the access can function safely and efficiently. Again, observations show that the existing access operates at levels better than the outputs from the SIDRA modelling.

7.6 Summary

In summary, the expected flows from 68 Main Road Hope if it was zoned for industrial use, can be accommodated on the adjacent road network. The access arrangements would see all traffic using the existing junctions (CP57 and CP66) to access the site with restricted long vehicle movements entering via the existing crossing (CP68B).

The changes in the performance of CP57 and CP66 fall within the delays modelled in PC50. There are no discernible effects from the proposed plan change.

8. NZTA Consultation

Initial discussions have been conducted with NZTA setting out the proposal to change this small land parcel to be used for industrial activities. The discussions were very preliminary and largely focused on the possible and potential access arrangements to 68 Main Road Hope rather than any detailed traffic analysis.

NZTA had concerns about the continued use of the existing access, especially when considering the potential connections to adjacent industrial land uses and the already approved higher volume connections to SH6 (CP57 and CP66). Their preference was to have all traffic use the existing accesses approved under Plan Change 50.

This was considered in detail and following access analysis it was apparent that exiting from 68 Main Road Hope via the existing access was unsafe. Also, in gaining a better understanding of the activity and the site, led to the conclusion that the long trucks would need to enter via 68 Main Road Hope, due to the size of the site and making efficient use of the land available.

NZTA have helpfully provided a draft assessment (after initial consultation) which accurately sets out the location of the site and describes the road environment in the vicinity of the site. However, there are some important points to note which are as follows:

- The draft report prepared by NZTA is a desk top assessment. It would appear that there was no site visit to assist in the preparation for the report.
- That the existing carriageway is made up of two 3.5 mere wide traffic lanes, a 2.0 metre flush median, a two metre wide shoulder along the frontage of the site and a three metre wide space on the opposite side of the road. There

are broken yellow lines on the opposite side of the road and parking permitted along the road fronting the site.

- The two access points (CP57 and CP66) approved by NZTA for the existing Schedule 17.A area are constructed within the same carriageway width.
- The posted speed limit is 70 km/h, however the 50 km/h posted speed is within 100 metres. NZTA have taken the operating speed as 80 km/h which didn't take into account the nearby speed limit change.
- The assess is required to meet a geometric standard to Diagram E. The road layout can meet the access provisions of Diagram E with at least six metres provided from the centreline to the edge of the road.
- The draft assessment suggests that the intersections at CP57 and CP66 need to be upgraded to meet left turn warrants set out in Austroads.

There are a number of matters that need to be addressed with the responses provided below. It should be noted these responses have been formulated from understanding the application fully and having a very good knowledge the road environment in the area of the Plan Change.

8.1 Speed Environment

The speed environment has not been measured at this location, however a speed count was done outside 132 Main Road Hope and provided to NZTA as part of a separate application. The location of the speed count was well within the 70 km/h posted speed limit and not influenced by the built-up urban environment or change in speed limit which exists at the plan change site.

The speed surveys were carried out in accordance with Austroads. The 85th percentile speeds of 69 km/h and 70 km/h were recorded for the northbound and southbound flows respectively. The operating speed is around the posted speed limit.

The operating speed outside the plan change site would be less than 70 km/h due to the influence of traffic and the change in speed limit.

8.2 Traffic and Trip Distribution

The TIA prepared for the plan change clearly sets out the expected traffic movements for the increased industrial land area and how they would be distributed across the road network. This analysis was based on survey data and NZTA trip generation figures. Below is an extract of the TIA set out the expected traffic movements and how they are distributed.

> ***7.1 Traffic Generation***
>
> *Traffic generation is a difficult matter to assess without clearly knowing the nature of the businesses that might set up on the site and the size of the buildings. The Urbis Report provided for Plan Change 50 provided material on expected traffic generation from industrial sites. It stated the following:*
>
> *Research of similar industrial parks in Christchurch indicates that industrial redevelopment of the Hope Depot site will generate traffic at a rate of around 0.2 trips per 100m² of site area. However, the analysis has also considered the effects of the proposal based on two sensitivity tests at rates of 0.3 trips per 100m² of site area and*

0.4 trips per 100m² of site area. This approach recognises the potential for office or limited retail activity as anticipated by Schedule 17.5A. A typical industrial HGV flow component is 20% of total site generated flows and this has been used for analysis.

The analysis provided in Plan Change 50 is relevant to the land which forms part of this proposed land change. These typical traffic generation rates are based on surveys of industrial land.

Furthermore, surveys of other industrial land in the Nelson Region including 750 Lower Queen Street and Wakatu Estate, show similar traffic generation rates. Recent surveys of industrial activities in other parts of the Nelson Region have shown hourly trip rates of around 0.23 trips per hour per 100 m2 of land area. This shows that there is good correlation between the research data and surveys in the Nelson Region.

The Transit Planning Policy Manual has figures of 0.3 movements per 100 m2 for industrial activities which aligns well with surveys of industrial areas around the Nelson region.

Accordingly based on a land area of around 10,000m2 the expected traffic generation would be around 23 to 40 vehicle movements in the peak hour. For the purpose of the assessment a figure of 30 vehicle movements in the peak hour has been used.

7.2 Trip Distribution

The trip distribution for vehicles to and from the site will be similar to material provided in Plan Change 50 for the adjacent land to the north.

It was estimated that 60% of site generated traffic would be to and from north of the site (Richmond direction) and 40% to and from the south (Brightwater direction). The site generated flow patterns were assumed to be tidal flows with 70% inwards and 30% outwards split for the weekday peak hour. All trips that would be generated by the activities in Plan Change 50 were added to the network flows for the purpose of analysis (i.e. all trips were new, with no trips attracted from the existing flows passed the site). This would be a worst-case scenario.

This equates to around 13 vehicles coming from the north to the site and eight vehicles from the south coming to the new industrial area in the morning peak hour. There would be five vehicles leaving to go towards Richmond and around four vehicles heading towards Brightwater in the morning peak hour. The reverse pattern is assumed to occur in the evening peak hour period.

It should be noted that some of the trips to the site will use the truck access to access the land under this proposed plan change. This is expected to be around five trucks per hour.

As shown in the material above the number of movements that will be generated by the increase in industrial land is relatively small at 30 movements in the peak hour. These are also distributed across the network with small increases in the individual movements.

The TIA also set out the implications of the additional traffic for the existing intersections at CP57 and CP66. The TIA showed that the expected additional flows from the plan change area fell within the SIDRA outputs provided as part of Plan Change 50 and the intersection that were approved by NZTA as part of that process. In summary there is no increase in the amount of traffic using these intersections than what was already considered and approved under Plan Change 50.

For clarification the number of trucks movements stated in the last line of this assessment (extract above) refers to the whole plan change area. The existing access (CP66B) will not be use by all trucks visiting the site as there are two existing accesses that will accommodate most of the movements. The expected number of truck movements that need to use the service access (CP68B) will be around five to eight per day. As noted in the assessment above it is assumed that seven trucks per day will visit the site. These trucks will mostly likely be equivalent to B trains as this is specifically designed to cater for these larger vehicles. These movements will also be inward only and would be 35 (7 x 5) equivalent car movements (ECM's) at the higher end and less than 30 ECM's on the lower end.

8.3 Access Standard (CP66B)

The proposed use of the existing use will see a limited number of movements that use the existing access point. As noted in the TIA it will be restricted to entry only and will be controlled by gates located around 65 metres from the highway. The TIA identified that the use of this existing access for traffic exiting the site was unsafe.

NZTA express concern about the enforceability of restricting the access for vehicles accessing the site from CP68B. As noted in the TIA this access will be restricted and signed. The access restriction will be in the form of an accessed controlled gate and only specific vehicles will be permitted to use this entrance. The access is controlled and enforceable.

NZTA have raised further concerns around residual risks being

- Right turn into CP68B
- Left Turn into CP68B
- Access separation

The carriageway width is around 14 metres which is two metres wider than what is required under the Transit Planning Policy Manual (TPPM) Table App5B/4 for Diagram E.

The existing flush median is already used for turning movements associated with CP68B and the Caltex Service Station. As noted above the expected number of truck movements entering the site is around seven per day per day which is well within the Diagram E requirements without a flush median. A truck is able to wait within the flush and following traffic can pass on the left safely due to the remaining available road width being at least five metres. There is no safety issue.

With regard to the left turn provisions, these are standard and consistent with any access to land from the highway in the vicinity of the plan change site. The number of trucks expected to turn left would be around less than two per day and probably most likely none due to the location of commercial areas being to the north. This access is in an urban environment and vehicle speeds are not high. As with other accesses, including the Caltex Service Station, trucks would indicate their turn and move from the through traffic lane. The provision of a separate left lane is not required for the volume of turning movements as it hasn't for other higher volumes access along this road.

The draft report highlights that the minimum access separation requirement is meet for eastbound traffic (assumed to be toward Brightwater). The only non-compliance with the TPPM access separation requirements is the driveway for 82 Main Road Hope. The access for 82 Main Road Hope has operated safely with no documented concerns. The use of the access (CP68B) will be consistent with what is provided from under the its current Crossing

Place Notice (CPN). The CPN allows for stock and/or associated farm vehicles and residential use. The TPPM provides information about trip rates which includes residential properties generating 10.7 trips per day with no information provided for farm activities, which could include potentially more trucks than is proposed under the plan change. Even with the approved residential use (excluding farm activities), the plan change proposal will generate less movements across the access. It should also be noted that all access will be inward, and the conflict of exiting vehicles and poor sight distance is not an issue.

In conclusion, NZTA have stated that CP68B is considered not suitable for additional vehicle movements due to limited road space, substandard visibility and relatively close spacing of accesses. As noted above, there is 14 metres of carriageway to accommodate turning vehicles this is more than required under TPPM. The substandard visibility has been identified and mitigation measures proposed to restrict the access to inward only. The restriction of the access to inward only and the lower use of the access than what is approved under the CPN will reduce the potential effects that could occur at this location. This is a positive benefit.

8.4 Access Standard (CP 57 and CP66)

The draft report provides commentary around the existing access (CP57 and CP66) and recommends that channelised left turn bays are constructed. These intersections were approved to be fit for purpose as part of Plan Change 50, which NZTA were part of. Traffic modelling was provided with the expected number of movements at these intersections formed part of the evidence provided for the Hearing. The analysis of the traffic movements from the increased land industrial area shows that the expected movement are within already accepted tested volumes used to design the approved intersections.

The draft NZTA report now suggesting that these intersections need to be upgraded is inconsistent with material that has led to the design of the approved intersections. It should be noted that a site visit or desk top assessment would show that it is not possible to provide channelised left turn lanes at either intersection due to building locations. Furthermore, there a number of access/intersections along this section of highway that carry much higher traffic flows without such infrastructure being required. The assessment within the draft report suggests these are needed for safety and capacity reasons, but no analysis has been provided to justify the need. The intersections operate safely and will continue to do so following the plan change being granted.

8.5 Consultation Summary

The draft report from NZTA provides some good points around safety and capacity. However, the analysis provided in the TIA and above shows that the level of development and the expected increases in the number of movements is easily within the already approved limits of the existing intersections.

The existing access (CP68B) can operate safely within existing road environment as set out above. The road width allows for right turning vehicles to wait safely on the flush median, the restricted movements for the access remove the safety risks associated with visibility constraints, control the use and are enforceable, and the access will have fewer movements than already provided for under its approved CPN.

Accordingly, it is proposed to restrict the existing access at 68 Main Road Hope to a service access for trucks to enter the site. Access for all other vehicles to the site will be a via a new road from the existing internal access road next to the Network Tasman offices. All vehicles will exit via the accesses (CP57 and CP66) approved under Plan Change 50. The proposed access arrangements will have no adverse effect on the operation of the state highway.

9. Conclusions

The analysis and assessment of the proposal to allow industrial activities on a small area of Rural 1 land shows that the expected traffic movements from the site can be accommodated on the surrounding road network.

The proposed access arrangement will see trucks enter the site through the existing driveway at 68 Main Road Hope and exiting via a new road and existing intersections onto State Highway 6. This arrangement is necessary to preserve the land area for the new activities and reduce inefficiencies arising from large areas set aside for onsite turning. All other traffic will use the existing accesses that were assessed as a part of PC50.

The Urbis report provided robust traffic analysis on traffic flows and access performance. This analysis has been reviewed and used to understand the likely impacts of this increase in industrial land use. The conclusion of the analysis is that the intersections considered as part of PC50 can accommodate the expected flows from this development.

In consideration of the safety matters, the proposal can be accommodated within the surrounding road network with no discernible change in the existing levels of safety. This is due to the well laid out intersection that will be used by traffic to the new zone. Also the restriction on the existing access to only allow trucks to enter the driveway can be done safely.

Overall the proposal to change the zone from Rural 1 to Industrial can be supported from a transportation perspective.

Regards

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