Hartley Road Partnership

Private Plan Change
Springvale Road, Clyde

Transportation Assessment

CARRIAGEWAY
CONSULTING
traffic engineering | transport planning

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1. Introduction

1.1. Hartley Road Partnership is lodging a private plan change request for its site at Springvale Road, Clyde (**the site**). The site is presently zoned as Rural in the Central Otago District Plan, and the plan change seeks that this is changed to Industrial.

1.2. This Transportation Assessment sets out an evaluation of the transportation issues associated with the development that would be facilitated by the rezoning, including changes in travel patterns that are likely to arise. Where potential adverse effects are identified, possible ways in which these can be addressed are set out.

1.3. This report is cognisant of the guidance specified in the New Zealand Transport Agency's '*Integrated Transport Assessment Guidelines'* and although travel by private motor vehicle is addressed within this report, in accordance with best practice the importance of other transport modes is also recognised. Consequently, travel by walking, cycling and public transport is also considered.

2. Site Overview

2.1. Location

2.1.1. The site is located on the eastern side of Clyde, immediately east of the State Highway 8 / Springvale Road intersection.

2.1.2. The location of the site in the context of the local area is shown in Figure 1 and in more detail in Figure 2.

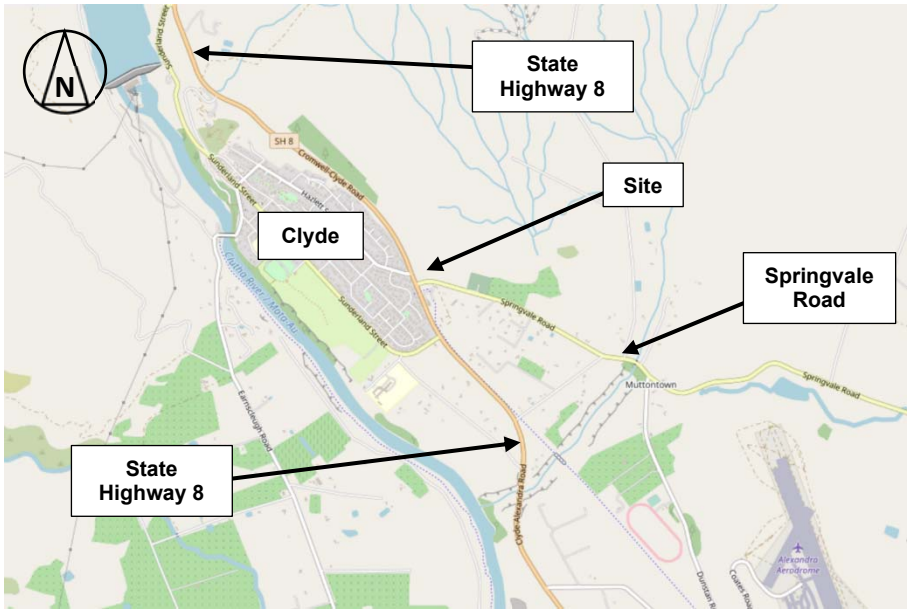


Figure 1: General Location of Site

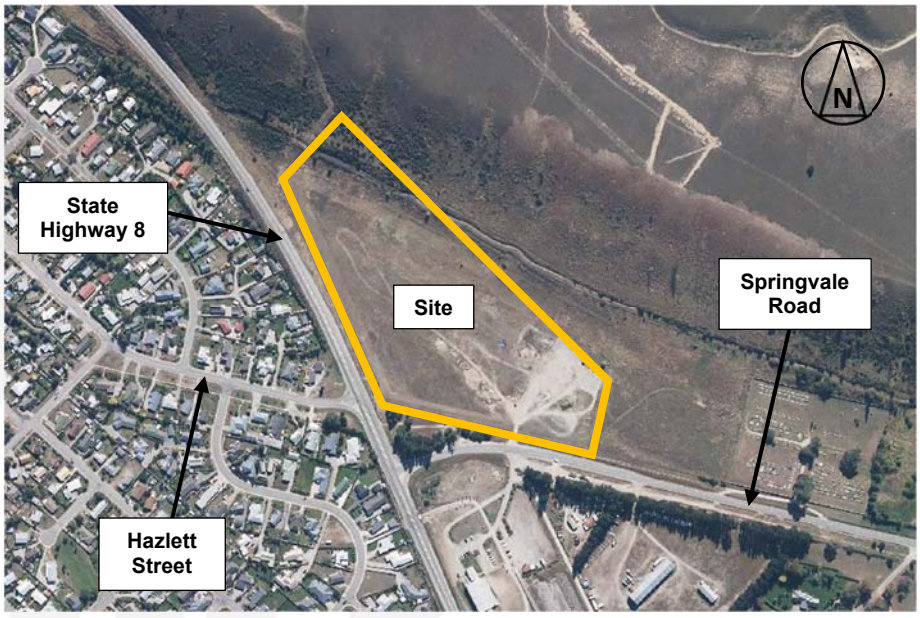


Figure 2: Aerial Photograph of Site and Environs

2.2. Road Hierarchy

2.2.1. Under the District Plan roading hierarchy, State Highway 8 is classified as a highway and Springvale Road is an Arterial Road. Although the District Plan does not define road types, the New Zealand Transport Agency Waka Kotahi (**Waka Kotahi**) specifies that state highways have a "*nationally strategic purpose in moving people and goods*", with the One Network Road Classification setting out that Arterial Roads "*make a significant contribution to social and economic wellbeing [and] link regionally significant places, industries, ports or airports*".

2.2.2. Hazlett Street is an Urban Local Road, and such roads typically carry lower traffic flows and provide a high degree of property access.

3. Current Transportation Networks

3.1. Roading Network

3.1.1. Although the site has frontage onto State Highway 8, the topography (a difference in levels) means that it is challenging to achieve any access onto it. Accordingly, no access is proposed onto the highway and rather, will be gained from Springvale Road only.

3.1.2. The site presently has one access point, located around 140m from the state highway. This is formally constructed with a metalled road surface and a gate at the site boundary.

Photograph 1: Site Access Looking East

3.1.3. Adjacent to the site, Springvale Road has a flat alignment which curves gently from its intersection with the highway. The road provides one traffic lane in each direction of 3.5m width, and has a centreline and edgeline markings, with edge marker posts also present. The width of the sealed shoulder is variable, between 0.3m and more than 2m, the latter being on the northern side of the road just east of the highway.

3.1.4. Springvale Road is subject to an 80km/h speed limit and has a legal width of 40m, which widens to more than 80m nearer to the highway.

Photograph 2: Springvale Road Looking East

3.1.5. The very wide legal road width creates an unusual scenario whereby there is an informal access to the extra road reserve width that lies around 60m east of the highway and is formed with a very wide (40m) splay, enabling cars can turn into an unformed car parking area between the site boundary and the formed road.

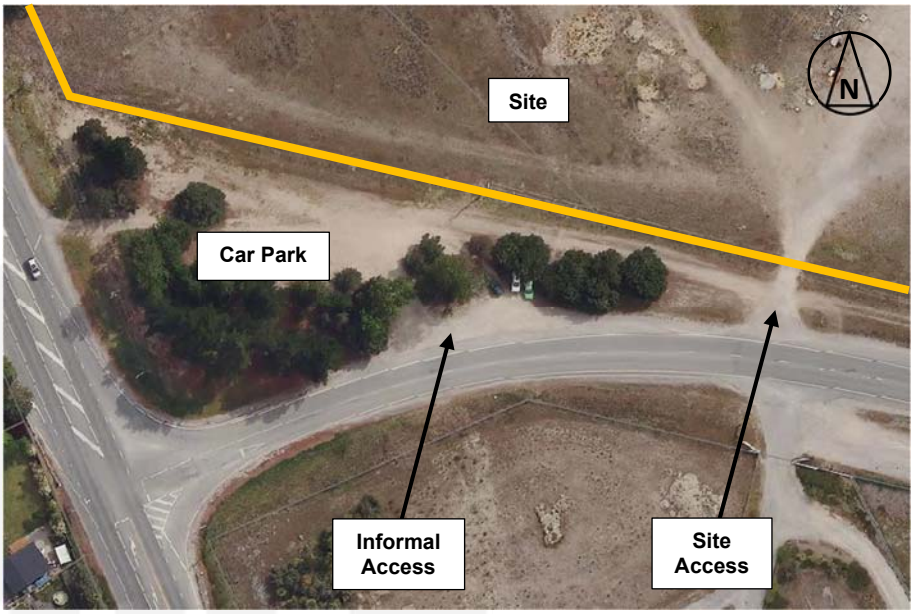


Figure 3: Road Reserve Towards Southwest of Site

Photograph 3: Informal Access to Wide Road Reserve Looking East

3.1.6. To the immediate east of the site, the road alignment straightens but continues with the same cross-section. It provides access to a number of rural residential properties before terminating at State Highway 85 approximately 8m east of the site.

3.1.7. Opposite the site access is a small access road that serves a small number of activities including a Department of Conservation base for the Rail Trail (discussed further below) and fire service offices. There is also a roadway that runs parallel to Springvale Road for a distance of around 230m.

Photograph 4: Access opposite Site Access, Looking East

3.1.8. At the southwestern corner of the site, Springvale Road meets State Highway 8 at a priority ('give-way') intersection. Approximately 90m to the north, Hazlett Street joins the highway from the west at a 'stop' controlled intersection, and the two operate as offset (stagged) tee-intersections. The intersection is constructed with a high-capacity layout and consequently there are auxiliary right-turn lanes for the movements from State Highway 8 to Springvale Road (south to east) and State Highway 8 to Hazlett Street (north to west), and a left-turn lane for

the movement from State Highway 8 to Hazlett Street (south to west). The Springvale Road approach is also constructed with an auxiliary left-turn lane, separating this movement from the movement onto State Highway 8 (north) and Hazlett Street.

3.1.9. There is no auxiliary turning lane for the State Highway 8 to Springvale Road (north to east) movement, but there is a wide (3m) shoulder marked with diagonal shoulder markings (MOTSAM 2.04) which in practice is used by drivers as a left-turn lane, with southbound traffic remaining in the formally marked traffic lane. This shoulder is well over 100m in length.

Photograph 5: Wide Shoulder on State Highway 8, North of Springvale Road

3.1.10. State Highway 8 is subject to a 100km/h speed limit, but sight distances for all turning movements at the State Highway 8 / Springvale Road and State Highway 8 / Hazlett Street intersections are appropriate for this speed environment.

Photograph 6: State Highway 8 / Springvale Road Intersection Looking North

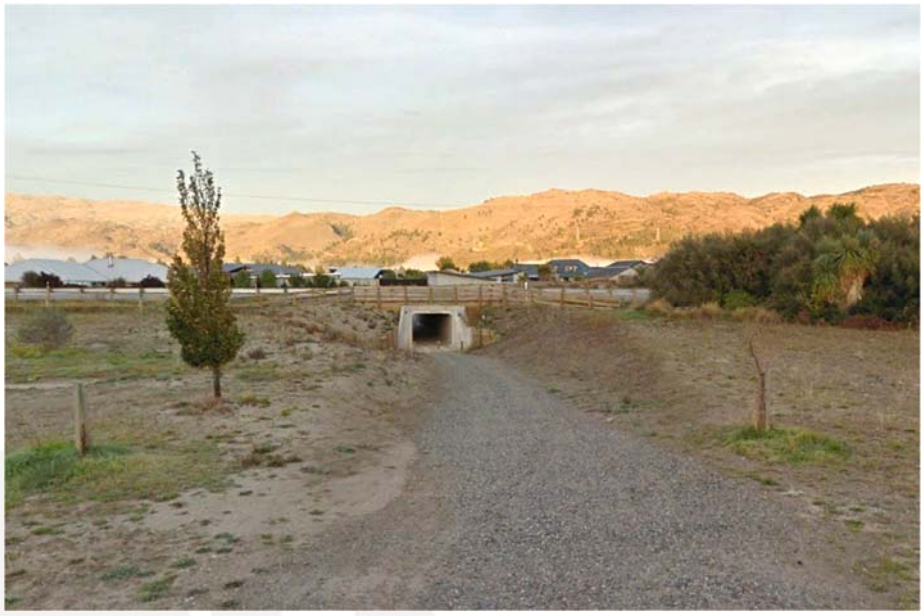
3.1.11. Towards the south, the highway has a flat and gently curving alignment, and provides access to Alexandra, terminating towards the south of Dunedin. To the north of Hazlett Street, the highway curves towards the northwest and starts to rise. It provides access to Cromwell but continues further to the northwest, terminating at Timaru.

3.2. Non-Car Modes of Travel

3.2.1. Given the current rural nature of the land, there is no specific infrastructure for pedestrians in the immediate area of the site. However, there grassed verges can be used for walking.

3.2.2. The Central Otago Tail Trail commences/terminates within the area immediately opposite the at the eastern site access, know as the Clyde Railhead. The route itself does not pass the site, but rather, runs southwards from this location alongside the state highway, but the accessway provides access to the car park for those that are starting (or ending) the trail.

3.2.3. There is also an underpass beneath the highway, located 50m to the south of Springvale Road, which provides a route for pedestrians and cyclists to cross the highway, and connects the Rail Trail with the minor road network within Clyde township.



Photograph 7: Underpass below State Highway 8

3.3. Future Changes

3.3.1. There are no known changes to the roading infrastructure in the vicinity of the site.

4. Current Transportation Patterns

4.1. Traffic Flows

4.1.1. Waka Kotahi carries out regular traffic counts on the state highway network throughout the country. The closest counter locations to the site are located alongside Lake Dunstan (around 6km north of the site) and near Alexandra Golf Club (5km south of the site). Neither location is likely to be fully representative of traffic volumes at the site but both are helpful indicators of traffic flows.

4.1.2. The two-way traffic flows recorded at each counter in 2023[1] are as follows:

- North of the site (counter id: 00800313):
  - Average Annual Daily Traffic: 6,140 vehicles
  - Weekday morning peak hour: 490 vehicles
  - Weekday evening peak hour: 600 vehicles
- South of the site (counter id: 00800325):
  - Average Annual Daily Traffic: 6,550 vehicles
  - Weekday morning peak hour: 510 vehicles
  - Weekday evening peak hour: 630 vehicles

4.1.3. It can be seen that the traffic flows near Alexandra are greater than those north of Clyde. This is likely to be due to the Alexandra counter recording movements by residents between Clyde and Alexandra, which will therefore not occur to the north of Clyde (or past the site). However the difference between the values is only in the order of 5%.

4.1.4. As part of this commission, weekday peak hour traffic flows were observed at the State Highway 8 / Springvale Road and State Highway 8 / Hazlett Street intersections. The surveys were carried out in February 2024, and the results are shown below.

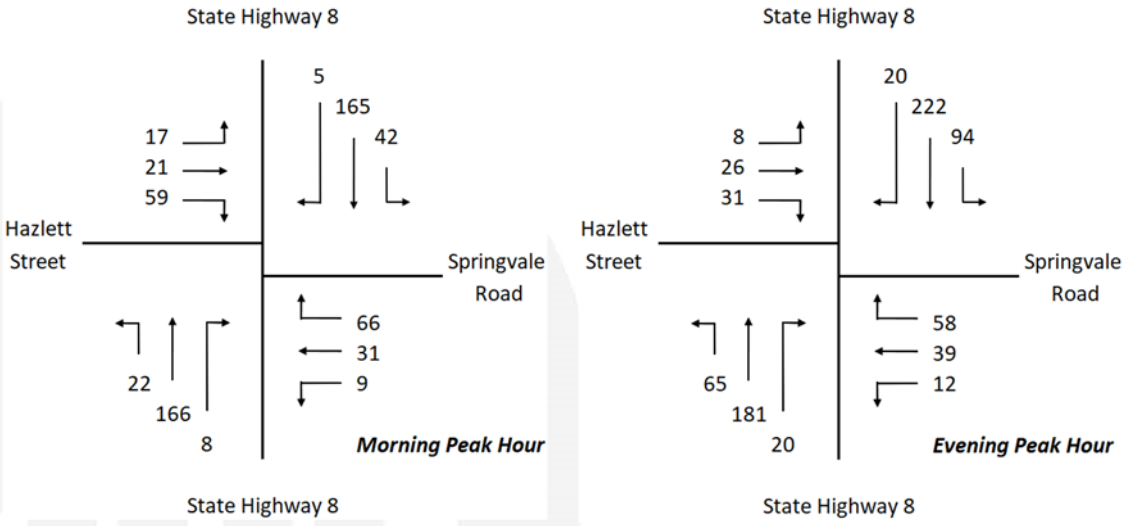


Figure 4: 2024 Traffic Flows at the State Highway 8 / Springvale Road / Hazlett Street Intersections (without Plan Change)

4.1.5. The survey results noted above show the maximum volumes turning through the intersection, which does not necessarily coincide with the maximum volumes on the highway at the counters. However when the counter towards the north is considered, the observed traffic

[1] Rounded to the nearest 10 vehicles)

counts vary by only 2.5% from the volumes recorded by the automatic traffic counter further north. It can therefore be concluded that the observed traffic flows are typical of the prevailing traffic volumes on the network.

4.1.6. The traffic counters show that over the past ten years, volumes have grown by 4.0% per annum to the north and 2.6% per annum towards the south of the site (expressed as a percentage of 2023 volumes). For the purposes of this assessment, a mean value of 3.3% growth per annum has been applied. The same factor has been applied to the minor approaches.

4.1.7. The intersection has been modelled with these 2024 observed traffic volumes (factored by ten years to a 'design year' of 2034) and using the computer software package Sidra Intersection. The results are summarised below. For this exercise the presence of a left-turn lane has been modelled, as this is the way that drivers use the highway.

Road and Movement		Morning Peak Hour			Evening Peak Hour		
		Avg Delay (secs)	95 %ile Queue (veh)	Level of Service	Avg Delay (secs)	95 %ile Queue (veh)	Level of Service
State Highway 8 (south)	L	9.0	0.0	A	9.0	0.0	A
	R	8.6	0.0	A	9.0	0.1	A
Springvale Road	L	7.9	0.0	A	8.4	0.1	A
	T	13.7	1.5	B	21.2	2.2	C
	R	16.2	1.5	C	23.3	2.2	C
State Highway 8 (north)	L	8.7	0.2	A	8.8	0.4	A
	R	8.6	0.0	A	8.7	0.1	A
Hazlett Street	L	5.6	0.1	A	5.6	0.0	A
	T	9.5	1.1	A	12.5	1.0	B
	R	12.7	1.1	B	17.4	1.0	C

Table 1: Peak Hour Levels of Service at the State Highway 8 / Springvale Road / Hazlett Street Intersections (without Plan Change)

4.1.8. It can be seen that the intersection provides a good level of service with only small queues and modest delays.

4.1.9. The Austroads Guide to Traffic Management Part 6 ('*Intersections, Interchanges and Crossings'*) sets out warrants for when auxiliary turning lanes are required, based upon peak hour traffic flows and speeds. In this case, turning lanes are provided for all movements off the state highway other than the left-turn into Springvale Road.

4.1.10. The warrants set out that a left-turn lane is assessed using the volume of traffic turning left and the volume of through traffic travelling in the same direction of the left-turning vehicles. For the combination of 253 southbound vehicles and 94 left-turning vehicles, an auxiliary left-turn lane is presently required. The absence of the turning lane if therefore an existing shortfall in the roading network.

4.2. Non-Car Modes of Travel

4.2.1. Given that the area around the site is largely rural, it can reasonably be expected that it will be relatively infrequently used by pedestrians and cyclists. As such, the current levels of provision are considered to be adequate.

4.2.2. There are no scheduled public transport services that operate adjacent to the site, although there are longer-distance services that pass on the state highway.

4.3. Road Safety

4.3.1. The NZTA Crash Analysis System has been used to establish the location and nature of the recorded traffic crashes in the vicinity of the site. All reported crashes on the roading network within 250m of the State Highway 8 / Springvale Road / Hazlett Street intersections, and for a distance of 250m from the site eastern boundary, were identified for the period 2019 to 2023 plus the partial record for 2024.

4.3.2. This showed that five crashes had been reported:

- Three crashes occurred at the State Highway 8 / Springvale Road intersection:
  - One crash occurred when a driver turned right out of Springvale Road (intending to travel straight ahead into Hazlett Street) but failed to give-way to a southbound vehicle on the highway. The crash resulted in minor injuries.
  - One crash occurred when a driver turned right out of Springvale Road and struck a vehicle that had just turned right out of Hazlett Street. The crash resulted in minor injuries.
  - One crash occurred when a driver turned right out of Springvale Road and struck a cyclist that had turned right out of Hazlett Street. The crash resulted in minor injuries.
- Two crashes occurred at the State Highway 8 / Hazlett Street intersection:
  - One crash occurred when a driver turned right out of Hazlett Street but failed to give-way to a northbound vehicle on the highway. The crash did not result in any injuries. The police report noted that the car on the highway was following close to a large truck and was not easily visible.
  - One crash occurred when a driver turned right out of Hazlett Street and struck a vehicle that had just turned right out of Springvale Road. The crash did not result in any injuries.

4.3.3. It is not considered that the crash record indicates any inherent safety related issues at the intersections. The crash rate at the two intersections is low, and generally have different contributing factors. It is plausible however that the crash record at the State Highway 8 / Springvale Road is influenced by the lack of the required left-turn lane (discussed above).

5. Proposal

5.1. The Site is approximately 6.4ha in size, and the rezoning which is sought is for Industrial.

5.2. Since the nature of a plan change is for a rezoning of the site, no specific layout plan for the future subdivision of the site is available. However an indicative plan has been prepared, which is useful in order to ensure that all transportation-related matters have been properly considered. This is shown below.

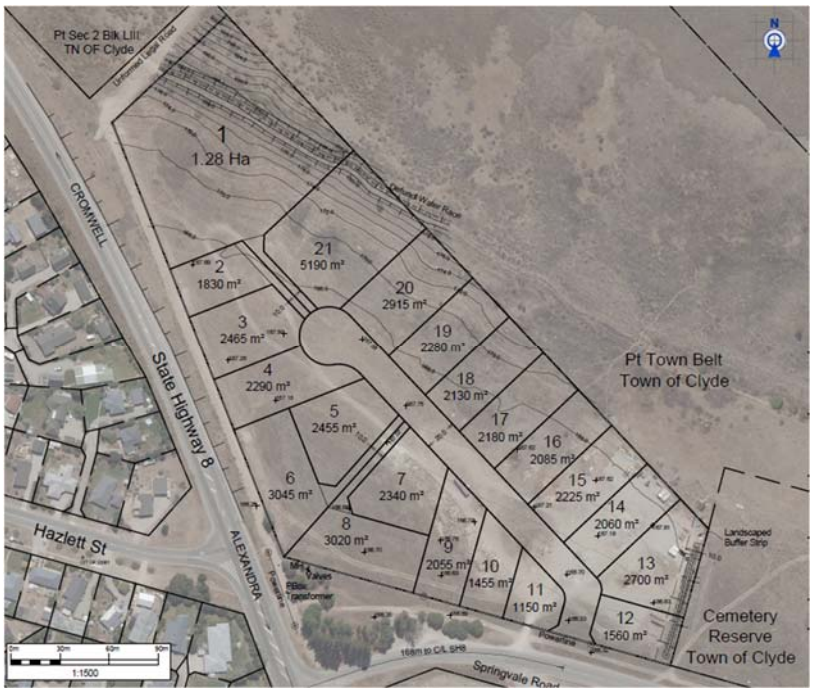


Figure 5: Indicative Subdivision Layout (Extract from Paterson Pitts Drawing)

5.3. As set out previously, the topography does not support any access onto the highway and therefore all access is gained from Springvale Road.

6. Traffic Generation and Distribution

6.1. Traffic Generation

6.1.1. The bulk of standard traffic generation rates for industrial activities are based on floor areas rather than total site area, and since there is no specific layout for the site, this is not known. However other plan changes have adopted the following traffic generation rates.

Industry Type	Trip Generation Rates (Vehicle Movements Per Hectare)					
	Morning Peak Hour		Evening Peak Hour		Daily	
	In	Out	In	Out	In	Out
Light	13.9	2.5	5.4	12.7	53.5	53.5
Heavy	8.5	7.3	4.9	5.5	40.5	40.5

Table 2: Traffic Generation Rates for Industrial Activities

6.1.2. It can be seen that light industrial activities typically have a greater traffic generation than heavy industrial activities. For a robust assessment, the use of the site for light industrial activities has been allowed for within this analysis. Thus the traffic anticipated to arise is as follows:

Time Period	Traffic Generation	
	In	Out
Morning Peak Hour	89	16
Evening Peak Hour	35	81
Total	342	342

Table 3: Traffic Generation of Full Development of Rezoned Site

6.2. Trip Distribution

6.2.1. Because of the location of the site, it is considered likely that the bulk of drivers would seek to travel to/from the state highway, meaning that the majority of traffic will pass through the State Highway 8 / Springvale Road / Hazlett Street intersection. In order to ensure that the assessment of this intersection is robust, all generated traffic has been assigned to pass through the intersection. In practice, some will be associated with travel to/from the east, which will reduce volumes passing through the intersection and meaning that queues and delays are lower than anticipated in the subsequent analysis.

6.2.2. During the morning and evening peak hours, the majority of vehicles are associated with travel between home and employment purposes (and are therefore light vehicles). Depending on the nature of the activities that may establish within the site, employees may live towards the west (in Clyde), north (Cromwell) or south (Alexandra), but this will depend on the nature of the activities. Consequently the generated traffic has been apportioned in accordance with the current distribution of traffic.

6.2.3. The traffic generation of the Site is therefore as follows:

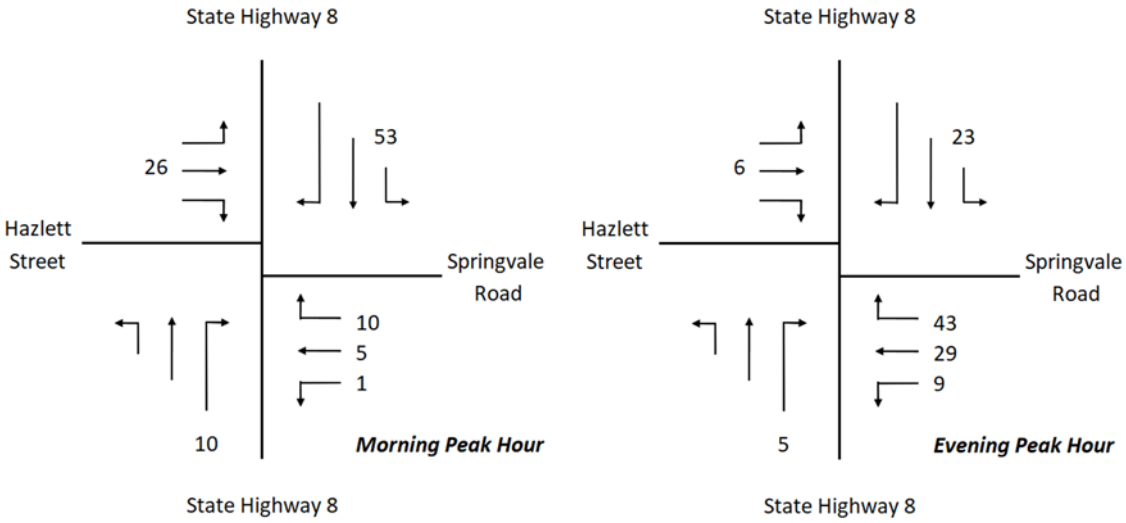


Figure 6: Traffic Flows Generated at Full Development of Site

7. Effects on the Transportation Networks

7.1. Roading Network Capacity

7.1.1. The State Highway 8 / Springvale Road and State Highway 8 / Hazlett Street intersections have been remodelled using the computer software package Sidra Intersection, with the 'design year' traffic flows plus development of the rezoned site. The results are summarised below.

Road and Movement		Morning Peak Hour			Evening Peak Hour		
		Avg Delay (secs)	95 %ile Queue (veh)	Level of Service	Avg Delay (secs)	95 %ile Queue (veh)	Level of Service
State Highway 8 (south)	L	9.0	0.0	A	9.0	0.0	A
	R	8.6	0.1	A	9.0	0.1	A
Springvale Road	L	7.9	0.0	A	8.4	0.1	A
	T	15.4	2.0	C	30.6	5.0	D
	R	18.9	2.0	C	33.2	5.0	D
State Highway 8 (north)	L	8.9	0.3	A	8.9	0.4	A
	R	8.6	0.0	A	8.7	0.1	A
Hazlett Street	L	5.6	0.1	A	5.6	0.0	A
	T	10.3	1.5	B	13.1	1.1	B
	R	13.8	1.5	B	19.2	1.1	C

Table 4: Peak Hour Levels of Service at the State Highway 8 / Springvale Road / Hazlett Street Intersections (with Plan Change)

Road and Movement		Morning Peak Hour			Evening Peak Hour		
		Avg Delay (secs)	95 %ile Queue (veh)	Level of Service	Avg Delay (secs)	95 %ile Queue (veh)	Level of Service
State Highway 8 (south)	L	-	-	-	-	-	-
	R	-	+0.1	-	-	-	-
Springvale Road	L	-	-	-	-	-	-
	T	+1.7	+0.5	B to C	+9.4	+2.8	C to D
	R	+2.7	+0.5	-	+9.9	+2.8	C to D
State Highway 8 (north)	L	+0.2	+0.1	-	+0.1	-	-
	R	-	-	-	-	-	-
Hazlett Street	L	-	-	-	-	-	-
	T	+0.8	+0.4	A to B	+0.6	+0.1	-
	R	+1.1	+0.4	-	+1.8	+0.1	-

Table 5: Difference in the Peak Hour Levels of Service at the State Highway 8 / Springvale Road / Hazlett Street Intersections (with and without Plan Change)

7.1.2. As would be expected, queues and delays increase due to the traffic generated by the rezoned site. In practice though, there a minimal effects on each turning movement other than for Springvale Road in the evening peak hours, where queues increase by up to 3 vehicles and additional delays are in the order or 10 seconds per vehicle. Given that this is associated with

the right-turn movement from a minor approach (which is always the turn and approach that experiences the greatest delays), this outcome is not unusual.

7.1.3. The greatest level of service is D in each case, which is not unreasonable for an intersection in the peak hour (especially noting that the analysis allows for ten years of ambient traffic growth plus full development of the site using the higher of the trip generation rates and for all traffic to pass through this location).

7.2. Revisions to Existing Roads and Site Access

7.2.1. As set out previously, there is currently an existing shortfall in the intersection geometry because there is no left-turn lane from State Highway 8 (north) to Springvale Road. As traffic volumes grow due to ambient growth, the need for this turning lane will also increase. Waka Kotahi typically prefers to have left turning lanes separated from the through traffic lane in order to ensure that left-turning vehicles do not obstruct the visibility of any other through traffic, meaning that the formed width of the lane is greater than if the lane was constructed to be immediately adjacent to the through lane.

7.2.2. However, in this case the southbound traffic lane of State Highway 8 is separated from the site boundary by more than 19m, meaning that there is ample width for an appropriate left-turn lane to be constructed wholly within the existing legal highway corridor. That is, no additional land is required within the site in order for the turning lane to be constructed.

7.2.3. No revisions are required to be made to the formed width of the state highway as a result of the additional traffic generated by development of the site.

7.2.4. The site access will need to be upgraded and formed as a road, but there are no impediments to achieving an appropriate layout. Applying the warrants for turning lanes noted previously, it is unlikely that any auxiliary lanes will be required due to the relatively low traffic flows, but this can be assessed further at time of subdivision. Springvale Road in this location has a 40m legal width, which is ample for widening the seal to provide turning lanes, in the (unlikely) event that they were to be required.

7.2.5. As noted above, the traffic lanes on Springvale Road are each 3.5m wide, but the shoulder width is variable, between 0.3m and more than 2m. Arterial Roads are not considered within the Council's Engineering Code of Practice, but Collector Roads are expected to have a 7.0m carriageway width and metalled shoulders of 0.25m. Springvale Road provides this carriageway width and has sealed shoulders. It is therefore considered that the current formation of Springvale Road is appropriate for the expected increase in traffic associated with development of the site.

7.2.6. If any widening is required, this can be considered further when land use / subdivision consents are sought. The legal width of the road is easily able to accommodate any minor improvements in the width.

7.3. Non-Car Modes of Travel

7.3.1. It is unlikely that development of the site will lead to increased volumes of walking and cycling, as the nature of industrial activities is that they tend to be focussed on movement of goods and materials using motorised vehicles. If there are movements associated with employee travel, these will be moderate (due to the size of the site) and consequently it is not considered that any additional infrastructure is required for pedestrians or cyclists. The underpass beneath

the highway also provides a viable way in which movements can be carried out between the site and the district roads within Clyde.

7.3.2. However, it is commonly accepted that pedestrians will walk for a maximum of 1km to a destination, and cyclists will travel for a maximum of 3km. Anticipating that all movement via the underpass, approximately 35% of the residential areas of Clyde are within a viable walking distance of the site with all of Clyde being within a 3km cycling distance. The site is therefore well-located for these modes of travel, with the routes being lightly-trafficked district roads subject to a slow (50km/h) speed limit.

7.3.3. The size of the subdivision is not sufficient that it will give rise to the need for a public transport service.

7.4. Road Safety

7.4.1. The crash history in the vicinity of the site does not indicate that there are any particular features or factors that would be affected by development permitted under the rezoning.

7.4.2. The site access can be expected to meet current guides and standards, and therefore is highly unlikely to give rise to an adverse road safety effect.

7.4.3. It is anticipated that the proposed access to the Site will meet current guides and standards, and as such, can be expected to function safely. For a speed limit of 80km/h, sight distances of 210m would be expected under the Austroads Guide to Road Design Part 4A ('Unsignalised and Signalised Intersections'). This is achieved towards the east. Towards the west, the presence of the intersection with the highway serves to reduce the sight distances but vehicles approaching from this direction must have slowed to negotiate the intersection geometry (to avoid losing control) and will therefore not be travelling at the posted 80km/h speed limit. The sight distance provided will be in the order of 160m, which is appropriate for an operating speed of 70km/h. Appropriate sightlines will therefore be provided in each direction for traffic turning to and from the site.

8. Statutory Framework

8.1. Introduction

8.1.1. There are a number of statutory documents that are relevant to plan change requests. These are discussed in detail below, together with an assessment of whether the plan change request aligns with the strategic guidance given.

8.2. Otago Regional Land Transport Plan 2021-2031

8.2.1. The purpose of the RLTP is to support a vision of "*a transport system providing integrated, quality choices that are safe, environmentally sustainable and support the regions wellbeing and prosperity*".

8.2.2. The key long-term strategic objectives are to:

- Enable inclusive access by improving the transport choices people across Otago and Southland have to connect with each other and participate in society;
- Invest in healthy and safe people by prioritising investment in areas of highest risk to reduce injury and support active travel;
- Support the regions' transition to net zero carbon emissions for improved environmental sustainability;
- Develop greater understanding of risk from natural and human-made hazards and improve the regions' assets for better resilience and security, and
- Contribute to Otago and Southland's economic prosperity by investing in network deficiencies that limit the movements of people and products, and create a resilience risk to economic activity.

8.2.3. The site is well located in respect of Clyde, with walking and cycling being viable transport choices. If there was to be a local bus network within Clyde in future, or if longer-distance services were to stop nearby, then one location would be in the vicinity of the State Highway 6 / Springvale Road intersection. This would therefore result in the site being accessible by public transport.

8.2.4. Traffic generated by development of the plan change area can be accommodated on the roading network with appropriate levels of service, and so there are no reasons to anticipate that adverse road safety effects would arise nor that matters relating to the resilience of the transport network would be generated with regard to efficiency.

8.2.5. The site gains access onto an Arterial Road which connects to a state highway. This aligns with the main function of these roads, to support the movement of goods and support economic wellbeing.

8.3. Otago Regional Public Transport Plan 2021-2031

8.3.1. This Plan focusses on areas with higher numbers of residents, such as the Wakatipu Basin and Dunedin. As such, there is little mention made of Clyde or surrounding areas. However the plan change request does not preclude the ability to implement public transport in future.

8.4. Central Otago District Plan

8.4.1. The District Plan sets out a number of transportation-related rules with which any development is expected to comply. Although the proposal is for a plan change, consideration of these rules is important at this stage in order to identify whether the plan change provisions should seek to exempt development from any rules, or conversely, to introduce new rules specific to the site.

8.4.2. Consequently an assessment of the plan change provisions against these rules has been undertaken and the results are summarised below.

8.4.3. District Plan Part 12.7.1: Access Standards from Roads: Part (ii): Sight Distances

8.4.3.1. Under the District Plan, assuming that roads within the site are subject to a speed limit of 50km/h then each lot requires a sight distance of 40m at its access. This can be achieved through careful site layout design.

8.4.3.2. A sight distance of 200m is required at the proposed new intersection serving the site. As discussed above, this will not be achieved towards the west due to the presence of the state highway, but the sight distance available will be appropriate for the prevailing vehicle speeds.

8.4.4. District Plan Part 12.7.1: Access Standards from Roads: Part (iii): Access to Rural Arterial Roads

8.4.4.1. This part of the District Plan requires accesses to be constructed to particular layouts. These can be achieved.

8.4.5. District Plan Part 12.7.2: Parking: Part (i): Number of Spaces

8.4.5.1. At this stage, no detailed layout has been produced for the site. However their likely size means that each will be able to provide a range of car parking spaces, meeting Plan requirements.

8.4.6. District Plan Part 12.7.2: Parking: Part (ii): Parking in Excess of Three Spaces

8.4.6.1. It is likely that lots will provide more than three parking spaces, but the design is able to achieve the provisions of this rule.

8.4.7. District Plan Part 12.7.3: Loading and Manoeuvring: Part (i): Servicing Activities

8.4.7.1. The proposal is for industrial activity and so the loading and unloading of goods is likely to occur frequently. There is no reason why loading would need to be carried out from the road, and the site will be designed to accommodate the expected types of larger vehicles that may be present.

8.5. Council's Engineering Code of Practice

8.5.1. The Council has a Code of Practice which sets out appropriate widths for the internal roads within the plan change site. It is not considered that there are any reasons why these could not be met.

8.6. Waka Kotahi Planning Policy Manual

8.6.1. The Planning Policy Manual sets out that there is expected to be a separation distance between any access onto a side road and a state highway. This can be achieved.

8.7. Other Matters

8.7.1. The Austroads Guide to Road Design Part 4 (Parts B.2.2) sets out that it is desirable for intersections to be separated from one another by five seconds of travel time in order to allow drivers to process the intersection and roading layout. As set out above, its is unlikely that drivers would approach the site from the west at speeds of 80km/h because of the need to negotiate the geometry of the intersection with the state highway. However even allowing for this speed, this would mean that a separation of 115m would be required between the proposed site access and the highway, and this can be achieved.

8.8. Summary

8.8.1. It is considered that the plan change request is aligned with the strategic objectives of the Otago Regional Land Transport Plan, as relevant to this particular area. The Otago Regional Public Transport Plan is not particularly relevant due to the focus on other areas, but the plan change request is not contrary to it.

8.8.2. The site layout is likely to be able to comply with all the transportation requirements of the District Plan, other than in respect of Part 12.7.1(ii) Sight Distances. However the non-compliance with the sight distance arises due to the proximity of the site to the State Highway 8 / Springvale Road intersection, with the intersection geometry also meaning that vehicle speeds will be reduced in the immediate area, which in turn means that shorter sight distances will be adequate.

8.8.3. In view of the situation, it is not considered that the plan change proposal needs to include any specific transportation-related Rules. Rather, the existing Rules of the District Plan are appropriate, and resource consent applications can be made in the event that the detailed site layout design introduces non-compliances with these.

9. Conclusions

9.1. This report has identified, evaluated and assessed the various transportation matters of a private plan change request to rezone a site at Springvale Road to from Rural to Industrial zoning.

9.2. Overall it is considered that the traffic generated by the rezoned site can be accommodated on the adjacent roading network without capacity or efficiency issues arising. Modelling of the State Highway 8 / Springvale Road / Hazlett Street intersection shows that under a 'worst case' scenario of all development within the site being light industrial, and all traffic passing through the intersection, delays for vehicles turning right out of the site in the evening peak hour would remain modest with low queues. However, it is more likely that a mix of light and heavy industrial activities would establish, and that a proportion of traffic would travel to/from the east, meaning that delays will be lower.

9.3. There is an existing shortfall in the geometry of the State Highway 8 / Springvale Road intersection, as an auxiliary left-turn lane is required under current traffic volumes but one is not provided (although drivers use the existing wider shoulder as a de-facto turning lane). Modelling of the intersection has been based around a left-turn lane (whether formal or informal) being in place. The legal highway here is wide and development within the site would not limit the ability for Waka Kotahi to construct a turning lane.

9.4. The legal width of Springvale Road is also substantial and ample for widening the seal as appropriate for the site access.

9.4.1. It is unlikely that development of the site will lead to increased volumes of walking and cycling, as the nature of industrial activities is that they tend to be focussed on movement of goods and materials using motorised vehicles. However in respect of employee travel, approximately 35% of the residential areas of Clyde are within a viable walking distance of the site with all of Clyde being within a 3km distance. The site is therefore well-located for these modes of travel.

9.5. The crash history in the vicinity of the site does not indicate that there would be any adverse safety effects from the requested rezoning. New intersections and roads can be constructed to meet current guides and standards, and as such, can be expected to function safely. Sight distances will be appropriate for the prevailing vehicle speeds.

9.5.1. The plan change request is aligned with the strategic objectives of the Otago Regional Land Transport Plan, and the site layout is likely to be able to comply with all the transportation requirements of the District Plan, other than in respect of Part 12.7.1(ii) Sight Distances. However the non-compliance with the sight distance arises due to the proximity of the site to the State Highway 8 / Springvale Road intersection, but this also reduces vehicle speeds and means that shorter sight distances can be supported.

9.6. Overall, and subject to the preceding comments, the development facilitated by the plan change request can be supported from a traffic and transportation perspective, and accordingly it is not considered that there are any traffic/transportation reasons why the plan change could not be recommended for approval.

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