Appendix D

Integrated Transport Assessment

Planning. Traffic. Development.

Integrated Transport Assessment

Prepared for

ROLLESTON INDUSTRIAL DEVELOPMENTS LTD

423 Selwyn Road
Rolleston

October 2021

Integrated Transport Assessment
Prepared for

Rolleston Industrial Developments Ltd

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Rolleston

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Appendix 1 Proposed Outline Development Plan

Appendix 2 Paramics Model Results

Appendix 3 SH1 / Dunns Crossing Road / Walkers Road Intersection Model Results

Introduction

1. Rolleston Industrial Developments Ltd has commissioned Novo Group to prepare an Integrated Transport Assessment (ITA) for a Plan Change to rezone Rural land to Residential at Dunns Crossing Road and Selwyn Road, in Rolleston.

2. This report provides an assessment of the transport aspects of the proposed development. It also describes the transport environment in the vicinity of the site, describes the transport related components of the proposal. It has been prepared broadly in accordance with the Integrated Transportation Assessment Guidelines specified in New Zealand Transport Agency Research report 422, November 2010.

3. It is proposed to rezone 28.43Ha of Outer *Plains* (rural) land to become *Living Z* (residential) land, which would facilitate the development of up to 350 dwellings. The location of this land is illustrated in **Figure 1** and a copy of the Outline Development Plan (ODP) is included in **Appendix 1**.

Figure 1: Site Location

4. The predicted traffic generation of the rezoning proposal is:

   i. Peak hours: 315 vehicle movements per hour; and

   ii. Daily: 2,870 vehicle movements per day.

Transport Environment

Road Network

5. The following discussion sets out the transport network in the vicinity of the Plan Change site. The key locations of interest are outlined in **Figure 2**.

Figure 2: Transport Network

State Highway 1

6. **Table 1** sets out the transport characteristics of State Highway 1 (SH1) in the vicinity of the application site.

Table 1: State Highway 1 Road Characteristics

Key Feature or Characteristic	Comment
Road Classification	State Highway and Arterial Road
Cross-Section Description	3.5m lanes in both directions, plus sealed shoulders.
Traffic Volumes	20,500 vehicles per day[1].
Speed	100km/hr (although currently a temporary 70km/hr limit at the intersection with Dunns Crossing Road)
Cycling, Pedestrian Infrastructure and Public Transport	None

State Highway 1 / Dunns Crossing Road / Walkers Road Intersection

7. The SH1 / Dunns Crossing Road / Walkers Road intersection is a priority controlled cross-road, with SH1 having the priority. This intersection is currently operating poorly with regards to traffic capacity and Waka Kotahi (NZ Transport Agency) are committed to upgrading this intersection with the current proposal being a roundabout. The design of this roundabout is under investigation and is programmed for construction in 2024. There is funding committed for this project, although the final design of the roundabout is not yet known.

8. The NZTA Crash Analysis System (CAS) has been reviewed to identify crashes that have been reported within 100m of this intersection in the most recent five-year period available[2]. A total of 16 crashes were reported in that period, of which one included severe injuries and seven resulted in minor injuries. **Figure 3** is the collision diagram, and the crashes are summarised below.

    i. SH1 South-Westbound Approach: 1 minor injury and 2 non-injury crashes:

        (a) Head-on when a south-west bound driver hit a vehicle waiting to turn right into Dunns Crossing Road – 1 minor injury crash.

        (b) Merging crash where a driver in the right turn bay changed to the through lane without checking – 1 non-injury crashes.

        (c) Rear-end when vehicles have stopped for road works – 1 non-injury crash.

    ii. Dunns Crossing Road: 1 serious, 4 minor injury and 3 non-injury crashes. These were all failure to give-way.

    iii. SH1 North-Eastbound Approach: 2 non-injury crashes:

        (a) Loss of control when turning – 1 non-injury crash.

        (b) Loss of control because of fatigue - 1 non-injury crash.

[1] From Mobile Road website.
[2] 01/06/2016 to 01/06/2021.

iv. Walkers Road: 2 minor injury and 1 non-injury crashes. These were all failure to give-way.

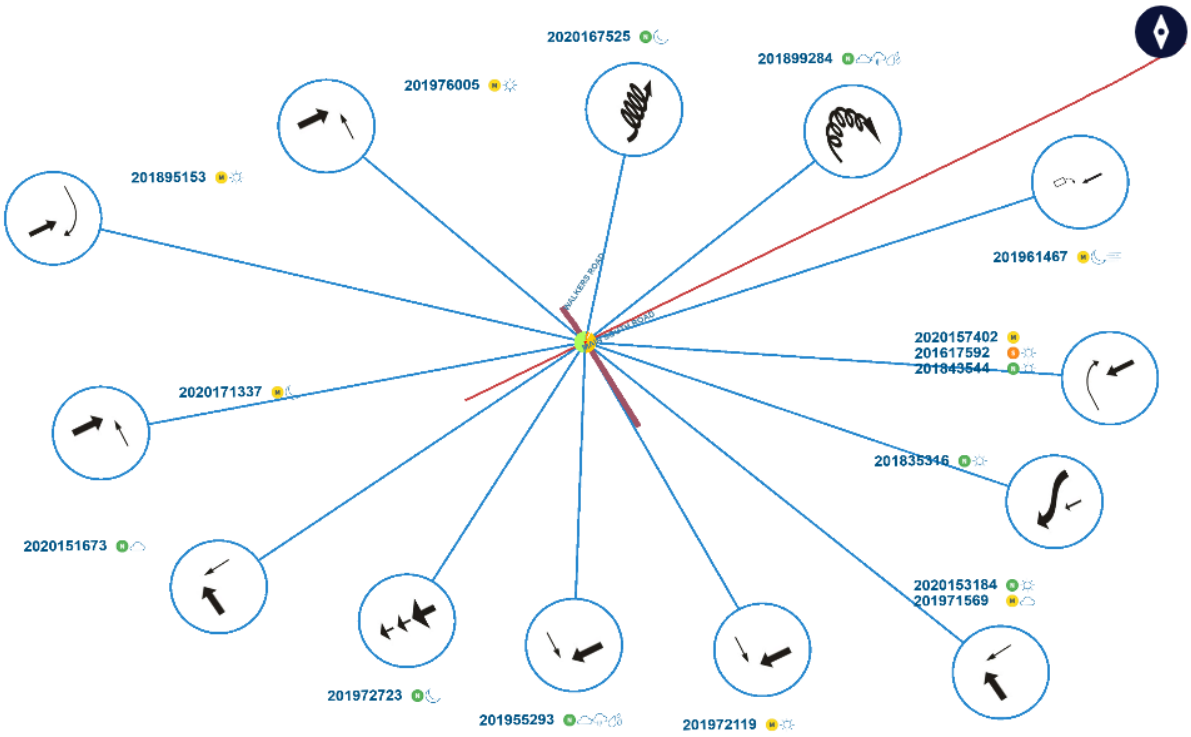

Figure 3: SH1 / Dunns Crossing Rd / Walkers Rd Collision Diagram

9. The above identifies that a number of crashes have occurred at the SH1 / Dunns Crossing Road / Walkers Road intersection. These are primarily caused by vehicles on the minor arms failing to give-way to through traffic on SH1 and these crashes will be addressed by the provision of a roundabout, as anticipated to occur at this location. Planned road upgrades in this area are further discussed at paragraph 24.

Dunns Crossing Road

10. **Table 2**sets out the transport characteristics of Dunns Crossing Road.

Table 2: Dunns Crossing Rd Characteristics

Key Feature or Characteristic	Comment
Road Classification	Arterial Road immediately south of SH1 to Lowes Road, then a Local Road to Selwyn Road.
Cross-Section Description	Carriageway width of 8.4m (i.e. two 4.2m wide traffic lanes) north of Lowes Road. Variable carriageway south of Lowes Road, being approximately 6.2m wide at the Application site.
Traffic Volumes	Varies between 3,250 to 5,100 vehicles per day[3] depending on location.
Speed	Variable depending on location, although 100km/hr at the Application site.
Cycling, Pedestrian Infrastructure and Public Transport	None provided in the immediate vicinity of the site. Footpaths are provided in the urbanised area north of the application site.

Selwyn Road

11. **Table 3** sets out the transport details of Selwyn Road in the vicinity of the Plan Change site.

Table 3: Selwyn Rd Characteristics

Key Feature or Characteristic	Comment
Road Classification	Local Road, although this becomes an Arterial Road east of Lincoln Rolleston Road.
Cross-Section Description	Carriageway width of 6.6m (i.e. two 3.3m wide traffic lanes)
Traffic Volumes	700 to 3,000 vehicles per day[4] depending on location.
Speed	80km/hr
Cycling, Pedestrian Infrastructure and Public Transport	None.
Connectivity	Provides a connection to Shands Road, which links toward the Christchurch Southern Motorway interchange.

12. **Table 4** sets out the transport details of Goulds Road within the vicinity of the Plan Change site.

[3] From Mobile Road website
[4] From Mobile Road website

Table 4: Goulds Road Characteristics

Key Feature or Characteristic	Comment
Road Classification	Local Road
Cross-Section Description	Carriageway width of 6.8m (i.e. two 3.4m wide traffic lanes)
Traffic Volumes	984 vehicles per day.
Speed	80km/h from Selwyn Road northward, then reducing to 60 km/h south of East Maddisons Road.
Cycling, Pedestrian Infrastructure and Public Transport	None.
Connectivity	Provides a link to / from centre Rolleston.

13. Dunns Crossing Road forms a 'T' intersection with Goulds Road immediately north of the intersection of Goulds Road and Selwyn Road. This configuration is illustrated in **Figure 4.**

Figure 4: Dunns Crossing Rd / Goulds Rd / Selwyn Rd Intersection Arrangement

14. The NZTA CAS database has been reviewed to identify crashes that have been reported within 100m of this intersection (including the 'T' intersection and the cross-roads) in the most recent five-year period available. **Figure 5** is the collision diagram, and the crashes are summarised below.

    i. Goulds Road Northbound Approach: 2 minor injury and 1 non-injury crashes:

(a) Failure to give-way – 2 minor injury crashes and 1 non-injury crash.

ii. Goulds Road Southbound Approach: 1 serious injury, 1 minor injury and 2 non-injury crashes:

(a) Failure to give-way – 1 serious injury crash, 1 minor injury crash and 2 non-injury crash.

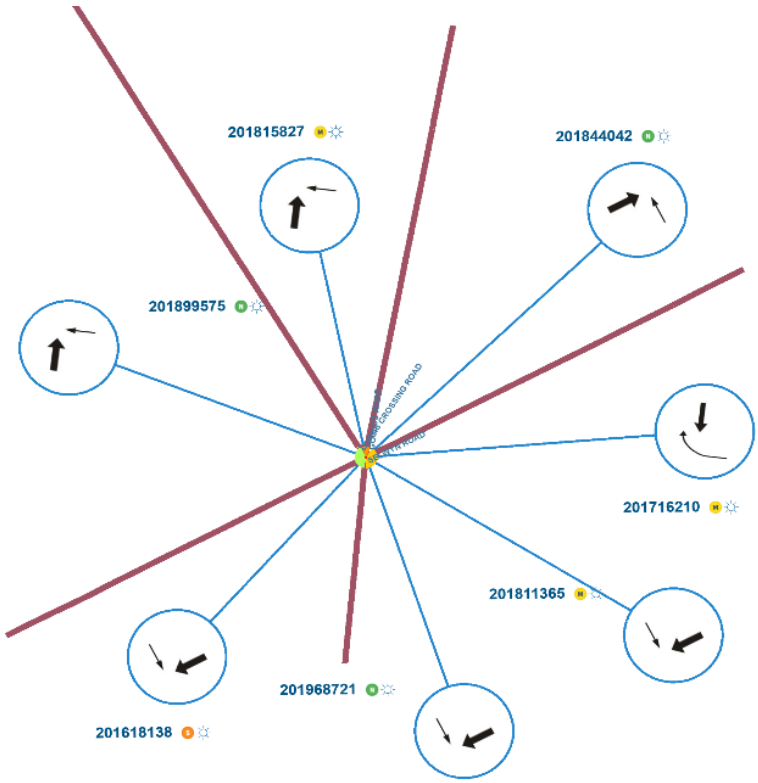

Figure 5: Dunns Crossing Rd / Goulds Rd / Selwyn Rd Collision Diagram

15. The above crash review indicates there is a trend in which drivers exiting the Goulds Road approaches are failing to give-way to traffic on Selwyn Road.

Lowes Road

16. **Table 5** sets out the transport details of Lowes Road.

Table 5: Lowes Rd Characteristics

Key Feature or Characteristic	Comment
Road Classification	Arterial Road
Cross-Section Description	Carriageway width of 6.0m (i.e. two 3.0m wide traffic lanes), plus on-street parking on both sides.
Traffic Volumes	1,700 to 4,000 vehicles per day[5] depending on location.
Speed	50km/hr
Cycling, Pedestrian Infrastructure and Public Transport	1.5m wide footpaths are provided on both sides of the road. No dedicated cycling facilities or public transport are provided.
Connectivity	Provides a connection to Levi Road, which links toward central Rolleston, plus the Weedons – Ross interchange with SH1.

17. The Dunns Crossing Road / Lowes Road intersection is a priority controlled T-intersection, with Dunns Crossing Road having the priority. No crashes have been reported at this intersection in the most recent five-year period available.

Burnham School Road

18. **Table 6** sets out the transport details of Burnham School Road, east of Dunns Crossing Road.

Table 6: Burnham School Rd Characteristics – East of Dunns Crossing Rd

Key Feature or Characteristic	Comment
Road Classification	Local Road
Cross-Section Description	Carriageway of approximately 7.0m.
Traffic Volumes	800 vehicles per day[6].
Speed	50km/hr.
Cycling, Pedestrian Infrastructure and Public Transport	1.5m wide footpaths are provided on both sides of the road. No dedicated cycling facilities or public transport are provided.

19. The Dunns Crossing Road / Burnham School Road intersection is a priority controlled cross-road, with Dunns Crossing Road having the priority. No crashes have been reported at this intersection in the most recent five-year period available.

20. We understand that Council is investigating a set of traffic signals at this intersection, although we are unaware of the specific design for these signals at this stage.

[5] From Mobile Road website
[6] From Mobile Road website

Alternate Transport Modes

21. Shared paths are proposed on the Dunns Crossing Road frontage as part of Plan Change applications further north along this road (compared to this Plan Change site location). This will provide a safe walking and cycling facility that can be continued as part of this application.

22. Although no bus services operate in the immediate vicinity of the Application site, this is to be expected given there is no significant development of this area. Route 5 currently turns at Lowes Road / East Maddisons Road, as illustrated in **Figure 6**. This service travels from Rolleston to Christchurch City and to New Brighton every 30 minutes on weekdays and weekends.

23. **Figure 7** illustrates the route travelled by the Route 85 bus service, which currently starts and ends in the Faringdon subdivision. This service travels between Rolleston and Christchurch City and is an express service designed to get residents quickly between the two locations in the AM and PM peak periods, with three services in a one-hour period in both peaks.

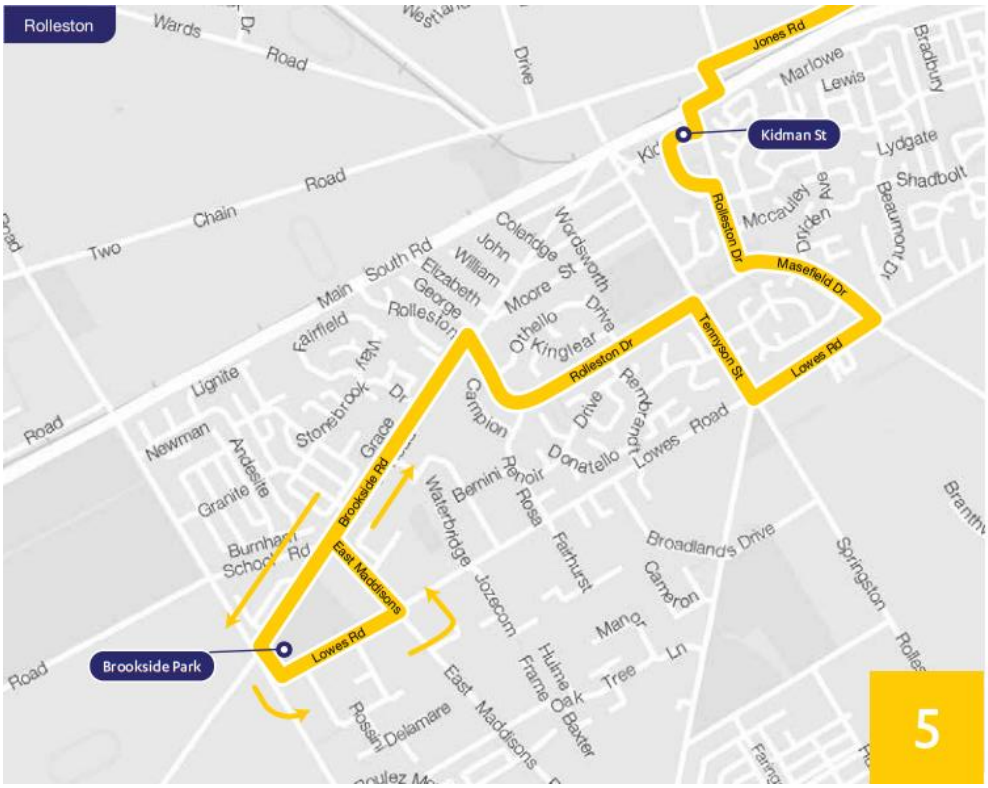

Figure 6: Route 5

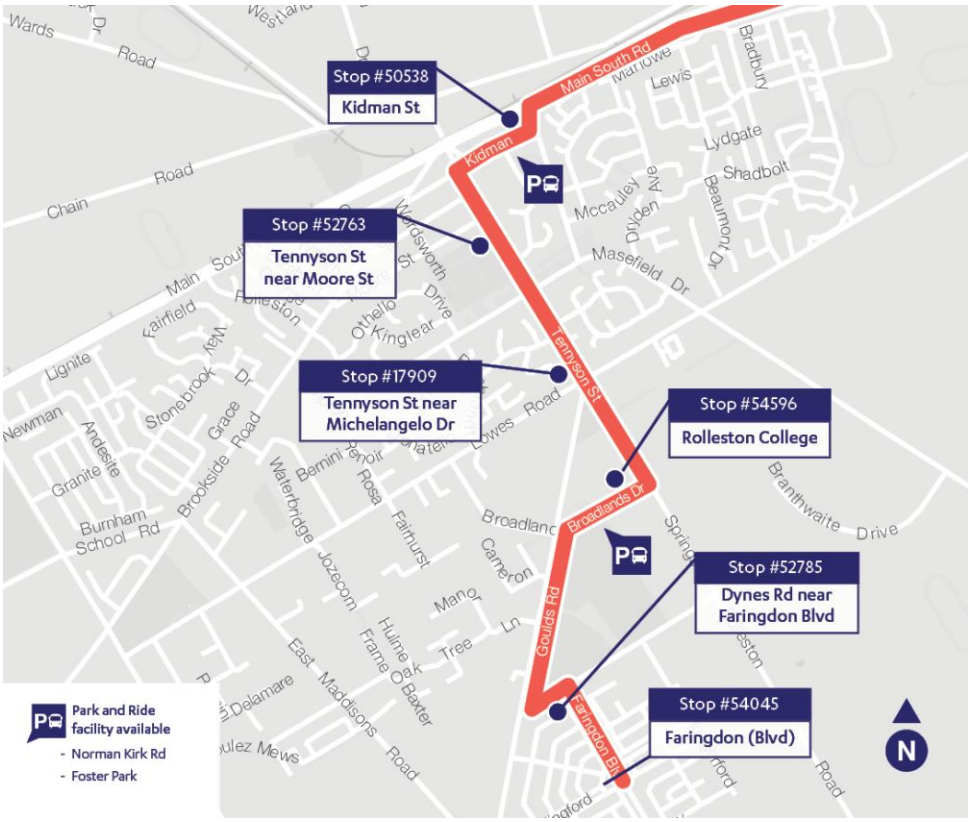

Figure 7: Route 85

Wider Transport Network

Waka Kotahi Planned Upgrades

24. The New Zealand Upgrade Programme (NZUP) is a government initiative to improve transport safety and efficiency in the country's growth areas. This has led to funding for a package of works in Rolleston that is being led by Waka Kotahi, in conjunction with Selwyn District Council (SDC) and KiwiRail. Broadly, the package of works includes the following:

    i. Fly-over from Rolleston Drive to Jones Road (near Hoskyns Road), facilitating a closure of the SH1 intersections with Rolleston Drive and Hoskyns Road in this location. The fly-over will include pedestrian and cycle facilities; and

    ii. A new roundabout at the SH1 / Dunns Crossing Road / Walkers Road intersection. Discussions with Waka Kotahi have indicated this will be complete in 2024.

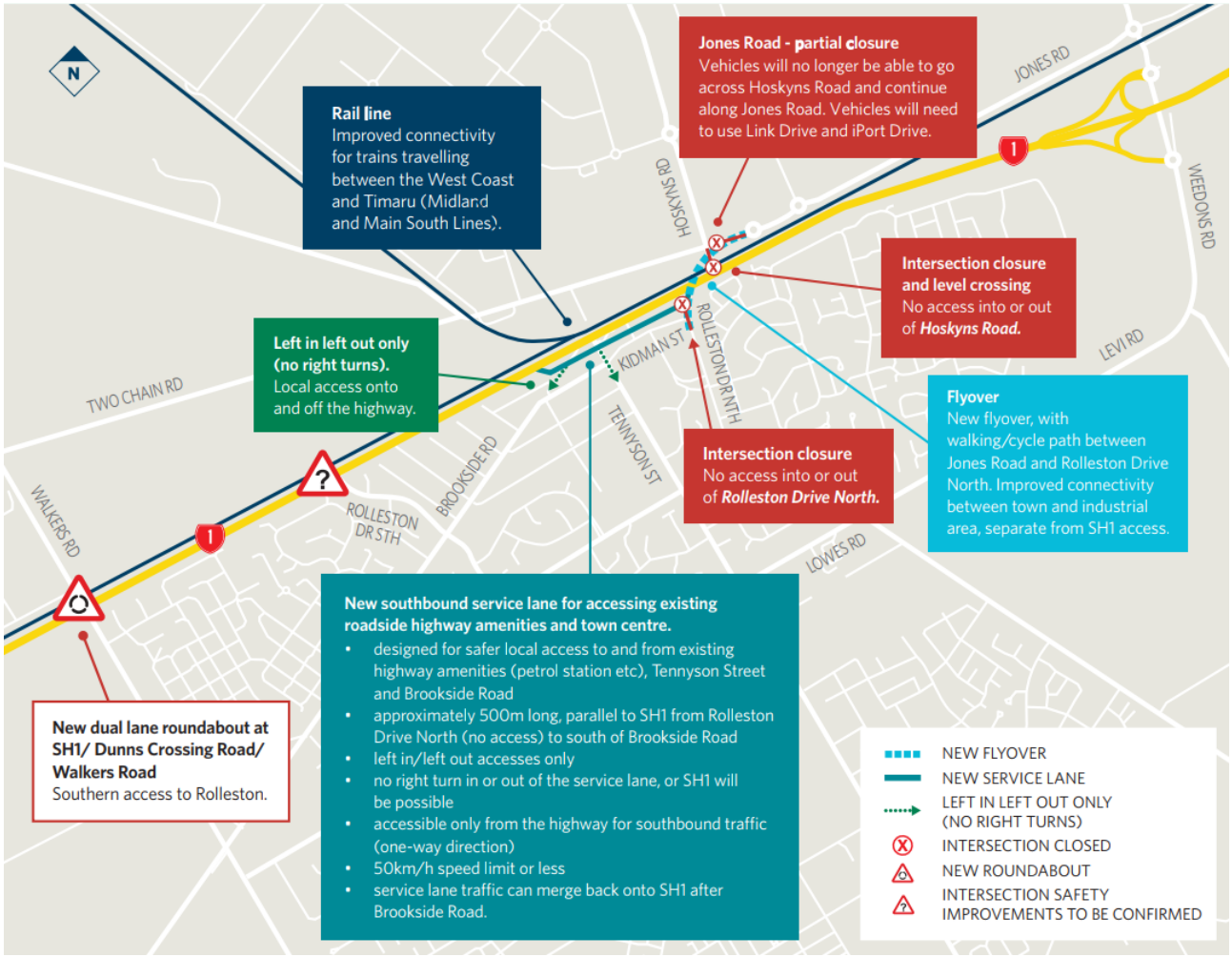

Figure 8: NZUP Transport Improvements

(Sourced from Waka Kotahi Newsletter dated July 2021)

25. **Figure 8** illustrates the resultant traffic movement priorities for the Rolleston Road network upon completion of the above works. This identifies that Dunns Crossing Road south of Lowes Road is currently intended to provide local access.

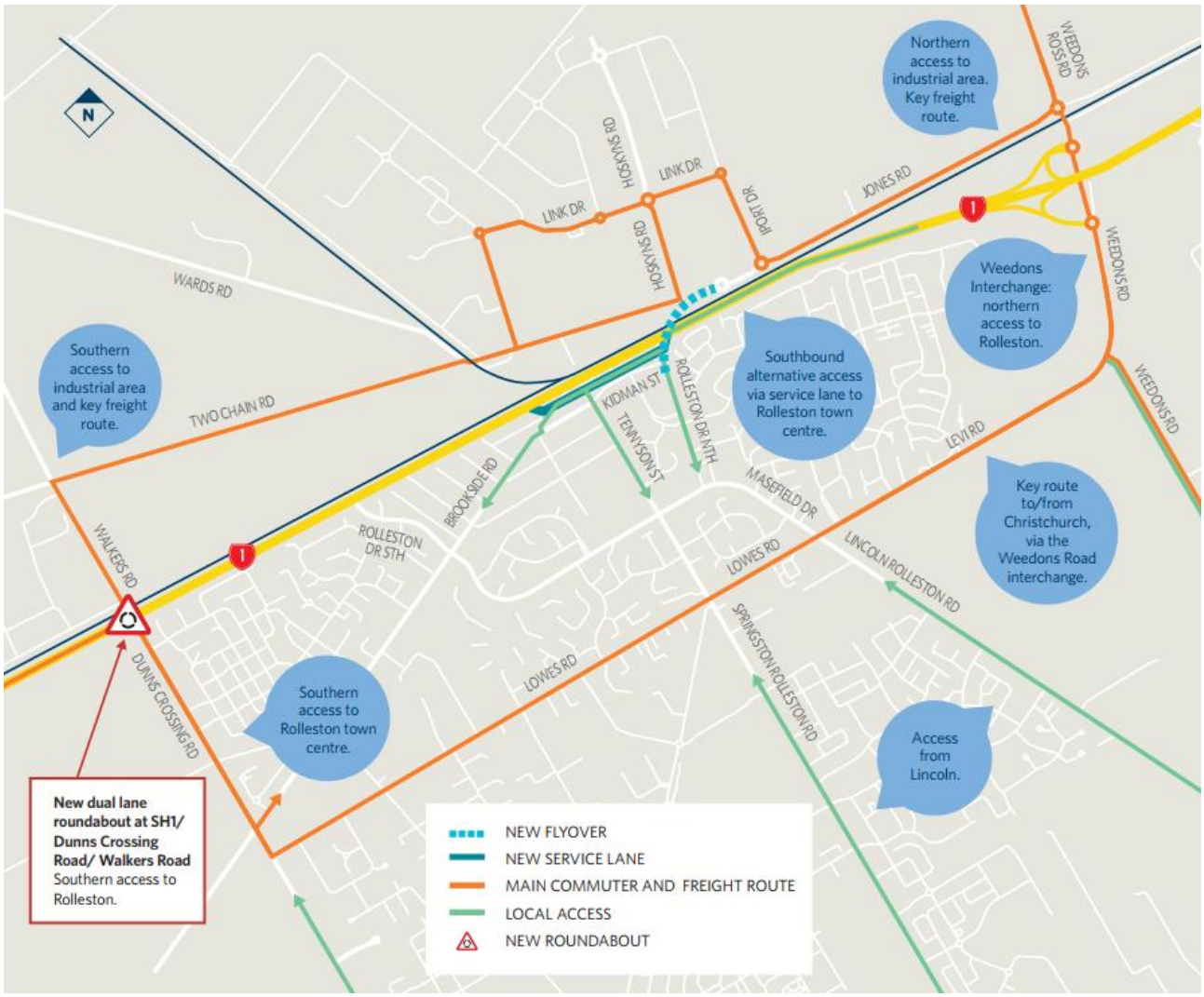

Figure 9: NZUP Transport Network

(Sourced from Waka Kotahi Newsletter dated July 2021)

Rolleston Plan Changes

26. In addition to the Application site, there are a series of Plan Changes that have been lodged in Rolleston. These are illustrated in **Figure 10**.

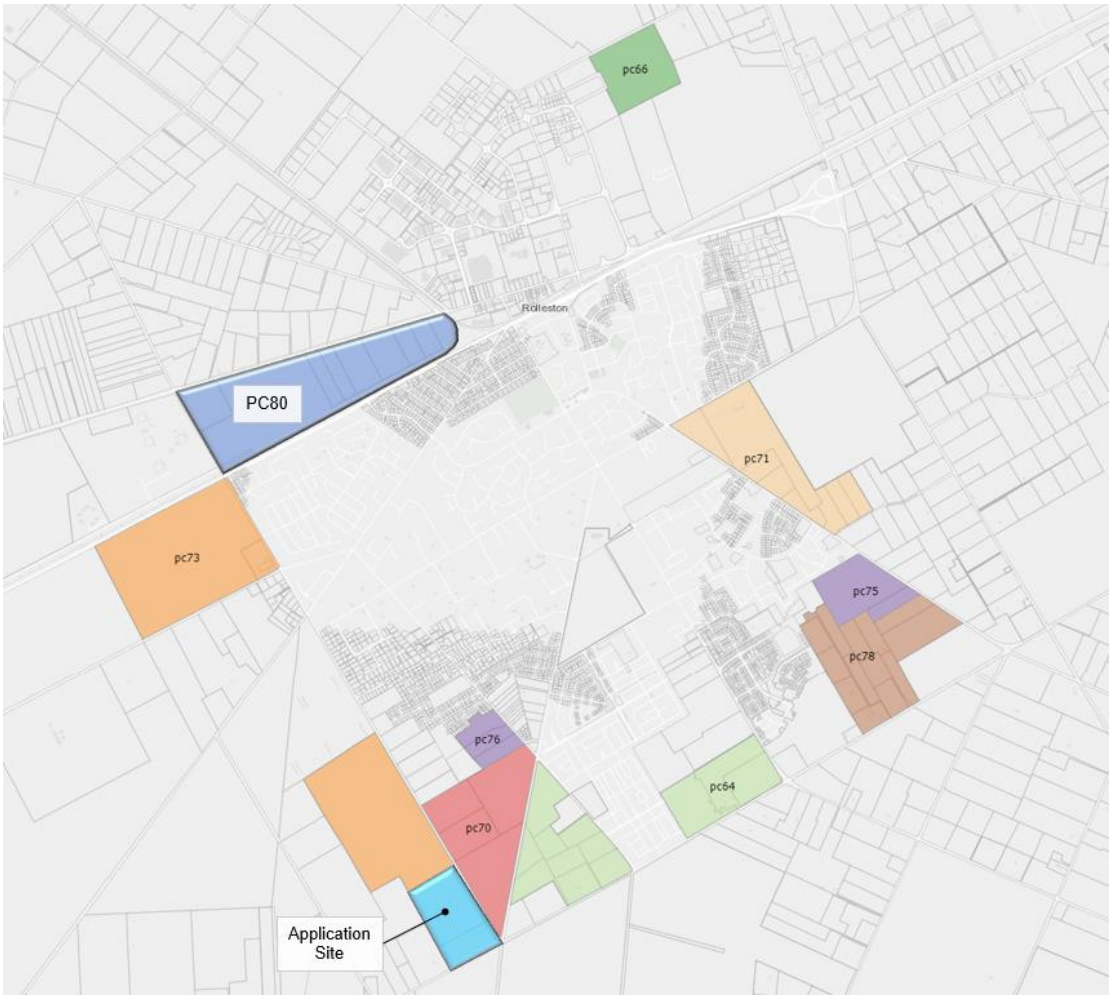

Figure 10: Rolleston Plan Change Sites

(Sourced from SDC Website)

27. The above Plan Change applications comprise:

i. Plan Change 64 – 969 residential lots;

ii. Plan Change 66 – 27ha of industrial land;

iii. Plan Change 70 – 800 residential lots;

iv. Plan Change 71 – 660 residential lots;

v. Plan Change 73 – 2,100 residential lots;

vi. Plan Change 75 – 280 residential lots;

vii. Plan Change 76 – 150 residential lots;

viii. Plan Change 78 – 750 residential lots;

ix. Plan Change 80 – 98Ha of Industrial land lodged but not yet notified.

28. A micro-simulation traffic model (owned by SDC) has been created of the Rolleston network. This model includes the above notified Plan Changes and includes the following key assumptions regarding transport upgrades in the vicinity of this Plan Change site:

    i. The NZUP project as discussed at paragraph 24;

    ii. Traffic signals at the Dunns Crossing Road / Burnham School Road intersection;

    iii. Upgrades to the Lowes Road / Dunns Crossing Road intersection to provide a roundabout at this location; and

    iv. Upgrade to the Goulds Road / Dunns Crossing Road / Selwyn Road intersection to provide a roundabout.

The Proposal

29. It is proposed to rezone 28.43ha of rural (Outer Plains) land at the application site for residential use (Living Z). A copy of the ODP is illustrated in **Figure 11** and included in **Appendix 1**.

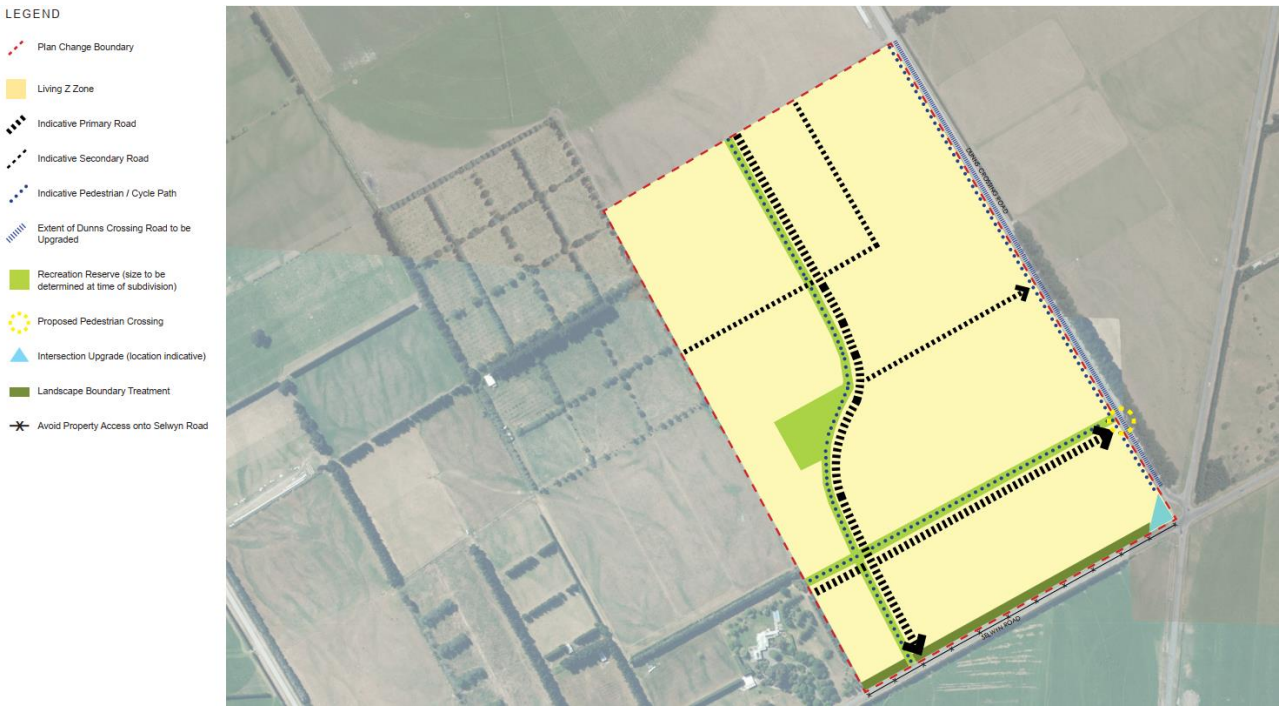

Figure 11: Proposed ODP

30. The following provides a description of the transport components of the proposed Plan Change.

Traffic Generation

31. The traffic generation is based on an 85th percentile rate of 0.9 vehicles per dwelling in the peak hours and 8.2 vehicles per dwelling per day[7]. Applying this to the proposed up to 350 dwellings leads to the

[7] Based on Outer Suburban dwellings in the NZTA Research Report 453 – *Trips and Parking Related to Land Use*.

traffic generation set out in **Table 7**. This assumes the following arrival / departure splits from the ITE *Trip Generation* guidebook:

i. AM Peak – 25% arrivals / 75% departures;

ii. PM Peak – 63% arrivals / 37% departures: and

iii. Daily – 50% arrivals / 50% departures.

Table 7: Skellerup South Traffic Generation

	Arrivals	Departure	Total
AM Peak	79	236	315
PM Peak	198	114	315
Daily	1,435	1,435	2,870

32. The assignment and distribution of this traffic has been determined by the Rolleston Paramics traffic model. This distribution is illustrated in **Figure 12** and **Figure 13**.

Figure 12: AM Peak Traffic Volume Change Plots

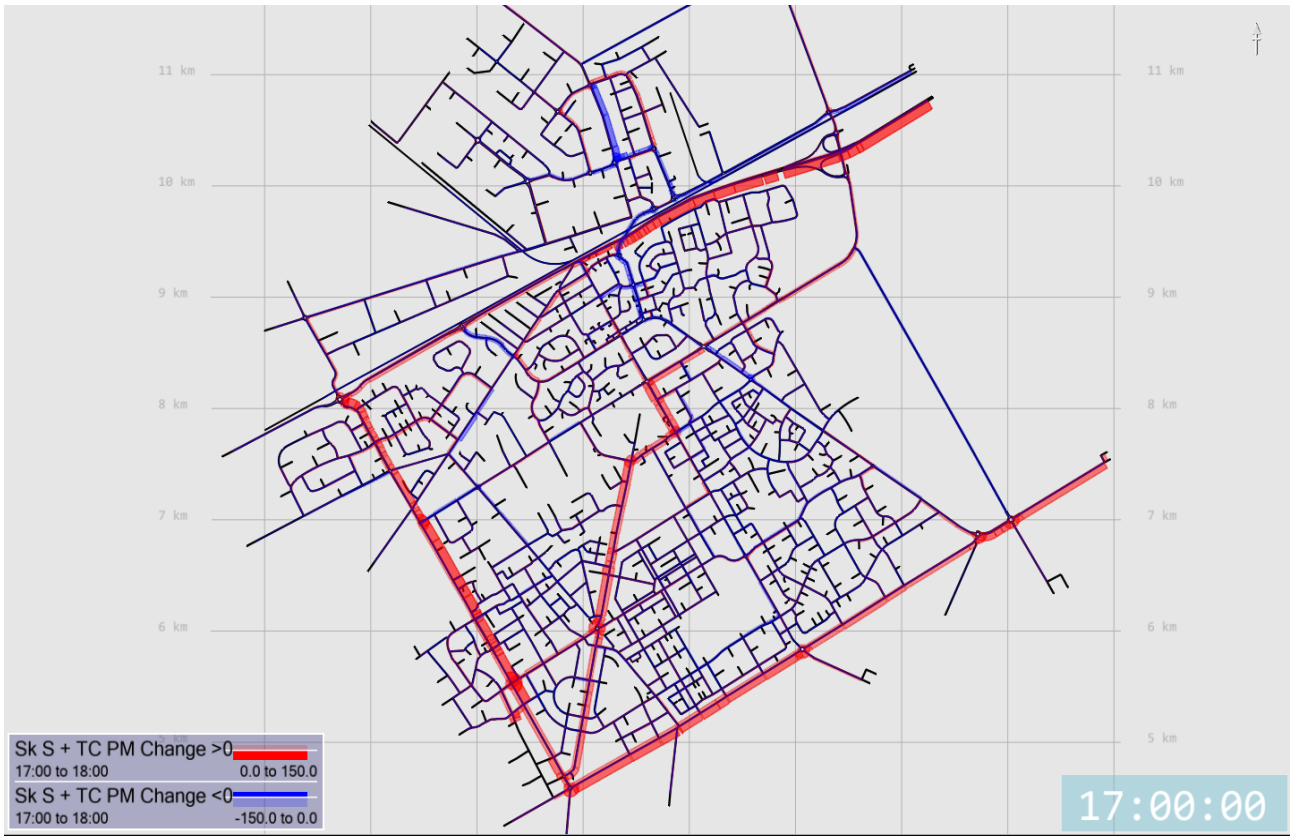

Figure 13: PM Peak Traffic Volume Change Plots

Site Layout

Access Arrangements & Internal Roads

33. The ODP indicates the primary road network within the Application site. This includes:

    i. Two accesses to Dunns Crossing Road, both of which would be cross-roads with Dunns Crossing Road retaining the priority; and

    ii. Access to Selwyn Road, which would be a priority-controlled T intersection, with Selwyn Road having the priority.

34. The Dunns Crossing Road accesses are located to link to the Plan Change 70 access on the eastern side of Dunns Crossing Road and the realigned Gould Road link to Dunns Crossing Road. The final design of all accesses will be considered at subdivision stage, although there is ample room within the road corridor to provide turning lanes if required.

35. The internal road network is proposed to meet the requirements of the Selwyn District Plan[8] and Engineering Code of Practice. The primary network will be designed such that it can accommodate passenger transport should that be routed through the site.

[8] Be it the currently Operative District Plan or the Replacement District Plan,

36. The internal network has been designed to provide links to the PC73 site to the north, should that site be developed. Other possible links to the west are shown for potential future development in that direction.

37. Direct property access is not proposed to Selwyn Road.

Pedestrian & Cycle Network

38. The internal road network will be designed to accommodate on-road cycle facilities (where appropriate) as well as footpaths. Separate pedestrian and cycle links have been provided within the ODP that also link to the PC73 site to the north, should that site be developed. That will enable a continuous link to the PC73 site.

Off-Site Upgrades

39. The ODP includes a commitment to upgrading Dunns Crossing Road along the site boundary. This upgrade would be discussed with Council at the time of subdivision, although it is anticipated to be a continuation of the urbanisation of this road as has occurred elsewhere along Dunns Crossing Road.

40. The road frontage upgrade along the Dunns Crossing Road would also include a shared path (pedestrian and cycle facility) on the same side of the road as the application site. A pedestrian crossing facility is also proposed at the Dunns Crossing / PC70 / Site Access intersection.

41. A segment of land has been set aside in the south-eastern corner of the site to assist in facilitating the proposed upgrade of the Goulds Road / Dunns Crossing Road / Selwyn Road intersection.

Timing of Development Relative to Infrastructure Improvements

42. It is assumed that the following infrastructure upgrades would be complete prior to occupation of any development at the Application site:

    i. SH1 / Walkers Road / Dunns Crossing Road upgrade;

    ii. Dunns Crossing Road / Burnham School Road traffic signals; and

    iii. Goulds Road / Dunns Crossing Road / Selwyn Road intersection.

43. The above are all planned by Council or Waka Kotahi, although the timing of development of the Plan Change site would likely bring these forward. In this regard, development contributions are understood to be provided from a range of Plan Change sites that will fund the work (for the Goulds Road / Dunns Crossing Road / Selwyn Road intersection in particular) and this Plan Change has allocated land to provide for the upgrade.

District Plan Requirements

44. It is proposed that the transport related rules and standards of the Living Z zone would apply to the Application site.

Assessment of Effects

Traffic Effects

Basis of Assessment

45. The basis of the assessment of traffic effects is from a Paramics model of Rolleston. The modelling has been undertaken by Abley and a copy of the results is included in **Appendix 2**. This modelling is representative of 2033 and includes:

    i. The NZUP works set out from paragraph 24;

    ii. The Plan Change application sites set out in paragraph 26(the 'base network'); and

    iii. Both with and without this proposed Plan Change site (but always with the Plan Change sites set out in paragraph 26) to compare the effects of the proposal against the base network operation.

Network Operation

State Highway 1 / Dunns Crossing Road / Walkers Road Intersection

46. The traffic modelling assumed this intersection would be constructed as a roundabout prior to development occurring at the Plan Change site. **Table 8** provides a summary of the intersection operation for the base model (without Plan Change) and with the Plan Change.

Table 8: SH1 / Dunns Crossing Rd / Walkers Rd Intersection – Paramics Results

Period	Approach	Base Model		With Plan Change	
		Delay (seconds)	Level of Service	Delay (seconds)	Level of Service
AM Peak	Walkers Road	17	B	18	B
	SH1 East	5	A	5	A
	Dunns Crossing Rd	37	D	41	D
	SH1 West	69	E	82	F
	Overall	***32***	***C***	***37***	***D***
PM Peak	Walkers Road	14	B	14	B
	SH1 East	10	B	13	B
	Dunns Crossing Rd	6	A	6	A
	SH1 West	8	A	9	A
	Overall	***10***	***A***	***11***	***B***

47. The above results indicate that the State Highway 1 / Dunns Crossing Road / Walkers Road intersection will be over capacity in the weekday AM peak period with this Plan Change. This is because the SH1 west approach (that is predicted to operate at Level of Service E in the base model) is predicted to operate at Level of Service F with the inclusion of this Plan Change.

48. The operation of this intersection (with the Plan Change traffic) has been further reviewed by creating an isolated intersection model in SIDRA. This model assumed the layout illustrated in **Figure 14**, an 80km/hr speed environment and the default settings. The results are included in **Appendix 3** and summarised in **Table 9**, along with the Paramics model results for comparison.

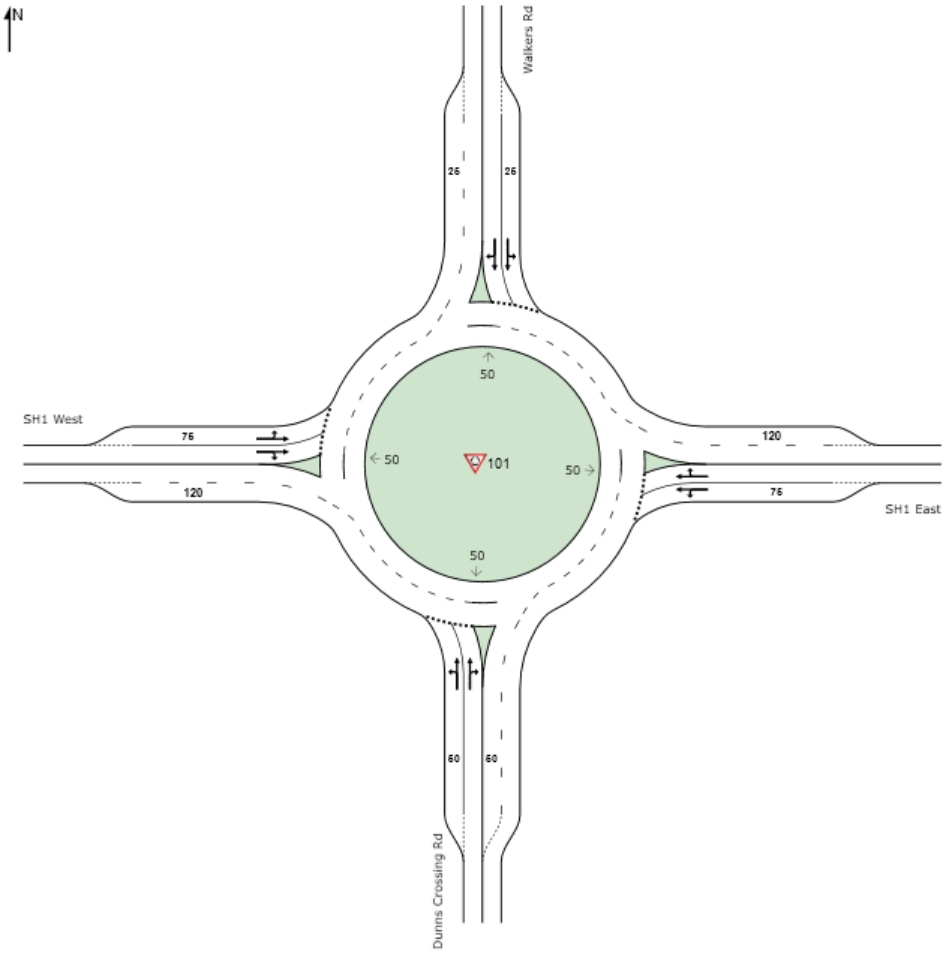

Figure 14: SH1 / Dunns Crossing Road / Walkers Road Assumed Layout

Table 9: SH1 / Dunns Crossing Rd / Walkers Rd Intersection – Paramics Comparison to SIDRA Results

Period	Approach	Paramics Model With Plan Change		SIDRA Results With Plan Change	
		Delay (seconds)	Level of Service	Delay (seconds)	Level of Service
AM Peak	Walkers Road	18	B	14	B
	SH1 East	5	A	8	A
	Dunns Crossing Rd	41	D	16	B
	SH1 West	82	F	16	B
	Overall	***37***	***D***	***13***	***B***
PM Peak	Walkers Road	14	B	11	B
	SH1 East	13	B	11	B
	Dunns Crossing Rd	6	A	18	B
	SH1 West	9	A	10	B
	Overall	***11***	***B***	***12***	***B***

49. The results identify a much-improved operation in the AM compared to that of the Paramics model. PM model results indicate a similar level of operation being predicted by the Paramics model and the SIDRA model. Overall, it is considered that the Paramics model may be underestimating the capacity of this roundabout and the operation would likely be better than predicted. As such, it is considered that the effects of the proposed Plan Change at this location will be acceptable.

Dunns Crossing Road / Newman Road Intersection

50. **Table 10** summarises the traffic modelling results of the Dunns Crossing Road / Newman Road intersection from the Paramics model, including the Base Model and with the proposed Plan Change.

Table 10: Dunns Crossing Road / Newman Road Intersection – Paramics Results

Period	Approach	Base Model		With Plan Change	
		Delay (seconds)	Level of Service	Delay (seconds)	Level of Service
AM Peak	Dunns Crossing Rd North	1	A	1	A
	Newman Rd	40	E	53	F
	Dunns Crossing Rd South	12	B	19	C
	Overall	***40***	***E***	***53***	***F***
PM Peak	Dunns Crossing Rd North	1	A	2	A
	Newman Rd	20	C	22	C
	Dunns Crossing Rd South	3	A	3	A
	Overall	***20***	***C***	***22***	***C***

51. The results in **Table 10** indicate that the Newman Road approach to this intersection is over-capacity in the base model during the AM peak. The implication of the traffic modelling is also that queuing from the SH1 / Dunns Crossing Road / Walkers Road intersection is extending through the Newman Road intersection. This is because the through traffic on Dunns Crossing Road (south) is predicted to have a delay of 20 seconds on what should be a free-flowing movement. Similarly, the right turn into Newman Road is predicted to incur a delay of 62 seconds in the evening peak, whereas the right turn out of Newman Road has a delay of 26 seconds (for a higher volume movement that needs to give-way to the right turn in). As such, it is anticipated that the operation of this intersection would be improved if the operation of the SH1 / Dunns Crossing Road / Walkers Road intersection were similar to that of the SIDRA results in **Table 9**, which have a much improved performance for Dunns Crossing Road (and therefore reduce queue lengths).

Dunns Crossing Road / Burnham School Road Intersection

52. The Paramics traffic modelling also assumed this intersection would be upgraded to traffic signals prior to development occurring at the Plan Change site. The results of the traffic modelling of this intersection are included in **Table 11**.

53. The following results indicate that the Dunns Crossing Road / Burnham School Road intersection operates satisfactorily with the Plan Change traffic added to the road network.

Table 11: Dunns Crossing Road / Burnham School Road Intersection – Paramics Results

Period	Approach	Base Model		With Plan Change	
		Delay (seconds)	Level of Service	Delay (seconds)	Level of Service
AM Peak	Dunns Crossing Rd Nth	16	B	16	B
	Burnham School Rd East	14	B	17	B
	Dunns Crossing Rd Sth	16	B	17	B
	Burnham School Rd West	22	C	22	C
	Overall	***17***	***B***	***18***	***B***
PM Peak	Dunns Crossing Rd Nth	7	A	7	A
	Burnham School Rd East	17	B	14	B
	Dunns Crossing Rd Sth	11	B	12	B
	Burnham School Rd West	20	C	21	C
	Overall	***10***	***B***	***11***	***B***

Dunns Crossing Road / Lowes Road Intersection

54. The Paramics traffic modelling also assumed this intersection would be upgraded to a roundabout prior to development occurring at the Plan Change site. The results of the traffic modelling of this intersection are included in **Table 12**.

55. The following results indicate that the Dunns Crossing Road / Lowes Road intersection operates satisfactorily with the Plan Change traffic added to the road network.

Table 12: Dunns Crossing Road / Lowes Road Intersection – Paramics Results

Period	Approach	Base Model		With Plan Change	
		Delay (seconds)	Level of Service	Delay (seconds)	Level of Service
AM Peak	Dunns Crossing Rd Nth	3	A	4	A
	Lowes Rd	7	A	7	A
	Dunns Crossing Rd Sth	10	A	10	A
	Overall	***7***	***A***	***7***	***A***
PM Peak	Dunns Crossing Rd Nth	7	A	8	A
	Lowes Rd	25	C	32	D
	Dunns Crossing Rd Sth	4	A	5	A
	Overall	***8***	***A***	***9***	***A***

Dunns Crossing Road / Selwyn Road / Goulds Road Intersection

56. The traffic modelling also assumed this intersection would be constructed as a roundabout along with Goulds Road realignment prior to development occurring at the Plan Change site. The results of the traffic modelling of this intersection are included in **Table 13**.

57. The following results indicate that the Dunns Crossing Road / Selwyn Road / Goulds Road intersection operates satisfactorily with the Plan Change traffic added to the road network.

Table 13: Dunns Crossing Road / Selwyn Road Intersection – Paramics Results

Period	Approach	Base Model		With Plan Change	
		Delay (seconds)	Level of Service	Delay (seconds)	Level of Service
AM Peak	Dunns Crossing Rd Nth	2	A	2	A
	Selwyn Rd East	5	A	4	A
	Goulds Rd	7	A	6	A
	Selwyn Rd West	3	A	3	A
	Overall	***3***	***A***	***3***	***A***
PM Peak	Dunns Crossing Rd Nth	2	A	3	A
	Selwyn Rd East	5	A	5	A
	Goulds Rd	6	A	6	A
	Selwyn Rd West	3	A	3	A
	Overall	***3***	***A***	***4***	***A***

Alternate Transport Modes

Passenger Transport

58. Paragraph 22 identifies the existing bus routes in the vicinity of the Plan Change site. These could be extended into the site as illustrated in **Figure 15** (or similar alignments depending on the approval of other Plan Change applications). These changes would need to be agreed with Environment Canterbury, as they are the passenger transport administrator. However, it is considered that the site could be served by buses and the internal road network will be designed to accommodate this.

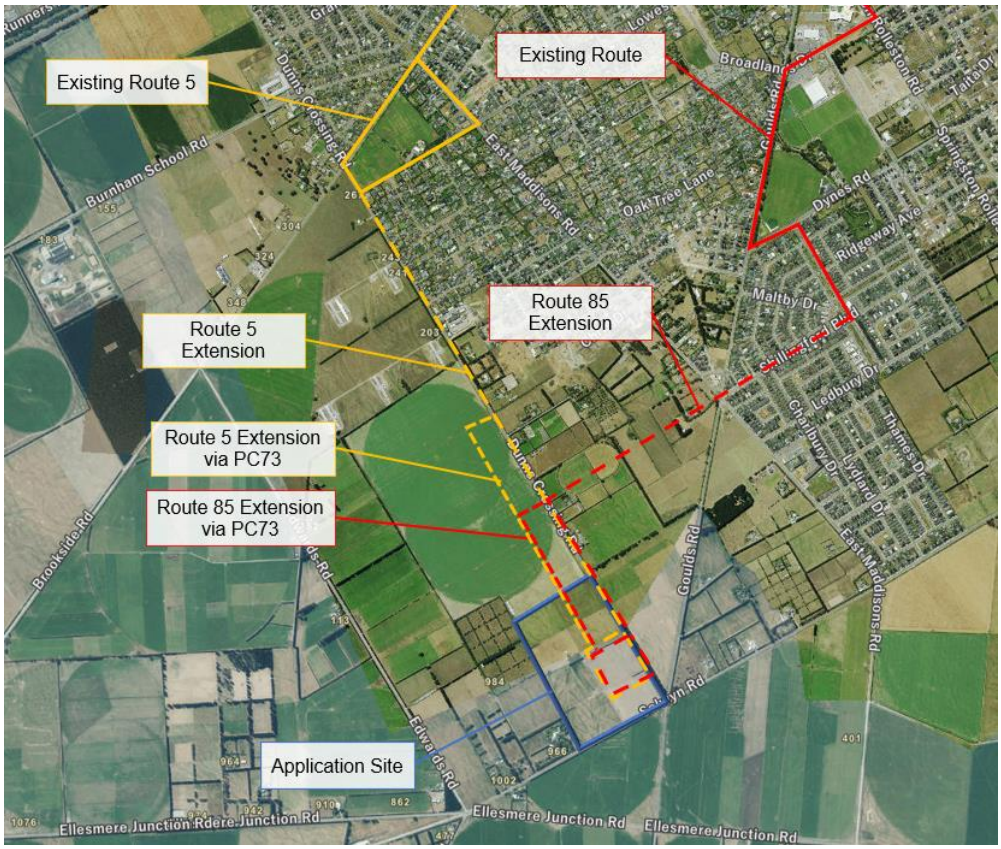

Figure 15: Potential Passenger Transport Alterations

Walking & Cycling

59. The ODP includes the provision of a shared path along Dunns Crossing Road as part of the proposed upgrade. The internal network also provides for a range of walking and cycling opportunities within the road corridors as well as a reserve that could also accommodate these modes. These link to the proposed networks that form part of Plan Change 73 (to the north) and Plan Change 70 (to the east).

60. The above is considered to be sufficient to accommodate walking and cycling through, as well as to / from the Plan Change site.

Summary & Conclusion

Summary

61. It is proposed to rezone 28.43Ha of Outer Plains (rural) land to become Living Z (residential) land, which would facilitate the development of up to 350 dwellings. The traffic generation of the proposed activity is:

    i. Peak hours: 315 vehicle movements per hour; and

    ii. Daily: 2,870 vehicle movements per day.

62. The Plan Change site would gain access to Dunns Crossing Road and Selwyn Road. It is assumed that the following transport upgrades would be completed prior to occupation of development at the Plan Change site:

    i. SH1 / Walkers Road / Dunns Crossing Road upgrade;

    ii. Dunns Crossing Road / Burnham School Road traffic signals; and

    iii. Goulds Road / Dunns Crossing Road / Selwyn Road intersection.

63. A road frontage upgrade is proposed to Dunns Crossing Road, which would include the provision of a shared path.

64. It has been identified that existing passenger transport routes could be extended to serve the site, should Environment Canterbury be amenable to this change. The site will facilitate the shared path along Dunns Crossing Road to tie in with a similar facility provided for adjacent Plan Change sites. There would also be pedestrian and cycle facilities (if required) provided within the Plan Change site.

65. The application site could comply with the relevant Code of Practice and the design can be tailored to the satisfaction of the Council when a subdivision application is eventually proposed. This includes detailed design pertaining to roads, intersections, berms and footpath widths, lighting, cross fall and kerb design. It is noted that any residential development on any proposed allotments (once subdivided) could comply with all the relevant transport related requirements of the Living zone in the District Plan. This for example, includes access and manoeuvring for each new allotment. Failure to comply with any of these standards would result in the requirement for resource consent approval.

Conclusion

66. Given the above assessment (and subject to the timing of infrastructure provision), the transport effects of the proposed Plan Change are considered to be acceptable.