# Edwards Road Rezoning Integrated Transport Assessment

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# Revision Schedule

| Revision | Description | Author | Date | Quality Check | Date |
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| 1 | Final report | S Jiang and A Leckie | 12/8/25 | A Metherell | 12/8/25 |
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# 1 Introduction

It is proposed to re-zone approximately 66 hectares of rural land north of Selwyn Road and east of Edwards Road (the 'Site'), in the south-west of Rolleston, for residential use by way of a Private Plan Change. The Site rezoning will largely complete the residential rezoning of the large block between Dunns Crossing Road, Brookside Road, Edwards Road and Selwyn Road, with the remainder recently rezoned as General Residential Zone subject to the Rolleston 7 Development Area (DEV-RO7). Development of the rezoned Site could yield approximately 1,000 residential units.

This Integrated Transport Assessment report has been prepared to assess the proposed Outline Development Plan for the Site and the ability of the surrounding transport network to accommodate travel to and from the development that would be enabled. The report includes background on the location of the Site, the existing surrounding transport network and planned future changes.

# 2 Site Location and Context

The Site is located in the south-western corner of Rolleston, with frontage to both Edwards Road and Selwyn Road. Figure 2-1 shows the Site location in the context of the Partially Operative District Plan (PODP). The Site is zoned General Rural, with the remainder of the block bounded by Selwyn Road, Dunns Crossing Road, Brookside Road, and Edwards Road zoned General Residential.

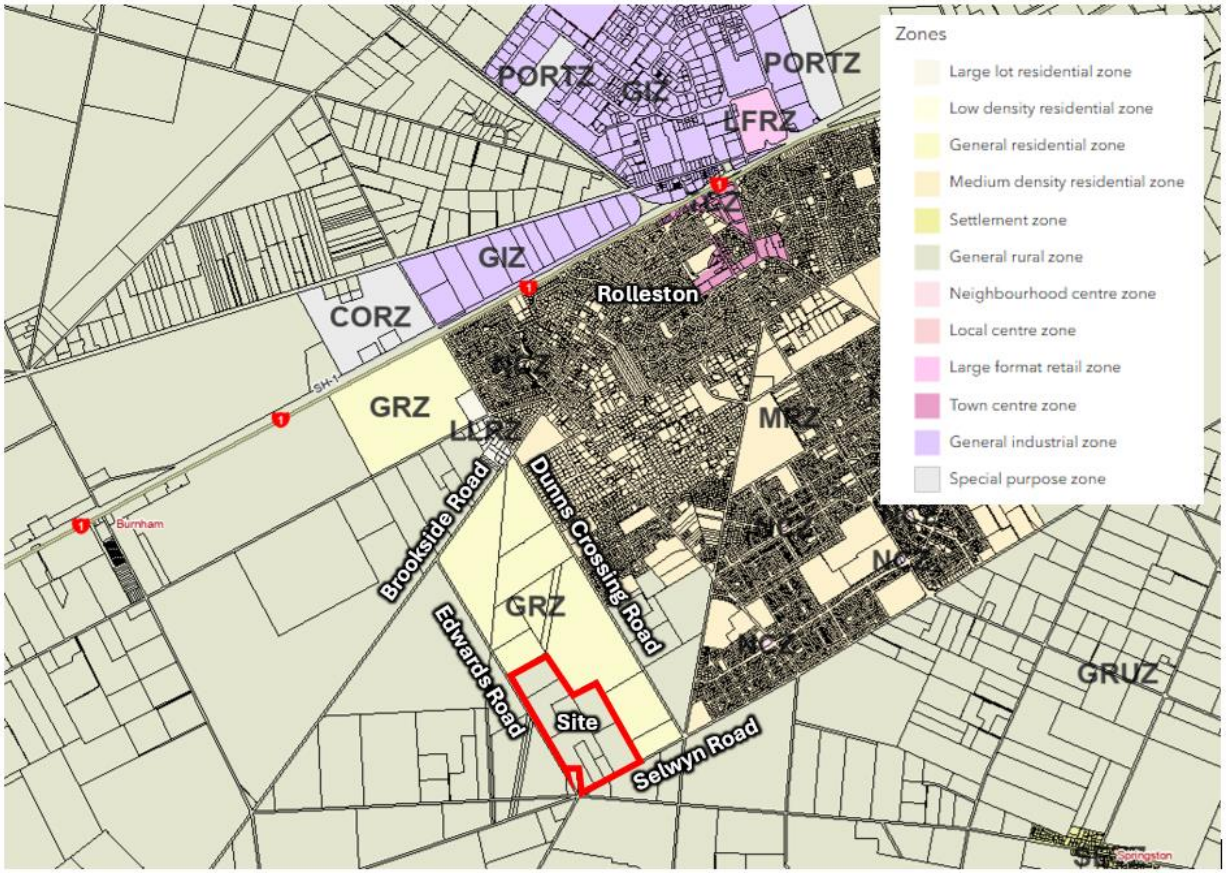


*Figure 2-1. Site location in context of PODP zoning (SDC PODP Maps)*

The Site location in the context of the south-west of Rolleston and the PODP road hierarchy is shown in Figure 2-2. Arterial roads are shown in red and collector roads are shown in yellow.

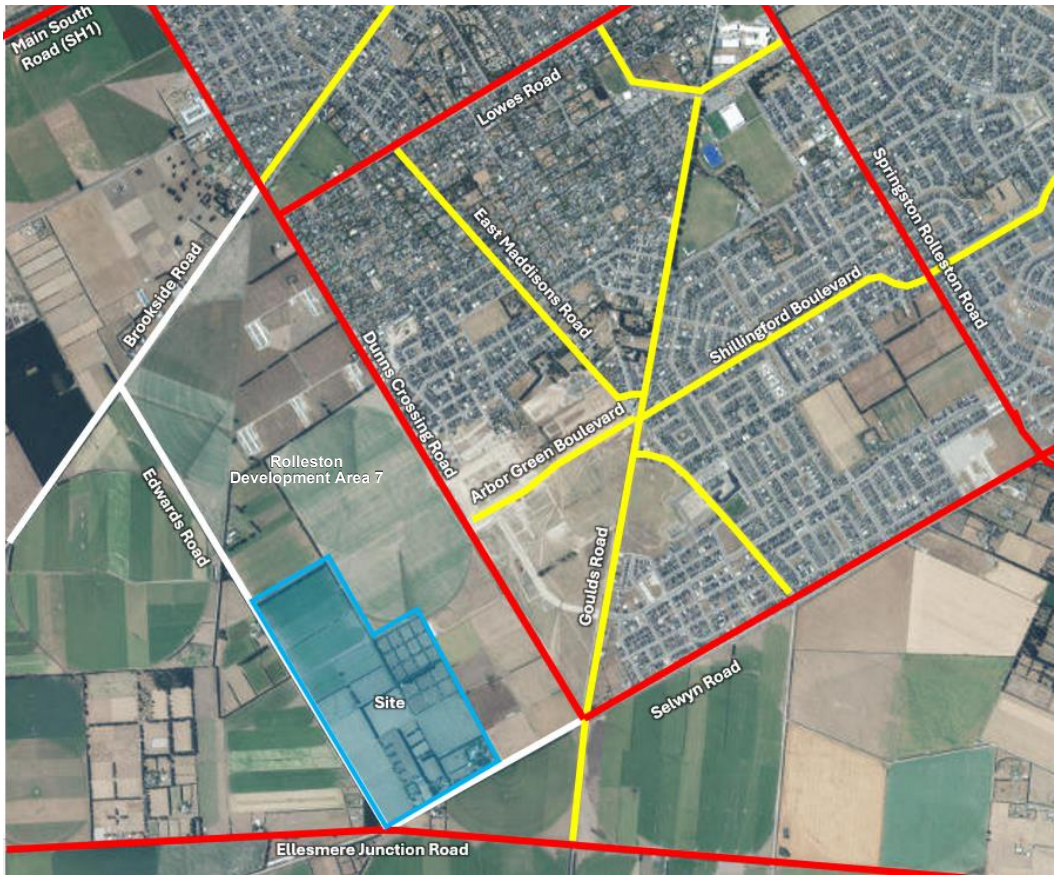


*Figure 2-2. Site location and PODP road hierarchy (Red: arterial, yellow: collector) (Aerial image: Canterbury Maps)*

Selwyn Road runs along the southern edge of Rolleston and provides an important route to the east towards Christchurch. It is classified as an arterial road as far west as Dunns Crossing Road, with the section between Dunns Crossing Road and Ellesmere Junction Road past the Site unclassified (a local road). Dunns Crossing Road is an arterial road running along the existing western edge of Rolleston, connecting from Selwyn Road to State Highway 1 (SH1). Ellesmere Junction Road is an arterial route between Burnham and Lincoln. Goulds Road is a collector road route from the south-west of Rolleston towards the centre of the Rolleston. Arbor Green Boulevard is a newly constructed section of an east-west collector road running through the southern residential areas of Rolleston.

# 3 Existing Transport Network

## 3.1 Existing Roads

### 3.1.1 Selwyn Road

Selwyn Road, between Edwards Road and Goulds Road is formed as a two-lane rural road with an approximately 6.4m wide carriageway and grass berms on both sides of the road. The typical formation

of this section of Selwyn Road is pictured in Figure 3-1. The speed limit is 100km/h, reducing to 80km/h west of the intersection with Goulds Road.

*Figure 3-1: Selwyn Road typical formation looking west (Site on right)*

To the east of Goulds Road, the northern side of Selwyn Road has been urbanised adjacent to new residential development. As shown in Figure 3-2, this has involved widening of the carriageway to accommodate kerbside car parking, construction of kerb and channel for drainage, construction of a wide path and installation of street lighting. A 60km/h speed limit is in place where new residential development has occurred adjacent to the road. Also as shown in Figure 3-2, new intersections along this section of Selwyn Road have been constructed to a basic, priority-controlled standard.

*Figure 3-2: Selwyn Road / Faringdon Boulevard intersection*

### 3.1.2 Edwards Road

Edwards Road is an unsealed gravel road with an approximately 5m wide carriageway and wide grass berms on both sides of the road. The typical formation of Edwards Road is shown in Figure 3-3.

*Figure 3-3: Edwards Road typical formation, looking south (Site on left)*

### 3.1.3 Ellesmere Junction Road / Selwyn Road / Edwards Road / Swamp Road Intersection

Selwyn Road and Edwards Road (as well as Swamp Road) meet Ellesmere Junction Road at the southwestern corner of the Site, at a six-legged, priority-controlled intersection. Ellesmere Junction Road is the priority road through the intersection, with the other legs meeting the intersection at various angles. There is a 100km/h speed limit in place through the intersection. Figure 3-4 and Figure 3-5 show the existing intersection.


*Figure 3-4: Ellesmere Junction Road / Selwyn Road / Edwards Road / Swamp Road intersection (Aerial image: Canterbury Maps)*

*Figure 3-5: Ellesmere Junction Road / Selwyn Road / Edwards Road / Swamp Road intersection, looking east along Ellesmere Junction Road (Edwards Road and Selwyn Road East on left)*

The eastern Selwyn Road leg meets Ellesmere Junction Road at an acute angle. Good sightlines are available in both directions from this approach, as shown in Figure 3-6 and Figure 3-7.

*Figure 3-6: Visibility to left from eastern Selwyn Road leg*

*Figure 3-7: Visibility to right from eastern Selwyn Road leg*

### 3.1.4 Selwyn Road / Goulds Road / Dunns Crossing Road

Goulds Road meets Selwyn Road at a skewed crossroad intersection. Dunns Crossing Road meets the northern Goulds Road leg a short distance from the intersection. The intersection operates with an 80km/h speed limit. Figure 3-8 shows the intersection layout and Figure 3-9 shows the intersection from the Dunns Crossing Road approach.


*Figure 3-8. Selwyn Road / Goulds Road / Dunns Crossing Road intersection (Canterbury Maps)*

*Figure 3-9: Selwyn Road / Goulds Road / Dunns Crossing Road intersection, from Dunns Crossing Road*

### 3.1.5 Dunns Crossing Road

The southern section of Dunns Crossing Road is currently a rural road with an 80km/h speed limit.

The speed limit reduces to 50km/h south of Arbor Green Boulevard, which represents the southern extent of development currently.

Dunns Crossing Road is progressively being urbanised with adjacent development. Figure 3-10 shows the road to the north of Arbor Green Boulevard, where the eastern side of the road has been widened and a wide path has been provided.

*Figure 3-10: Dunns Crossing Road, looking north from Arbor Green Boulevard*

### 3.1.6 Arbor Green Boulevard

Arbor Green Boulevard, shown in Figure 3-11, is a median-divided road with indented car parking lanes. There is a shared path on the northern side of the road and a standard footpath on the southern side of the road. A 50km/h speed limit is in place.

*Figure 3-11: Typical formation of Arbor Green Boulevard, looking east*

## 3.2 Public Transport

Figure 3-12 shows public bus routes which operate in Rolleston. The nearest to the Site is the 820 which runs between Burnham and Lincoln via Faringdon and the Rolleston town centre. The 5 Rolleston to New Brighton service, which starts and ends on Goulds Road, provides a service between Rolleston and Christchurch.

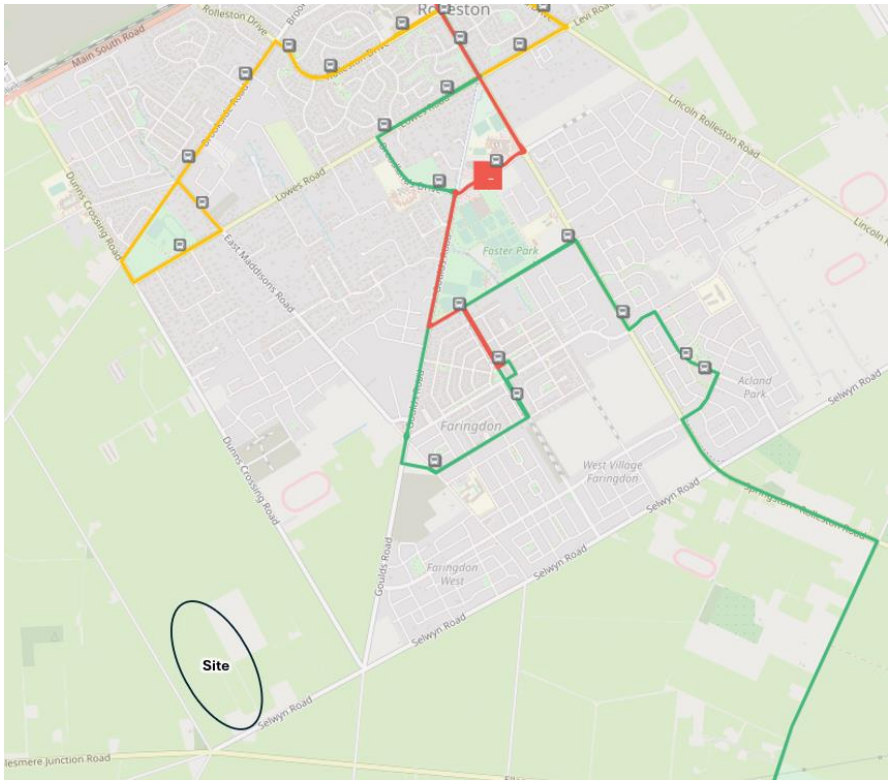


*Figure 3-12: Rolleston bus services (5 in yellow, 820 in green)*

# 4 Existing Traffic Volumes

## 4.1 Daily Traffic Volumes

Daily traffic volumes on nearby roads are summarised in Table 4-1.

*Table 4-1: Daily traffic volumes (SDC website)*

| Road | Location | Date | Daily Traffic Volume |
|---|---|---|---|
| Selwyn Road | West of Dunns Crossing Road | July 2020 | 720vpd |
| | East of Dunns Crossing Road | June 2022 | 1,350vpd |
| Edwards Road | | June 2022 | 50vpd |
| Ellesmere Junction Road | West of Selwyn Road | July 2022 | 1,170vpd |
| | East of Selwyn Road | June 2021 | 1,660vpd |
| Dunns Crossing Road | South of Lowes Road | September 2022 | 1,840vpd |
| Goulds Road | North of Ellesmere Junction Road | July 2020 | 980vpd |
| | North of Shillingford Boulevard | August 2022 | 2,270vpd |

Generally, roads in the vicinity of the Site, including arterial roads, carry moderate traffic volumes. This is to be expected given the south-west of Rolleston is at the “top of the catchment”, with most traffic generated by residential areas away from the south-west towards the Rolleston township and Christchurch.

## 4.2 Peak Hour Traffic Volumes

Morning and evening peak hour traffic volumes were recorded at the Ellesmere Junction Road / Selwyn Road / Edwards Road / Swamp Road intersection on 9 April 2025. These are summarised in Table 4-2.

*Table 4-2: Peak hour traffic volumes at Ellesmere Junction Road / Selwyn Road / Edwards Road / Swamp Road intersection*

| Approach | Movement | Traffic Volumes (vph) | |
|---|---|---|---|
| | | AM (8:00-9:00) | PM (4:15-5:15) |
| Ellesmere Junction Road (East) | Through | 69 | 89 |
| | Other Movements | 5 | 9 |
| | **Approach Total** | **74** | **98** |
| Selwyn Road (East) | Right to E.J Rd | 44 | 30 |
| | Other Movements | 6 | 10 |
| | **Approach Total** | **50** | **40** |
| Edwards Road | **Approach Total** | **4** | **1** |
| Ellesmere Junction Road (West) | Left to Selwyn Rd | 34 | 58 |
| | Through | 56 | 91 |
| | Other Movements | 0 | 1 |
| | **Approach Total** | **90** | **150** |
| Selwyn Road (West) | **Approach Total** | **2** | **3** |
| Swamp Road | **Approach Total** | **17** | **8** |

Generally, the intersection carries low traffic volumes even at peak times. 57% of movements are through movements along the Ellesmere Junction Road corridor and 31% of movements are between Ellesmere Junction Road (west) and Selwyn Road (east). All remaining movements at the intersection are low volume movements, combined making up just 12% of movements.

Selwyn Road along the Site frontage carries approximately 100vph two-way.

# 5 Crash History

Crash records within the vicinity of the Site have been reviewed using NZTA's Crash Analysis System. A search period of 2020-2025 to date (6 June 2025) was used for this analysis. The crash search has covered the Ellesmere Junction Road / Selwyn Road and Selwyn Road / Goulds Road intersections, as well as Selwyn Road between the two intersections and Edwards Road along the Site frontage. Crashes reported in the most-recent five-year period of 2020 to 2024 have been reviewed. No crashes have been reported in the search area in 2025 (as of 6 June).

A total of seven crashes have been reported with one minor-injury and six non-injury crashes.

One minor-injury crash was reported at the Selwyn Road / Goulds Road intersection. This involved a driver travelling northbound on Goulds Road failing to give way to an eastbound vehicle on Selwyn Road.

Five non-injury crashes were reported at the Ellesmere Junction Road / Selwyn Road / Edwards Road / Swamp Road intersection. Four of the five crashes involved drivers failing to give way to traffic on Ellesmere Junction Road. Two involved right turns out of the eastern Selwyn Road leg, one involved a truck coming out of Edwards Road in front of a hedge trimmer, and one involved a right turn out of the western Selwyn Road leg. The remaining crash involved an eastbound driver on Ellesmere Junction Road losing control and veering off the road due to distraction.

The one non-injury crash reported on Edwards Road involved reckless driving behaviour during a road rage incident.

# 6 Future Transport Environment

## 6.1 Intersection Upgrades

A roundabout is to be constructed at the State Highway 1 / Dunns Crossing Road / Walkers Road intersection. It is understood that construction is planned to begin within the next year. Selwyn District Council has advised that the design will allow a second right turn movement from Dunns Crossing Road to be added in the future if required to maintain an acceptable roundabout performance.

The Selwyn Long Term Plan 2024-2034 provisions for the following intersection upgrades along the Dunns Crossing Road and Selwyn Road arterial routes:

- Dunns Crossing Road / Burnham School Road traffic signals, $4M, 2024/25
- Selwyn Road / Springston Rolleston Road roundabout, $6M, 2025/26
- Selwyn Road / Dunns Crossing Road roundabout, $6M, 2026/27
- Selwyn Road / Lincoln Rolleston Road roundabout, $8M, 2028/29
- Lowes Road / Dunns Crossing Road roundabout, $2.5M, 2029/30

## 6.2 Arbor Green Subdivision

Arbor Green Subdivision, shown in Figure 6-1, is a consented residential development of the land between Dunns Crossing Road, Goulds Road and East Maddisons Road.

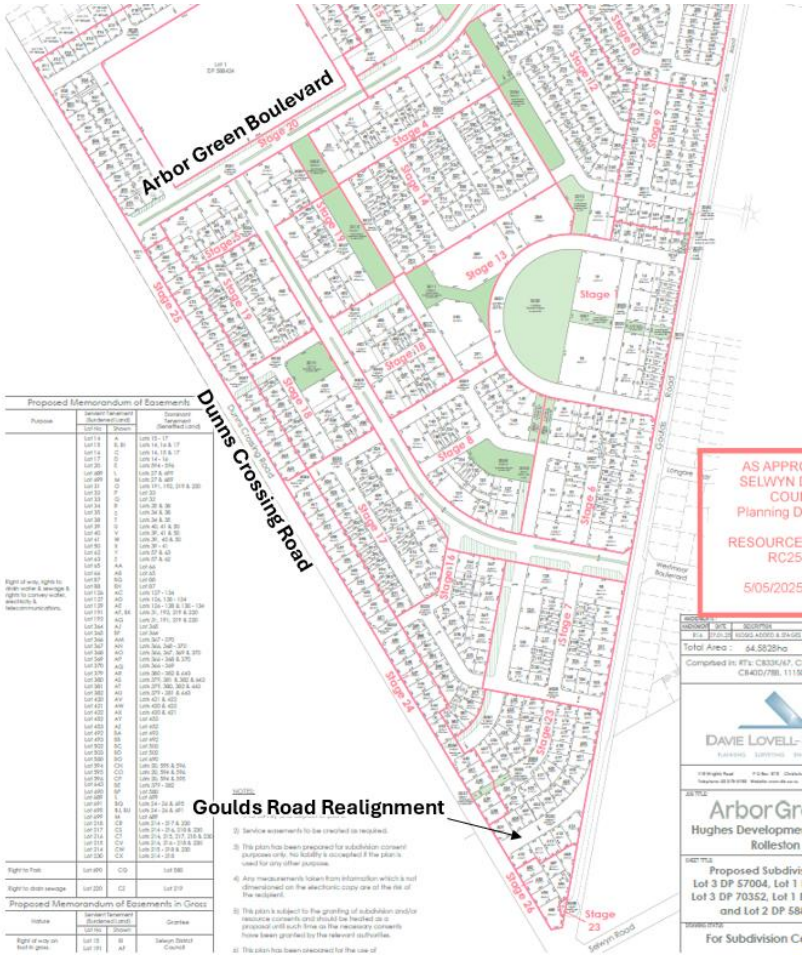


*Figure 6-1: Arbor Green Subdivision*

Arbor Green Boulevard, as shown earlier, has been constructed from Goulds Road to Dunns Crossing Road. It is an extension of Shillingford Boulevard, an east-west collector road running through Faringdon and further to the east.

Future stages of Arbor Green include a realignment of Goulds Road into Dunns Crossing Road. This will remove Goulds Road from the existing intersection with Selwyn Road and Dunns Crossing Road. The SDC Long Term Plan includes construction of a roundabout at the Selwyn Road / Dunns Crossing Road intersection, which is possible once Goulds Road is realigned.

## 6.3 Rolleston 7 Development Area

The Rolleston 7 Development Area included in the PODP covers a large portion (approximately 211ha) of the block of land bounded by Dunns Crossing Road, Selwyn Road, Edwards Road and Brookside Road, and borders the Site to the north and east. The Outline Development Plan for the area is shown in Figure 6-2. The area is zoned General Residential and several neighbourhood centres are signalled.

The development area also includes a northern block of land between State Highway 1 and Burnham School Road.

In the vicinity of the Site, one road connection to Selwyn Road and numerous road connections to Dunns Crossing Road are indicated. These include connections to Dunns Crossing Road opposite Arbor Green Boulevard and the realigned Goulds Road. The ODP notes intersection upgrades at Selwyn Road / Ellesmere Junction Road, Selwyn Road / Dunns Crossing Road and Dunns Crossing Road / Arbor Green Boulevard. A pedestrian crossing is indicated on Dunns Crossing Road at the realigned Goulds Road.

The Development Plan shows a boundary treatment adjacent to the Site, and also includes several road connections connecting to, and terminating at the boundary.

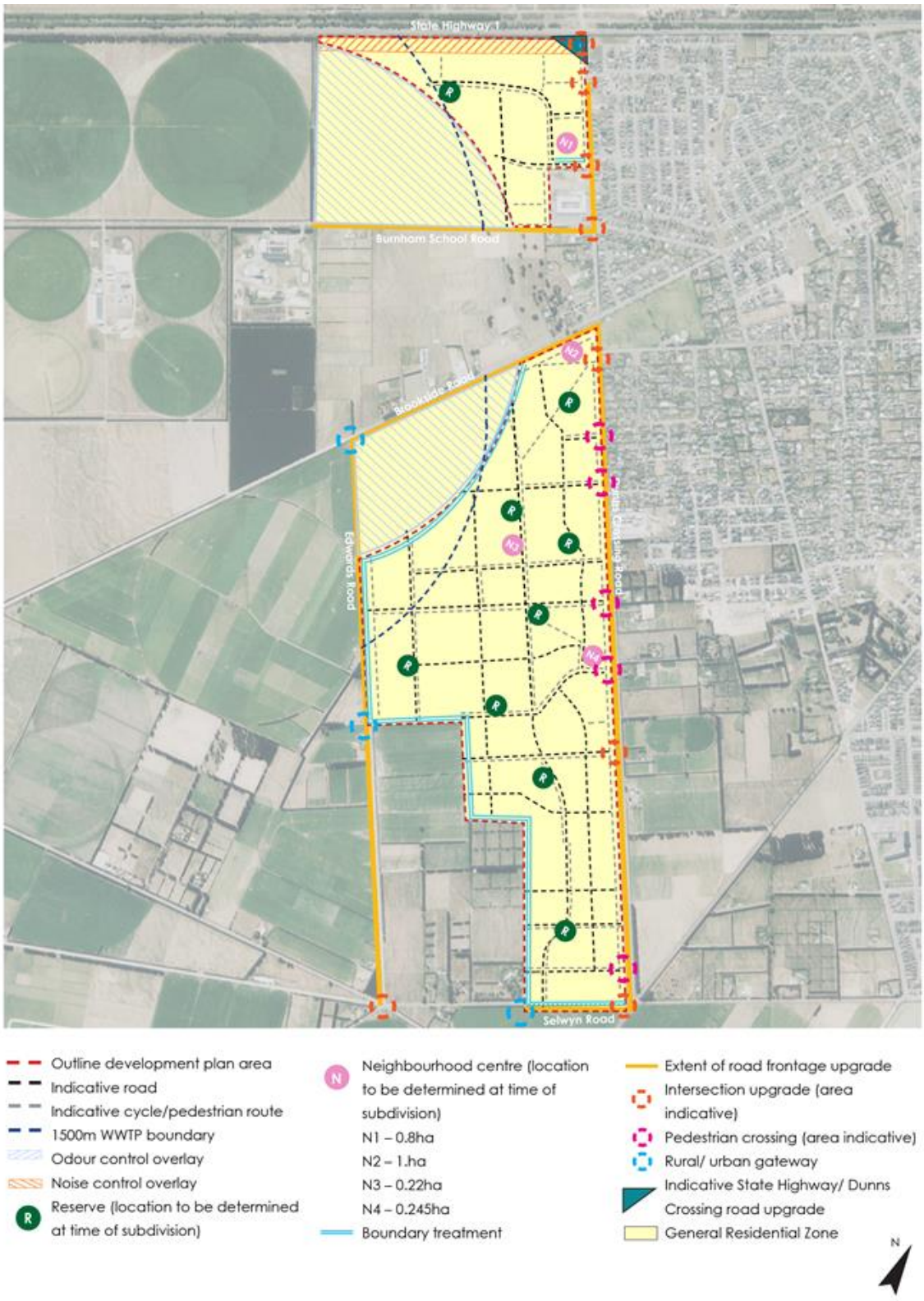


*Figure 6-2: Rolleston 7 Development Area ODP*

The ODP outlines the following list of roading upgrades which are required before certain stages of development:

North of Brookside Road

- Commencement of SH1 / Dunns Crossing Road / Walkers Road intersection upgrade (roundabout) prior to any development.
- Dunns Crossing Road / Newman Road intersection upgrade prior to issue of a completion certificate under section 224. To be developer funded and / or as part of the NZTA works.
- Dunns Crossing Road / Granite Drive intersection upgrade prior to issue of a completion certificate under section 224 in the northern part of the ODP. To be developer funded.
- Dunns Crossing Road / Burnham School Road intersection upgrade (signals) prior to issue of a completion certification under section 224. To be funded by way of a developer agreement as upgrade included in the Long Term Plan.

South of Brookside Road

- Dunns Crossing Road / Lowes Road intersection upgrade (roundabout) prior to issue of a completion certificate under section 224 in the southern part of the ODP. To be developer funded and / or by way of a developer agreement as upgrade included in the Long Term Plan.
- Dunns Crossing Road / Selwyn Road intersection upgrade (roundabout) prior to issue of a completion certificate under section 224 in the southern part of the ODP. To be by way of a developer agreement as upgrade included in the Long Term Plan.
- Selwyn Road frontage upgrade prior to issue of a completion certificate under section 224 for any subdivision in the ODP area adjacent to Selwyn Road. To be developer funded.
- Realignment of Brookside Road at Dunns Crossing Road and gateway threshold on Brookside Road prior to issue of a completion certificate under section 224 in that part of the ODP area south of Brookside Road. To be developer funded.
- Edwards Road frontage upgrades as shown on the ODP and carriageway upgrade of Edwards Road between Brookside Road and Selwyn Road including a gateway threshold on Edwards Road prior to establishment of any vehicle crossing, access or road connection to Edwards Road or Brookside Road from the ODP area. To be developer funded.
- Safety improvements to the Edwards Road / Ellesmere Junction Road intersection prior to establishment of any vehicle crossing, access or road connection to Edwards Road from the ODP area. To be developer funded.

## 6.4 Speed Limit Changes

SDC is proposing speed limit reductions across the district to support new and upcoming developments, including the following in the south-west of Rolleston:

- Brookside Road from south-west of Dunns Crossing Road to Edwards Road, 100km/h to 60km/h;
- Edwards Road from Brookside Road to 1,200m south of Brookside Road, 100km/h to 60km/h;
- Dunns Crossing Road from Arbor Green Boulevard to Goulds Road, 80km/h to 50km/h;
- Goulds Road from Arbor Green Boulevard to south of Selwyn Road, 80km/h to 50km/h;
- Selwyn Road from East Maddisons Road to south-west of Goulds Road, 80km/h to 50km/h; and

- Selwyn Road from south-west of Goulds Road to 460m south-west of Goulds Road, 100km/h to 50km/h.

These changes will support safe access to the Arbor Green subdivision and the Rolleston 7 Development Area, and demonstrate SDC's ability to ensure appropriate speed limits within growth areas.

# 7 Proposed Re-Zoning Overview

It is proposed to re-zone the remaining approximately 66ha of rural land to the north of Selwyn Road and east of Edwards Road for residential use (excludes a small lot near the intersection near the Selwyn Road / Edwards Road intersection for a Council pump station). This will fill in the block between Selwyn Road, Edwards Road, Dunns Crossing Road and Brookside Road which is predominantly zoned for residential use as outlined above. It is understood that approximately 1,000 residential units could be developed on the Site, although some other activities typically found in residential areas, such as a retirement village, a preschool, a primary school and / or local shops, are possible subject to subsequent consent applications.

An ODP is proposed to ensure integration with the already zoned residential land and appropriate connectivity to both Selwyn Road and Edwards Road. The proposed ODP is shown in Figure 7-1.

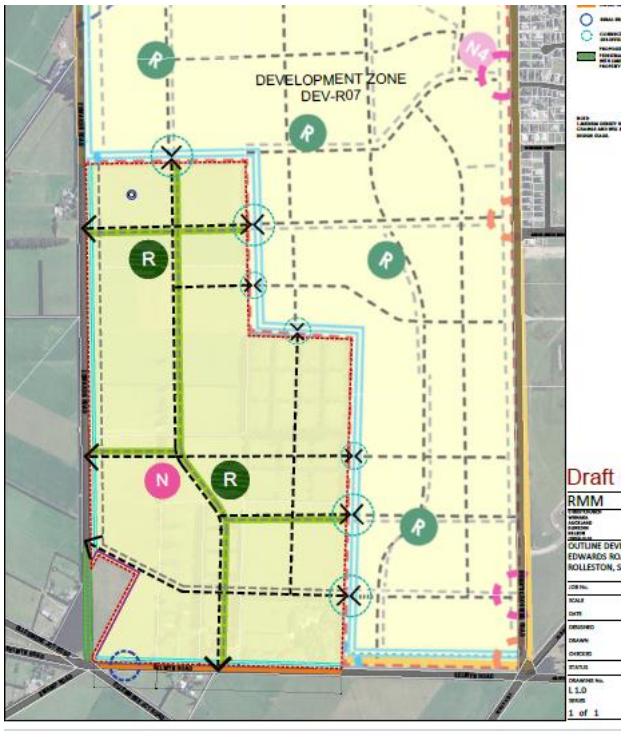


*Figure 7-1: Proposed ODP*

The ODP is proposed in a manner and style consistent with the ODP for the adjacent land, and is intended to be an extension of the existing ODP. Indicative roads are shown connecting to the eastern

and northern boundaries to match the adjacent ODP. One new intersection is indicated on Selwyn Road, midway along the Site frontage. A north-south road is indicated from this location continuing through the Site to the northern boundary. There are multiple east-west connections indicated, including a continuation of the Arbor Green Boulevard route in the northern part of the Site. Edwards Road is proposed to be realigned through the Site to remove a leg from the Ellesmere Junction Road / Selwyn Road intersection.

# 8 Traffic Effects Assessment

## 8.1 Traffic Model Overview

Stantec traffic modellers have made use of Selwyn District Council's Rolleston Simulation Traffic Model (version provided by SDC on 2 April 2025 and described as representing approximately 2040 and including the western Plan Change areas) for an assessment of the ability of the future road network to accommodate the additional traffic that could be generated by 1,000 residential units on the Site. This is a long-term assessment, with the Simulation Model allowing for all planned and zone residential development in Rolleston, as well as all planned intersection upgrades.

It is understood that the model allows for approximately 17,900 households in Rolleston, compared to the 9,447 that existed in 2022[1]. Based on Long Term Plan household growth projections[2], this represents a year of approximately 2047.

Wider network traffic volumes such as through volumes on SH1 are 2033 forecasts.

The extent of the traffic model is shown in Figure 8-1, and due to the long term nature of the traffic modelling it includes planned and anticipated road network upgrades required to support future travel demand.

[1] Selwyn District Council Long Term Plan 2024-34 Growth & Demand Report
[2] Growth & Demand Report projects linear growth of approximately 340 dwellings per year for Rolleston

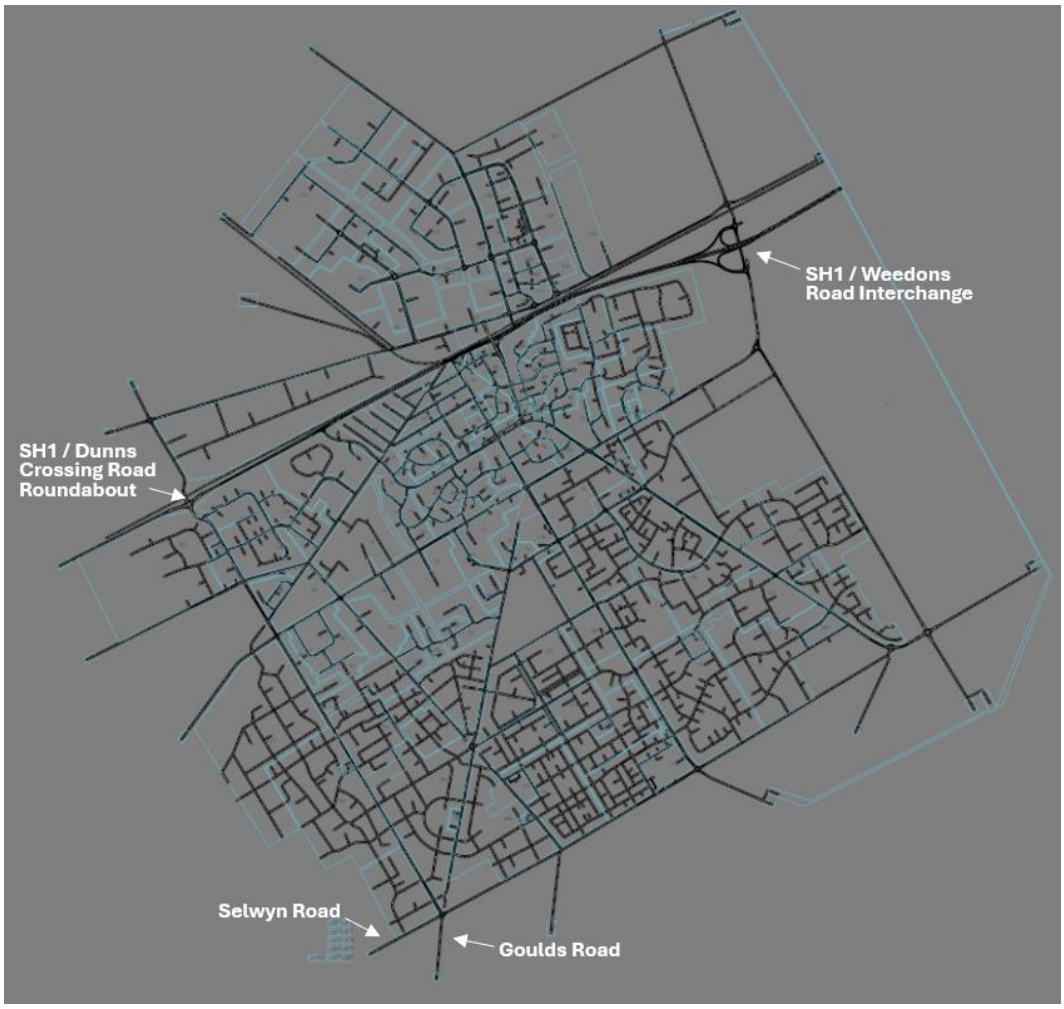


*Figure 8-1: Extent of Rolleston Simulation Model*

## 8.2 Traffic Generation and Distribution

The following related to trip generation and distribution have been adopted for consistency with other residential zones within the model:

- Peak hour trips: 0.9 per household
- AM directional split: 75% departures, 25% arrivals
- PM directional splits: 40% departures, 60% arrivals
- Distribution a weighted average of distributions for two adjacent zones (203 and 216)

The trip generation rate reflects current levels of private vehicle travel, and over time, increased public transport mode share is possible. It is understood that the base model includes a small reduction in residential traffic generation (in the order of 2.5% - 5%) to allow for increased public transport and active travel uptake in the longer term. Adoption of the 0.9vph per household traffic generation rate for this assessment is therefore conservative.

It is understood that there is also some conservatism built into the estimated potential 1,000 residential unit yield. The peak hour traffic generation of 1,000 residential units is considered suitably conservative

to allow for any non-residential activities on the Site, noting that a retirement village would generate less peak hour traffic than a residential development of the same size.

## 8.3 Traffic Modelling Exercise

A new zone was added to the Simulation Model (zone 424) as outlined below in Figure 8-2. The new zone was added with the following roading connections to be generally in accordance with the proposed ODP:

- One new intersection on Selwyn Road;
- One connection to the adjacent land to the north; and
- Two connections to the adjacent land to the east, including one to the Arbor Green Boulevard extension.

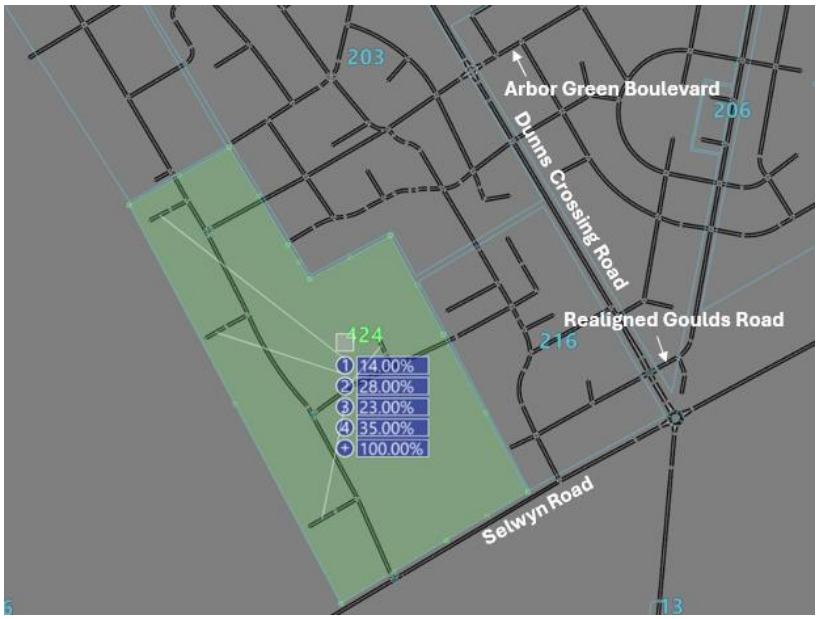


*Figure 8-2: Additional zone added to Rolleston Simulation Model*

The following changes to the base model were made:

- Arbor Green Boulevard extension through the DEV-RO7 land adjusted to be a continuous, priority route, reflecting expected continuation of the east-west collector route;
- Minor updates to the Dunns Crossing Road / Realigned Goulds Road intersection vehicle priority and minor road lane utilisation;
- Two right turns from Dunns Crossing Road to SH1 allowed for to reflect long term planning at that intersection. Also, re-coding of approaches and exits per standard practice;
- Re-coding of approaches and exits per standard practice at the Springston Rolleston Road / Selwyn Road roundabout;
- Lengthened queuing space for right turn from Dunns Crossing Road to Brookside Road based on expected available queuing space once roundabout constructed at Lowes Road.

# 8.4 Traffic Modelling Outputs

## 8.4.1 Traffic Distribution

The following figure shows the distribution of the traffic that could be generated by a residential development of the Site. This specific bandwidth plot shows the distribution of traffic generated during the morning peak period which is generally representative of both peak periods. The overall distribution in terms of percentage of the Site generated traffic on each route is also summarised in the figure.


*Figure 8-3: Distribution of additional traffic*

This figure shows that the traffic generated would be relatively evenly split between Dunns Crossing Road, Arbor Green Boulevard and Selwyn Road. This indicates the Site is well located to minimise impact on any specific part of the wider road network.

It appears that the modelled distribution has traffic travelling to Lincoln using Springston Rolleston Road whereas the proximity of the Site to Ellesmere Junction Road would be expected to make that a more attractive route.

## 8.4.2 Key Intersection Performance

The table below summarises the long-term forecast performance of key intersections along the Selwyn Road and Dunns Crossing Road arterial corridors. Average intersection delays during morning and evening peak hours, without and with development of the proposed Plan Change area are presented. For roundabouts, the delays reported are averages experienced by all drivers through the intersection. For priority-controlled intersections, the delays are average delays for the worst movement, which is

usually one of the side-road, right-turn movements and can be a low-volume movement. Detailed outputs are presented in Appendix A.

*Table 8-1: Summary of traffic model outputs*

| Intersection | Base Model | | With Plan Change | |
|---|---|---|---|---|
| | AM Peak | PM Peak | AM Peak | PM Peak |
| Selwyn Road / Dunns Crossing Road Roundabout | 3s, LOS A | 3s, LOS A | 4s, LOS A | 4s, LOS A |
| Dunns Crossing Road / Goulds Road Priority Crossroad | 10s, LOS A | 8s, LOS A | 15s, LOS B | 9s, LOS A |
| Dunns Crossing Road / Lowes Road Roundabout | 6s, LOS A | 7s, LOS A | 10s, LOS A | 10s, LOS A |
| SH1 / Dunns Crossing Road Roundabout | 29s, LOS C | 12s, LOS B | 31s, LOS C | 17s, LOS B |
| Selwyn Road / Springston Rolleston Road Roundabout | 11s, LOS B | 8s, LOS A | 20s, LOS B | 11s, LOS B |
| Selwyn Road / Lincoln Rolleston Road Roundabout | 11s, LOS B | 4s, LOS A | 21s, LOS C | 4s, LOS A |

Generally, the key intersections are all forecast to operate at good levels of service, without and with development of the Plan Change site.

Close to the Site, the Selwyn Road / Dunns Crossing Road and Dunns Crossing Road / Lowes Road roundabouts are forecast to operate with low delays and excellent levels of service.

The Dunns Crossing Road / Realigned Goulds Road intersection is included in the model as a priority-controlled crossroad intersection. Delays will remain low at this intersection.

Further from the Site, the SH1 / Dunns Crossing Road roundabout is forecast to operate with higher delays in the morning due to a relatively high traffic volume on the Dunns Crossing Road approach. However, overall performance remains at an acceptable level of service C with development of the Site.

Similarly, the Selwyn Road / Springston Rolleston Road and Selwyn Road / Lincoln Rolleston Road intersections are forecast to have higher delays during the morning peak when there is a relatively large eastbound volume on Selwyn Road. There are small increases to overall delays with potential traffic generated by development of the Site added, however overall performance remains acceptable for a peak period.

It is concluded from this exercise that additional traffic that could be generated by development of the Site will be able to be accommodated in the planned future road network, including at key intersections along the Dunns Crossing Road and Selwyn Road arterial routes.

## 8.5 Ellesmere Junction Road / Selwyn Road Intersection

The Ellesmere Junction Road / Selwyn Road intersection sits outside of the Simulation Model. The model's purpose is for assessing the future Rolleston road network and traffic from Rolleston residential areas predominantly travels to and from Rolleston and Christchurch destinations.

The proximity of the Plan Change Site to the Ellesmere Junction Road / Selwyn Road intersection means that travel to Lincoln would likely be through this intersection. For the remainder of Rolleston,

there are more direct routes to Lincoln, for example via Springston Rolleston Road. If 5% of traffic generated by development of the Site is to / from Lincoln, this could represent 40 – 50vph during peak periods, or less than one vehicle movement in either direction per minute on average.

While the intersection overall, and particularly the Edwards Road, Swamp Road and Selwyn Road (west) legs, are carrying low traffic volumes, and the crash records do not present serious concerns, the six-legged intersection is complex.

As outlined, development of the Site presents the opportunity to remove the Edwards Road leg from the intersection, and this is proposed through the ODP. Removing one minor leg will simplify the intersection and have a small positive effect on intersection safety.

It was identified during a site visit that drivers can almost “straight line” between Ellesmere Junction Road (west) and Selwyn Road (east). Vehicles enter Selwyn Road at speed and drivers turning right out of Selwyn Road may not be optimally positioned for visibility to the left. Two of the crashes presented earlier involved drivers turning right out of Selwyn Road (east) failing to give way to traffic on Ellesmere Junction Road.

Due to the acute angle between the eastern Selwyn Road and Ellesmere Junction Road legs, there is a relatively large amount of space available within the road reserve between the two legs. The area is relatively flat, and the Selwyn Road (east) approach to Ellesmere Junction Road may be able to be “squared up” to improve the concerns with the existing approach angle.

Figure 8-4 shows indicatively a realigned Selwyn Road leg and the removal of the Edwards Road approach. Squaring up the Selwyn Road approach would also achieve a small amount of separation between the Selwyn Road leg and the two legs on the opposite side of Ellesmere Junction Road, further simplifying the intersection. It is recommended that the Selwyn Road (east) leg is realigned to the extent practicable within the road reserve in conjunction with Selwyn Road frontage upgrade works at the time of development.


*Figure 8-4: Indicative alterations to intersection*

With an improved Selwyn Road (east) alignment (to the extent practicable) and removal of the Edwards Road leg, it is considered that the low traffic volume increases at the intersection resulting from development of the Site will be able to be accommodated safely and efficiently. It is noted that the works indicated above being carried out would not preclude future, larger-scale improvements by SDC if traffic volumes warrant them and further land becomes available.

## 8.6 Wider Traffic Effects

The traffic modelling indicates that approximately one quarter of traffic generated by a residential development of the site, representing up to 220vph, could be to and from the east via the Christchurch Southern Motorway and Selwyn Road combined. This volume of traffic would be dispersed over multiple routes within Christchurch and would be able to be accommodated on the arterial road network. Traffic volume increases in other directions would be small.

## 8.7 Interim Assessment

### 8.7.1 Initial Stages of Development

While from a transport perspective, development of the Site will be an extension of development of the zoned land to the north and east, with a high level of integration / connectivity proposed, the timing of adjacent development is unknown. The Plan Change requestor anticipates that development of the Site is likely to generally proceed from the south, and it is possible that initial stages of development may be sought before connections are available through the adjacent land to Dunns Crossing Road.

An interim scenario with up to 15%, or the equivalent of 150 residential units, developed with access solely from Selwyn Road has been considered. This level of development could generate approximately

135vph during peak periods. The traffic modelling exercise demonstrated that traffic volumes would disperse throughout the network on multiple routes, such that this interim assessment can be focused on a local level (noting that the critical SH1 / Dunns Crossing Road roundabout is expected to be in place before any development on the Site is completed).

### 8.7.2 Effects on Ellesmere Junction Road / Selwyn Road Intersection

Nearest to the Site, initial stages of development will be expected to add low volumes of traffic to the Ellesmere Junction Road / Selwyn Road intersection which would not noticeably affect its existing operation. It is considered that removing the Edwards Road leg from the intersection should be done as soon as an alternative route to Selwyn Road can be provided through the Site, but this does not need to be linked to a first stage of development. Realigning Selwyn Road (east) into Ellesmere Junction Road as far as practicable within the road reserve, as described above, could be carried out when the Edwards Road leg is removed.

### 8.7.3 Effects on Selwyn Road / Goulds Road Intersection

With access to the initial stages of development solely from Selwyn Road, most traffic generated would travel through the Selwyn Road / Goulds Road intersection.

Peak hour traffic volumes recorded on Selwyn Road and daily traffic volumes presented earlier show that these roads carry relatively low traffic volumes at the intersection, with this location being at the far corner of Rolleston from both the Rolleston township and Christchurch, or the “top of the catchment”. Initial stages of development could approximately double traffic volumes on Selwyn Road west of Goulds Road, however traffic volumes through the intersection will remain relatively low.

The crash history presented earlier did not highlight a particular safety concern at the intersection, with only one crash reported in the last five years. Also, the planned Selwyn Road speed limit reduction by SDC (to 50km/h), and an extension of the urban speed environment in conjunction with initial stages of development on the Site, will provide benefits to the safety of the Selwyn Road / Goulds Road intersection.

An upgrade to a roundabout is planned for the Selwyn Road / Dunns Crossing Road intersection (with Goulds Road realigned) through the SDC Long Term Plan and as a requirement for development of the Rolleston 7 Development Area. Based on the above assessment, it is considered that 15% of the Site with access solely to Selwyn Road could be developed initially without requiring this intersection upgrade. Beyond this level of development, it will be appropriate to require the intersection upgrade, as included in the Rolleston 7 Development Area ODP. Further development prior to the intersection upgrade would require assessment of capacity at the intersection at the consenting stage. It would be appropriate for existing signage and line marking at the Selwyn Road / Goulds Road intersection to be reviewed and refreshed, if necessary, as part of any initial stages of development prior to the roundabout construction.

### 8.7.4 Active Mode Connectivity

Any initial stages of development on the Site without connectivity through the adjacent land to Dunns Crossing Road will be somewhat isolated for active mode travel. It is considered that an all-weather

shared walking and cycling path along Selwyn Road and connecting to the nearest point of the existing path network should be provided as an interim measure to ensure accessibility by walking and cycling.

# 9 Assessment of Strategic Location for Rezoning

From a transport perspective, the proposed rezoning is seen as an extension of the southern part of the Rolleston 7 Development Area, with a high level of connectivity proposed through the ODP. Development of the Site will result in a consolidated urban form in the south-west of Rolleston, with the Selwyn Road / Dunns Crossing Road / Brookside Road / Edwards Road block built out.

The high level of connectivity to the north and east will afford numerous walking and cycling routes through the local area and to local amenities. In the wider context, the Site is within approximately 4 – 5km of the town centre and 3 - 4km of Foster Park and Rolleston College, all within cycling distance.

For traffic, the Site is well located for uptake of multiple routes, including the arterial Dunns Crossing Road and Selwyn Road routes. There are multiple routes towards Rolleston town centre and the Site is close to the Ellesmere Junction Road route. This means that traffic volume increases will be split over multiple routes, but also drivers travelling to and from the Site will have options to respond to constraints in the road network. Dunns Crossing Road and the planned roundabout at SH1 will provide convenient access to industrial employment to the north of SH1.

The growing west and south-west of Rolleston is not currently well served by public transport. The Site is approximately 2km from the local bus service that runs through Faringdon and 2-3km from the 5 Rolleston to New Brighton bus service on Lowes Road. These distances are beyond distances typically considered walkable, however access to the bus services by other active travel modes would be possible. Public transport services are regularly reviewed and can be expected to respond to demand. With the large amount of residential development planned in the west and south-west of Rolleston, a bus service could be provided through the area in the future. Roading design at the subdivision stage can ensure certain corridors are able to accommodate buses in case a future bus service is provided. It may be that, for example, the north-south route through the Site and the Arbor Green Boulevard extension are designed to allow for a future bus service.

To conclude from a transport perspective, it is considered that the Site is a logical extension of already zoned residential development and an appropriately connected development for different travel modes can be ensured.

# 10 Assessment of Proposed ODP

## 10.1 Selwyn Road Intersection

The new intersection on Selwyn Road is indicated approximately 300m east of the Ellesmere Junction Road intersection and approximately 400m west of the road indicated on the ODP for the adjacent land. These are generous intersection spacings in what will be an urban setting, recognising Selwyn Road's arterial status (despite being unclassified between Ellesmere Junction Road and Goulds Road) and

generally consistent with existing intersection spacings to the east. These intersection spacings allow flexibility for future intersections if land to the south of Selwyn Road is developed. Further minor road connections can be considered through standard subdivision processes.

Selwyn Road will be urbanised on the Site side of the road in conjunction with development. This will be expected to a standard consistent with that adopted to the east (Figure 3-2), including seal widening on the northern side of the road, kerb and channel, a footpath or shared path and lighting. An urban speed limit, for example 50km/h as proposed east of the Site on Selwyn Road, would be anticipated. It is considered that a priority-controlled T-intersection, consistent with existing intersections to the east, for example the Selwyn Road / Faringdon Boulevard intersection shown in Figure 3-2, will be appropriate. Outputs from the traffic modelling exercise indicate that a priority-controlled T-intersection serving the Site will operate efficiently with minimal delays.

## 10.2 Edwards Road Intersections

The southern portion of Edwards Road will be realigned through the Site and two connections to Edwards Road to the north are indicated in the proposed ODP. Edwards Road will be a low volume local road, being on the edge of development and an urban speed limit would be anticipated. Intersection spacing is not considered critical in this type of environment, however the intersection spacing indicated in the ODP is generous. Further minor road connections can be considered through standard subdivision processes. The road connections identified in the ODP do not preclude access to the land to the west of Edwards Road if this is developed in the future.

Edwards Road should be urbanised, including sealing, as part of development of land adjacent to the road.

## 10.3 Access Through Adjacent Land

The ODP for the adjacent land does not indicate a road hierarchy and there are no subdivision plans at this stage. There are numerous roads shown on that ODP connecting to the Site boundary. A high level of connectivity is indicated in the proposed ODP. It is considered that the Arbor Green Boulevard extension will function as a collector road connection out to Dunns Crossing Road and further to the east, and this is supported by the traffic modelling outputs presented earlier. Other routes for people travelling to and from Dunns Crossing Road will be expected to carry lower traffic volumes consistent with a local-road status and increases in use resulting from development of the Site will be consistent with this. It is considered that SDC will have sufficient oversight of subdivision designs to ensure that the two developments are suitably aligned with respect to connectivity to and from Dunns Crossing Road.

Traffic modelling outputs show that minor road intersections on Dunns Crossing Road are forecast to operate efficiently into the future given moderate traffic volumes forecast on this section of the arterial road.

It is noted that the ODP for the land to the east of the Site indicates a road connection out to Dunns Crossing Road opposite or very close to the realigned Goulds Road, as highlighted in Figure 10-1. This road would be expected to be a minor road given it is parallel and close to Selwyn Road. The Dunns Crossing Road / Realigned Goulds Road intersection will be an important intersection of two classified roads and is planned as a priority-controlled T-intersection. It is understood that the approved Arbor

Green subdivision boundaries do not anticipate provision of a roundabout in this location. It is considered that it would be preferable from a road safety perspective for any minor road connections to be off-set from this T-intersection.

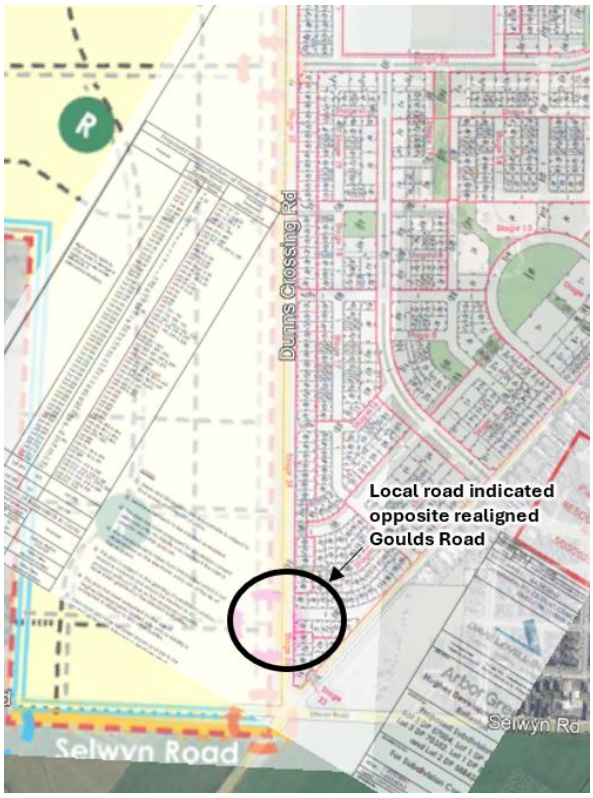


*Figure 10-1: DEV-RO7 local road opposite Goulds Road*

Similarly, other minor roads along the Dunns Crossing Road corridor are indicated opposite minor Arbor Green subdivision roads. Vehicle connectivity straight across arterial roads between minor roads is not considered necessary and it is preferable from a road safety perspective to minimise the number of crossroad intersections. It is recommended that SDC is cognisant of these points relating to local road connectivity to Dunns Crossing Road through the subdivision design and approval processes for future development.

The ODP for the adjacent land indicates walking and cycling connectivity to / from and across Dunns Crossing Road. Appropriate connectivity into the Site will be able to be ensured at future design stages.

## 10.4 Proposed Internal Layout

The proposed ODP shows multiple roads connecting to the adjacent land and the frontage roads. Roads are shown indicatively at this stage but the ODP confirms that good connectivity will be achieved. It is considered that a north-south spine road from Selwyn Road to the northern boundary of the Site and the Arbor Green Boulevard extension will be the key internal roads once the Site is fully developed. Other roads will be able to be planned through future design stages. From a road safety perspective, a road network with the need for crossroad intersections along higher-order roads minimised will be preferable.

While footpaths will be provided and on-road cycling will be possible on all roads, walking and cycling provision is indicated along some roads within the ODP. These routes are planned to tie-in with the adjacent ODP, and it is expected that a higher level of service will be provided for cycling on these routes.

# 11 District Plan Policy Assessment

PODP Transport Objectives and Policies have been reviewed. Assessment of consistency of the proposed Plan Change with relevant Policies is provided below.

Transport Policies 1 – 3, relating to integrated land use and transport planning, are relevant and copied below.

| **Integrated land use, subdivision, and transport planning** | |
|---|---|
| **TRAN-P1** | Maintain the safety and efficiency of the District's land transport network and systems by:<br>1. managing the levels of service, formation standards and the types of land transport corridors and land transport infrastructure, including through the network road classifications and compliance with the design and operational standards;<br>2. providing land transport infrastructure that is consistent with the form, function, and character of each zone;<br>3. ensuring there is enough space within land transport corridors to support the safe, efficient and effective installation, operation, upgrade, repair and maintenance of network utilities;<br>4. providing for the safe and efficient movement and operation of emergency services; and<br>5. recognising cross-boundary connections with adjoining districts. |
| **TRAN-P2** | Manage any extensions to the District's land transport network to ensure it occurs in an integrated way by:<br>1. co-coordinating the timing of land use activities and subdivision development with the availability of capacity in land transport corridors;<br>2. providing a range of travel modes and ensuring these are integrated, including between walking, cycling, public transport, freight and private vehicle modes; and<br>3. ensuring land use activities and subdivision development do not foreclose on the opportunity for land transport corridors to meet future land transport needs. |
| **TRAN-P3** | Require Integrated Transport Assessments to assess the effects of high trip generating activities on the surrounding land transport network to:<br>1. maintain the safety and efficiency of land transport infrastructure by ensuring there is sufficient capacity in land transport corridors; and<br>2. establish whether the high trip generating activity can be supported by active transport modes, including accessibility to safe and convenient walking and cycling connections and access to public transport and public transport facilities. |

*Figure 11-1: PODP Transport Policies 1 - 3*

The traffic modelling exercise has demonstrated that traffic generated by development of the Site will be able to be accommodated within the planned road network of Rolleston.

Locally, connecting Edwards Road into the Site and removing the Edwards Road leg from the Selwyn Road / Ellesmere Junction Road intersection will simplify the intersection and provide road safety benefits. Squaring up the Selwyn Road eastern approach to Ellesmere Junction Road to the extent practicable, in conjunction with removing the Edwards Road leg and Selwyn Road frontage upgrades, will also benefit the safety of the intersection. Low volumes of traffic from development of the Site that could use the intersection will be able to be accommodated safely and efficiently.

It has been assessed that initial stages of development, to an equivalent of 150 households, will be able to occur with access solely from Selwyn Road and without an upgrade of the Selwyn Road / Dunns Crossing Road intersection or wider area intersections (noting that the critical SH1 / Dunns Crossing Road upgrade is planned in the short term).

New intersection locations on Selwyn Road and Edwards Road indicated in the ODP are appropriate, and safe and efficient access to and from the Site will be achievable. Within the Site, appropriate road design will be able to be ensured through subsequent design and consenting processes.

A good level of connectivity to the adjacent development will be ensured and this will include for walking and cycling towards Dunns Crossing Road and further into Rolleston.

Transport Policies 5 – 6, copied below, relate to transport choice.

| Transport choice | |
|---|---|
| **TRAN-P5** | Promote a range of transport options to reduce the number of trips and distances travelled in private motor vehicles by:<br>1. encouraging land use activities and subdivision development to include connected walking and cycling networks and access to public transport and public transport facilities, including within and between townships;<br>2. managing the design, layout and function of new land transport infrastructure to ensure they integrate with existing and future land transport corridors; and<br>3. ensuring land use activities, where necessary, provide an adequate amount of safe, secure and convenient cycle parking. |
| **TRAN-P6** | Enable safe, multi-modal connections that support walking, cycling, and access to public transport and public transport facilities through land use activities and subdivision development that:<br>1. establish levels of service and multi-modal transport options based on the network road classifications, including the provision of strategic level walking and cycling connections where they are identified in Development Plans or ODP;<br>2. encourage residential blocks to be small, navigable and convenient to move around through legible, convenient and attractive walking and cycling routes to public transport facilities and between residential areas, business centres, community facilities, recreation space and local services;<br>3. manage the number and design of cul de sacs, rear sites and accessways;<br>4. provide for the interaction between vehicle access and manoeuvring, loading and parking areas when determining on-site pedestrian and cycling routes; and<br>5. align street layouts to maximise views and landscape features to promote attractive streets. |

*Figure 11-2: PODP Transport Policies 5 - 6*

Multiple local routes for walking and cycling towards Dunns Crossing Road will be available given the connectivity to adjacent development that will be achieved. Crossing points on Dunns Crossing Road are indicated in the ODP for the adjacent land to ensure good connectivity to the eastern side of Dunns Crossing Road and on towards destinations in Rolleston. If there is development on the Site prior to connections being available to Dunns Crossing Road, a shared walking and cycling path along Selwyn Road and connecting to the existing path network has been recommended to ensure accessibility by active modes.

As outlined earlier, the growing west and south-west of Rolleston is not currently well served by public transport. The nearest bus route is a local route which runs through Faringdon. Public transport services are regularly reviewed and can be expected to respond to demand. With the large amount of residential development planned in the west and south-west of Rolleston, a bus service could be provided through the area in the future. Roading design at the subdivision stage can ensure certain corridors are able to accommodate buses in case a future bus service is provided.

# 12 Conclusion

From a transport perspective, the proposed rezoning is seen as an extension of the southern part of the Rolleston 7 Development Area, with a high level of connectivity proposed through the ODP. This means that traffic travelling towards Dunns Crossing Road will be dispersed across multiple routes and a high level of connectivity for walking and cycling will be achieved.

The traffic modelling exercise carried out has demonstrated that the potential traffic generation of development of the Site can be accommodated on the planned future road network.

On a local level, the proposed ODP includes realignment of Edwards Road through the Site, allowing the removal of the Edwards Road leg from the Ellesmere Junction Road / Selwyn Road intersection. Squaring up the Selwyn Road eastern leg to Ellesmere Junction Road to the extent practicable within the existing road reserve in conjunction with this work has been recommended. It is considered that these works will have safety benefits and ensure that additional traffic associated with development of the Site can be accommodated safely and efficiently.

It has been assessed that 15% of the Site, or the equivalent of 150 residential units, could be developed on the Site prior to connections to Dunns Crossing Road being available. With this level of development, it is considered that the planned Selwyn Road / Dunns Crossing Road upgrade would not be required.

The proposed rezoning has been assessed to be generally consistent with relevant District Plan transport policies.

It is concluded from a transport perspective that the Site is appropriate to be rezoned for residential use and the proposed ODP will ensure a well-connected development for all travel modes.

# Appendices

# Appendix A Traffic Modelling Outputs

## A.1 Morning Peak Results

| Intersection | Base (No Development) | | | | | Edwards Rd (With Development) | | | |
|---|---|---|---|---|---|---|---|---|---|
| | Approach | Movement | Vol | Delay | LOS | Movement | Vol | Delay | LOS |
| Selwyn Road & Road 1 | Road 1 North | L | - | - | - | L | 264 | 3.7 | A |
| | | R | - | - | - | R | 32 | 6.4 | A |
| | | **North Total** | - | - | - | **North Total** | 297 | 6.4 | A |
| | Selwyn Rd East | T | - | - | - | T | 309 | 4.0 | A |
| | | R | - | - | - | R | 72 | 3.4 | A |
| | | **East Total** | - | - | - | **East Total** | 381 | 4.0 | A |
| | Selwyn Rd West | L | - | - | - | L | 7 | 0.3 | A |
| | | T | - | - | - | T | 128 | 1.1 | A |
| | | **West Total** | - | - | - | **West Total** | 135 | 1.1 | A |
| | **Intersection:** | | - | - | - | **Intersection:** | **813** | **6.4** | **A** |
| Dunns Crossing Road & Selwyn Road | Dunns Crossing Rd North | L | 337 | 1.9 | A | L | 384 | 3.9 | A |
| | | T | 62 | 1.7 | A | T | 64 | 3.4 | A |
| | | R | 79 | 2.9 | A | R | 105 | 4.4 | A |
| | | **North Total** | 478 | 2.1 | A | **North Total** | 553 | 3.9 | A |
| | Selwyn Rd East | L | 11 | 1.6 | A | L | 11 | 1.9 | A |
| | | T | 161 | 2.9 | A | T | 194 | 3.3 | A |
| | | R | 75 | 3.1 | A | R | 69 | 3.5 | A |
| | | **East Total** | 247 | 2.9 | A | **East Total** | 273 | 3.3 | A |
| | Goulds Rd South | L | 2 | 6.4 | A | L | 4 | 6.5 | A |
| | | T | 83 | 6.7 | A | T | 81 | 7.8 | A |
| | | R | 12 | 4.2 | A | R | 13 | 4.8 | A |
| | | **South Total** | 97 | 6.4 | A | **South Total** | 99 | 7.4 | A |
| | Selwyn Rd West | L | 48 | 2.5 | A | L | 95 | 3.3 | A |
| | | T | 115 | 4.0 | A | T | 320 | 4.2 | A |
| | | R | 1 | 1.4 | A | R | 6 | 1.6 | A |
| | | **West Total** | 164 | 3.5 | A | **West Total** | 421 | 4.0 | A |
| | **Intersection:** | | **985** | **2.9** | **A** | **Intersection:** | **1346** | **4.1** | **A** |
| Dunns Crossing Road & Goulds Road | Dunns Crossing Rd North | L | 10 | 1.3 | A | L | 18 | 1.0 | A |
| | | T | 344 | 1.0 | A | T | 375 | 1.1 | A |
| | | R | 14 | 1.3 | A | R | 17 | 1.4 | A |
| | | **North Total** | 368 | 1.3 | A | **North Total** | 411 | 1.4 | A |
| | Goulds Rd East | L | 94 | 5.3 | A | L | 122 | 7.1 | A |
| | | T | 70 | 8.4 | A | T | 82 | 13.1 | B |
| | | R | 11 | 6.4 | A | R | 12 | 9.8 | A |
| | | **East Total** | 175 | 8.4 | A | **East Total** | 216 | 13.1 | B |
| | Dunns Crossing Rd South | L | 5 | 0.2 | A | L | 6 | 0.2 | A |
| | | T | 146 | 0.0 | A | T | 147 | 0.0 | A |
| | | R | 59 | 3.3 | A | R | 97 | 5.1 | A |
| | | **South Total** | 209 | 3.3 | A | **South Total** | 251 | 5.1 | A |
| | Goulds Rd West | L | 6 | 0.6 | A | L | 9 | 1.7 | A |
| | | T | 15 | 5.5 | A | T | 29 | 11.7 | B |
| | | R | 19 | 10.4 | A | R | 37 | 14.5 | B |
| | | **West Total** | 40 | 10.4 | A | **West Total** | 74 | 14.5 | B |
| | **Intersection:** | | **792** | **10.4** | **A** | **Intersection:** | **952** | **14.5** | **B** |
| Dunns Crossing Road & Carter Road 1 | Dunns Crossing Rd North | T | 309 | 2.9 | A | T | 321 | 2.6 | A |
| | | R | 6 | 1.4 | A | R | 7 | 1.5 | A |
| | | **North Total** | 314 | 2.9 | A | **North Total** | 328 | 2.6 | A |
| | Carter Road 1 South | L | 8 | 1.0 | A | L | 12 | 0.8 | A |
| | | R | 158 | 3.2 | A | R | 155 | 3.2 | A |
| | | **South Total** | 166 | 3.2 | A | **South Total** | 167 | 3.2 | A |
| | Dunns Crossing Rd West | L | 12 | 2.3 | A | L | 18 | 2.4 | A |
| | | R | 41 | 4.0 | A | R | 72 | 4.7 | A |
| | | **West Total** | 52 | 4.0 | A | **West Total** | 91 | 4.7 | A |
| | **Intersection:** | | **532** | **4.0** | **A** | **Intersection:** | **586** | **4.7** | **A** |
| Dunns Crossing Road & Carter Road 2 | Dunns Crossing Rd North | L | 11 | 1.3 | A | L | 13 | 1.5 | A |
| | | T | 259 | 2.9 | A | T | 266 | 3.0 | A |
| | | R | 27 | 2.6 | A | R | 37 | 2.9 | A |
| | | **North Total** | 298 | 2.9 | A | **North Total** | 316 | 3.0 | A |
| | Carter Road 2 East | L | 9 | 3.3 | A | L | 11 | 4.5 | A |
| | | T | 9 | 6.4 | A | T | 8 | 7.0 | A |
| | | R | 26 | 6.9 | A | R | 27 | 7.4 | A |
| | | **East Total** | 43 | 6.9 | A | **East Total** | 46 | 7.4 | A |
| | Dunns Crossing Rd South | L | 14 | 2.1 | A | L | 12 | 2.2 | A |
| | | T | 165 | 2.8 | A | T | 170 | 2.8 | A |
| | | R | 7 | 2.3 | A | R | 9 | 3.0 | A |
| | | **South Total** | 186 | 2.8 | A | **South Total** | 191 | 3.0 | A |
| | Carter Road 2 West | L | 27 | 5.9 | A | L | 37 | 7.1 | A |
| | | T | 16 | 7.4 | A | T | 19 | 9.3 | A |
| | | R | 47 | 9.4 | A | R | 51 | 11.6 | B |
| | | **West Total** | 90 | 9.4 | A | **West Total** | 107 | 11.6 | B |

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | **Intersection:** | | **617** | **9.4** | **A** | **Intersection:** | **660** | **11.6** | **B** |
| Dunns Crossing Road & Arbor Green Boulevard | Dunns Crossing Rd North | L | 94 | 2.8 | A | L | 94 | 4.6 | A |
| | | T | 220 | 3.3 | A | T | 227 | 5.0 | A |
| | | R | 8 | 1.8 | A | R | 38 | 4.5 | A |
| | | **North Total** | 322 | 3.1 | A | **North Total** | 359 | 4.8 | A |
| | Arbor Green Blvd East | L | 21 | 2.1 | A | L | 28 | 3.4 | A |
| | | T | 68 | 2.9 | A | T | 121 | 3.8 | A |
| | | R | 124 | 3.8 | A | R | 129 | 4.9 | A |
| | | **East Total** | 214 | 3.4 | A | **East Total** | 277 | 4.3 | A |
| | Dunns Crossing Rd South | L | 31 | 2.1 | A | L | 29 | 3.0 | A |
| | | T | 173 | 2.9 | A | T | 185 | 4.0 | A |
| | | R | 12 | 2.6 | A | R | 18 | 3.3 | A |
| | | **South Total** | 216 | 2.7 | A | **South Total** | 232 | 3.8 | A |
| | Arbor Green Blvd West | L | 71 | 1.0 | A | L | 161 | 0.9 | A |
| | | T | 105 | 0.8 | A | T | 215 | 1.0 | A |
| | | R | 53 | 1.4 | A | R | 56 | 1.3 | A |
| | | **West Total** | 229 | 1.0 | A | **West Total** | 432 | 1.0 | A |
| | **Intersection:** | | **980** | **2.6** | **A** | **Intersection:** | **1300** | **3.3** | **A** |
| Dunns Crossing Road & Lowes Road | Dunns Crossing Rd North | L | 210 | 4.6 | A | L | 210 | 8.5 | A |
| | | T | 265 | 4.9 | A | T | 334 | 7.9 | A |
| | | R | 58 | 4.5 | A | R | 69 | 8.2 | A |
| | | **North Total** | 533 | 4.7 | A | **North Total** | 613 | 8.2 | A |
| | Lowes Rd East | L | 33 | 5.6 | A | L | 40 | 7.4 | A |
| | | T | 21 | 6.2 | A | T | 25 | 7.4 | A |
| | | R | 107 | 6.5 | A | R | 104 | 9.1 | A |
| | | **East Total** | 161 | 6.3 | A | **East Total** | 168 | 8.4 | A |
| | Dunns Crossing Rd South | L | 6 | 6.4 | A | L | 5 | 12.5 | B |
| | | T | 641 | 10.2 | A | T | 715 | 16.7 | B |
| | | R | 94 | 9.7 | A | R | 115 | 16.2 | B |
| | | **South Total** | 741 | 10.1 | A | **South Total** | 835 | 16.6 | B |
| | Lowes Rd West | L | 309 | 1.8 | A | L | 388 | 2.0 | A |
| | | T | 93 | 1.0 | A | T | 112 | 1.3 | A |
| | | R | 1 | 1.0 | A | R | 1 | 0.6 | A |
| | | **West Total** | 403 | 1.6 | A | **West Total** | 501 | 1.9 | A |
| | **Intersection:** | | **1837** | **6.4** | **A** | **Intersection:** | **2118** | **10.0** | **A** |
| Dunns Crossing Road & SH1 | Dunns Crossing Rd North | L | 54 | 4.9 | A | L | 54 | 4.9 | A |
| | | T | 101 | 8.9 | A | T | 110 | 8.1 | A |
| | | R | 24 | 7.2 | A | R | 22 | 6.2 | A |
| | | **North Total** | 179 | 7.5 | A | **North Total** | 186 | 6.9 | A |
| | SH1 East | L | 100 | 5.2 | A | L | 114 | 5.6 | A |
| | | T | 832 | 9.3 | A | T | 838 | 9.4 | A |
| | | R | 228 | 9.9 | A | R | 235 | 9.6 | A |
| | | **East Total** | 1159 | 9.1 | A | **East Total** | 1187 | 9.1 | A |
| | Dunns Crossing Rd South | L | 135 | 57.9 | E | L | 144 | 70.1 | E |
| | | T | 238 | 63.8 | E | T | 247 | 76.5 | E |
| | | R | 560 | 70.1 | E | R | 552 | 75.2 | E |
| | | **South Total** | 933 | 66.7 | E | **South Total** | 942 | 74.8 | E |
| | SH1 West | L | 157 | 11.3 | B | L | 167 | 9.6 | A |
| | | T | 401 | 16.4 | B | T | 402 | 15.9 | B |
| | | R | 236 | 20.3 | B | R | 234 | 20.6 | C |
| | | **West Total** | 794 | 16.5 | B | **West Total** | 803 | 16.0 | B |
| | **Intersection:** | | **3066** | **28.5** | **C** | **Intersection:** | **3118** | **30.6** | **C** |
| Springston Rolleston Road & Selwyn Road | Springston Rolleston Rd North | L | 167 | 26.6 | C | L | 147 | 61.8 | E |
| | | T | 297 | 27.0 | C | T | 289 | 62.7 | E |
| | | R | 31 | 22.9 | C | R | 26 | 55.3 | D |
| | | **North Total** | 496 | 26.6 | C | **North Total** | 461 | 62.0 | E |
| | Selwyn Rd East | L | 36 | 5.3 | A | L | 44 | 6.1 | A |
| | | T | 203 | 6.4 | A | T | 207 | 7.3 | A |
| | | R | 64 | 6.4 | A | R | 69 | 7.2 | A |
| | | **East Total** | 303 | 6.3 | A | **East Total** | 320 | 7.1 | A |
| | Springston Rolleston Rd South | L | 54 | 2.4 | A | L | 55 | 2.5 | A |
| | | T | 142 | 3.0 | A | T | 140 | 3.2 | A |
| | | R | 9 | 2.0 | A | R | 8 | 1.7 | A |
| | | **South Total** | 204 | 2.8 | A | **South Total** | 203 | 2.9 | A |
| | Selwyn Rd West | L | 75 | 5.1 | A | L | 90 | 8.2 | A |
| | | T | 605 | 5.5 | A | T | 747 | 9.0 | A |
| | | R | 205 | 5.3 | A | R | 238 | 9.0 | A |
| | | **West Total** | 884 | 5.4 | A | **West Total** | 1075 | 8.9 | A |
| | **Intersection:** | | **1887** | **10.8** | **B** | **Intersection:** | **2059** | **19.9** | **B** |
| Lincoln Rolleston Road & Selwyn Road | Lincoln Rolleston Rd North | T | 661 | 20.1 | B | T | 618 | 45.8 | D |
| | | R | 13 | 13.4 | B | R | 13 | 33.1 | C |
| | | **North Total** | 674 | 20.0 | B | **North Total** | 631 | 45.5 | D |
| | Selwyn Rd East | L | 254 | 1.0 | A | L | 260 | 1.0 | A |
| | | T | 279 | 1.7 | A | T | 279 | 1.7 | A |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Lincoln Rolleston Road & Selwyn Road | | **East Total** | 533 | 1.3 | A | **East Total** | 540 | 1.4 | A |
| | Selwyn Rd West | L | 7 | 3.7 | A | L | 8 | 4.1 | A |
| | | R | 818 | 10.4 | A | R | 941 | 15.2 | B |
| | | **West Total** | 825 | 10.3 | A | **West Total** | 949 | 15.1 | B |
| | **Intersection:** | | **2033** | **11.2** | **B** | **Intersection:** | **2119** | **20.7** | **C** |

## A.2 Evening Peak Results

| Intersection | Base (No Development) | | | | | Edwards Rd (With Development) | | | |
|---|---|---|---|---|---|---|---|---|---|
| | Approach | Movement | Vol | Delay | LOS | Movement | Vol | Delay | LOS |
| Selwyn Road & Road 1 | Road 1 North | L | - | - | - | L | 113 | 3.2 | A |
| | | R | - | - | - | R | 14 | 8.2 | A |
| | | **North Total** | - | - | - | **North Total** | 127 | 8.2 | A |
| | Selwyn Rd East | T | - | - | - | T | 249 | 4.0 | A |
| | | R | - | - | - | R | 198 | 4.2 | A |
| | | **East Total** | - | - | - | **East Total** | 447 | 4.2 | A |
| | Selwyn Rd West | L | - | - | - | L | 11 | 0.4 | A |
| | | T | - | - | - | T | 182 | 1.1 | A |
| | | **West Total** | - | - | - | **West Total** | 193 | 1.1 | A |
| | **Intersection:** | | - | - | - | **Intersection:** | **767** | **8.2** | **A** |
| Dunns Crossing Road & Selwyn Road | Dunns Crossing Rd North | L | 137 | 1.4 | A | L | 144 | 1.9 | A |
| | | T | 102 | 1.4 | A | T | 105 | 1.8 | A |
| | | R | 59 | 2.1 | A | R | 90 | 2.5 | A |
| | | **North Total** | 298 | 1.5 | A | **North Total** | 339 | 2.0 | A |
| | Selwyn Rd East | L | 12 | 2.0 | A | L | 14 | 3.1 | A |
| | | T | 176 | 3.3 | A | T | 353 | 4.7 | A |
| | | R | 196 | 3.7 | A | R | 197 | 5.0 | A |
| | | **East Total** | 384 | 3.4 | A | **East Total** | 565 | 4.8 | A |
| | Goulds Rd South | L | 1 | 2.4 | A | L | 3 | 5.7 | A |
| | | T | 73 | 7.1 | A | T | 67 | 10.0 | A |
| | | R | 11 | 4.7 | A | R | 10 | 8.7 | A |
| | | **South Total** | 85 | 6.7 | A | **South Total** | 80 | 9.7 | A |
| | Selwyn Rd West | L | 80 | 2.6 | A | L | 111 | 2.9 | A |
| | | T | 98 | 3.3 | A | T | 166 | 3.5 | A |
| | | R | 1 | 4.3 | A | R | 5 | 2.0 | A |
| | | **West Total** | 179 | 3.0 | A | **West Total** | 282 | 3.3 | A |
| | **Intersection:** | | **947** | **3.1** | **A** | **Intersection:** | **1266** | **4.0** | **A** |
| Dunns Crossing Road & Goulds Road | Dunns Crossing Rd North | L | 7 | 0.8 | A | L | 10 | 0.9 | A |
| | | T | 204 | 0.7 | A | T | 214 | 0.7 | A |
| | | R | 17 | 1.5 | A | R | 17 | 1.7 | A |
| | | **North Total** | 228 | 1.5 | A | **North Total** | 241 | 1.7 | A |
| | Goulds Rd East | L | 78 | 3.0 | A | L | 109 | 3.5 | A |
| | | T | 64 | 7.6 | A | T | 79 | 9.1 | A |
| | | R | 12 | 5.2 | A | R | 17 | 6.9 | A |
| | | **East Total** | 153 | 7.6 | A | **East Total** | 205 | 9.1 | A |
| | Dunns Crossing Rd South | L | 17 | 0.1 | A | L | 19 | 0.0 | A |
| | | T | 245 | 0.0 | A | T | 245 | 0.0 | A |
| | | R | 89 | 1.9 | A | R | 113 | 2.6 | A |
| | | **South Total** | 351 | 1.9 | A | **South Total** | 377 | 2.6 | A |
| | Goulds Rd West | L | 4 | 0.5 | A | L | 5 | 1.5 | A |
| | | T | 17 | 5.3 | A | T | 27 | 6.3 | A |
| | | R | 7 | 4.0 | A | R | 10 | 5.7 | A |
| | | **West Total** | 28 | 5.3 | A | **West Total** | 42 | 6.3 | A |
| | **Intersection:** | | **761** | **7.6** | **A** | **Intersection:** | **865** | **9.1** | **A** |
| Dunns Crossing Road & Carter Road 1 | Dunns Crossing Rd North | T | 219 | 2.5 | A | T | 223 | 2.4 | A |
| | | R | 3 | 1.8 | A | R | 3 | 0.7 | A |
| | | **North Total** | 222 | 2.5 | A | **North Total** | 226 | 2.4 | A |
| | Carter Road 1 South | L | 16 | 1.1 | A | L | 29 | 1.3 | A |
| | | R | 238 | 3.2 | A | R | 229 | 3.3 | A |
| | | **South Total** | 254 | 3.2 | A | **South Total** | 258 | 3.3 | A |
| | Dunns Crossing Rd West | L | 6 | 1.6 | A | L | 11 | 2.3 | A |
| | | R | 17 | 2.5 | A | R | 28 | 2.4 | A |
| | | **West Total** | 24 | 2.5 | A | **West Total** | 38 | 2.4 | A |
| | **Intersection:** | | **499** | **3.2** | **A** | **Intersection:** | **522** | **3.3** | **A** |
| Dunns Crossing Road & Carter Road 2 | Dunns Crossing Rd North | L | 13 | 1.9 | A | L | 15 | 2.0 | A |
| | | T | 200 | 3.1 | A | T | 206 | 3.2 | A |
| | | R | 57 | 3.5 | A | R | 78 | 3.8 | A |
| | | **North Total** | 271 | 3.5 | A | **North Total** | 299 | 3.8 | A |
| | Carter Road 2 East | L | 3 | 2.1 | A | L | 3 | 2.0 | A |
| | | T | 6 | 5.5 | A | T | 6 | 5.7 | A |
| | | R | 16 | 5.5 | A | R | 16 | 7.8 | A |
| | | **East Total** | 25 | 5.5 | A | **East Total** | 25 | 7.8 | A |
| | Dunns Crossing Rd South | L | 26 | 2.0 | A | L | 25 | 2.0 | A |
| | | T | 227 | 2.6 | A | T | 221 | 2.7 | A |
| | | R | 3 | 1.9 | A | R | 4 | 3.8 | A |
| | | **South Total** | 256 | 2.6 | A | **South Total** | 251 | 3.8 | A |
| | Carter Road 2 West | L | 16 | 5.9 | A | L | 21 | 5.7 | A |
| | | T | 11 | 6.5 | A | T | 13 | 9.4 | A |
| | | R | 19 | 6.9 | A | R | 17 | 7.2 | A |
| | | **West Total** | 45 | 6.9 | A | **West Total** | 51 | 9.4 | A |

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | **Intersection:** | | **597** | **6.9** | **A** | **Intersection:** | **626** | **9.4** | **A** |
| Dunns Crossing Road & Arbor Green Boulevard | Dunns Crossing Rd North | L | 131 | 2.7 | A | L | 131 | 4.3 | A |
| | | T | 216 | 3.1 | A | T | 235 | 4.4 | A |
| | | R | 15 | 1.7 | A | R | 82 | 4.1 | A |
| | | **North Total** | 362 | 2.9 | A | **North Total** | 449 | 4.3 | A |
| | Arbor Green Blvd East | L | 30 | 1.9 | A | L | 37 | 3.8 | A |
| | | T | 125 | 2.7 | A | T | 222 | 4.8 | A |
| | | R | 101 | 3.4 | A | R | 111 | 5.2 | A |
| | | **East Total** | 256 | 2.9 | A | **East Total** | 370 | 4.8 | A |
| | Dunns Crossing Rd South | L | 69 | 2.7 | A | L | 62 | 5.0 | A |
| | | T | 181 | 2.9 | A | T | 185 | 5.7 | A |
| | | R | 9 | 2.0 | A | R | 11 | 5.1 | A |
| | | **South Total** | 258 | 2.8 | A | **South Total** | 258 | 5.5 | A |
| | Arbor Green Blvd West | L | 37 | 0.7 | A | L | 82 | 0.6 | A |
| | | T | 97 | 0.9 | A | T | 175 | 0.8 | A |
| | | R | 24 | 1.1 | A | R | 26 | 1.0 | A |
| | | **West Total** | 158 | 0.8 | A | **West Total** | 283 | 0.7 | A |
| | **Intersection:** | | **1034** | **2.6** | **A** | **Intersection:** | **1359** | **3.9** | **A** |
| Dunns Crossing Road & Lowes Road | Dunns Crossing Rd North | L | 224 | 6.1 | A | L | 222 | 8.7 | A |
| | | T | 647 | 7.0 | A | T | 777 | 9.5 | A |
| | | R | 154 | 6.7 | A | R | 181 | 9.3 | A |
| | | **North Total** | 1024 | 6.8 | A | **North Total** | 1180 | 9.3 | A |
| | Lowes Rd East | L | 83 | 15.9 | B | L | 85 | 29.9 | C |
| | | T | 44 | 16.2 | B | T | 46 | 27.7 | C |
| | | R | 66 | 17.2 | B | R | 60 | 32.7 | C |
| | | **East Total** | 194 | 16.4 | B | **East Total** | 191 | 30.3 | C |
| | Dunns Crossing Rd South | L | 1 | 4.2 | A | L | 1 | 3.2 | A |
| | | T | 380 | 5.9 | A | T | 445 | 7.7 | A |
| | | R | 60 | 5.4 | A | R | 67 | 6.5 | A |
| | | **South Total** | 441 | 5.9 | A | **South Total** | 514 | 7.6 | A |
| | Lowes Rd West | L | 149 | 1.3 | A | L | 177 | 1.5 | A |
| | | T | 57 | 1.2 | A | T | 65 | 1.2 | A |
| | | R | 2 | 0.7 | A | R | 3 | 0.9 | A |
| | | **West Total** | 208 | 1.3 | A | **West Total** | 245 | 1.4 | A |
| | **Intersection:** | | **1867** | **6.9** | **A** | **Intersection:** | **2130** | **9.8** | **A** |
| Dunns Crossing Road & SH1 | Dunns Crossing Rd North | L | 91 | 8.8 | A | L | 92 | 10.5 | B |
| | | T | 284 | 12.0 | B | T | 326 | 13.1 | B |
| | | R | 69 | 9.3 | A | R | 69 | 10.1 | A |
| | | **North Total** | 444 | 10.9 | B | **North Total** | 486 | 12.2 | B |
| | SH1 East | L | 627 | 13.0 | B | L | 682 | 22.3 | C |
| | | T | 736 | 17.6 | B | T | 741 | 28.2 | C |
| | | R | 94 | 17.5 | B | R | 91 | 27.8 | C |
| | | **East Total** | 1457 | 15.6 | B | **East Total** | 1515 | 25.5 | C |
| | Dunns Crossing Rd South | L | 109 | 6.2 | A | L | 116 | 6.3 | A |
| | | T | 139 | 10.5 | A | T | 142 | 10.3 | A |
| | | R | 222 | 8.8 | A | R | 253 | 9.2 | A |
| | | **South Total** | 470 | 8.7 | A | **South Total** | 512 | 8.8 | A |
| | SH1 West | L | 61 | 4.7 | A | L | 63 | 4.4 | A |
| | | T | 540 | 7.2 | A | T | 548 | 7.8 | A |
| | | R | 242 | 8.1 | A | R | 253 | 8.4 | A |
| | | **West Total** | 844 | 7.3 | A | **West Total** | 864 | 7.7 | A |
| | **Intersection:** | | **3216** | **11.8** | **B** | **Intersection:** | **3376** | **16.5** | **B** |
| Springston Rolleston Road & Selwyn Road | Springston Rolleston Rd North | L | 80 | 3.7 | A | L | 83 | 4.2 | A |
| | | T | 252 | 4.6 | A | T | 264 | 5.2 | A |
| | | R | 64 | 4.2 | A | R | 81 | 5.2 | A |
| | | **North Total** | 396 | 4.3 | A | **North Total** | 428 | 5.0 | A |
| | Selwyn Rd East | L | 13 | 6.8 | A | L | 14 | 10.1 | A |
| | | T | 453 | 8.5 | A | T | 532 | 11.9 | B |
| | | R | 141 | 8.5 | A | R | 136 | 11.4 | B |
| | | **East Total** | 607 | 8.4 | A | **East Total** | 682 | 11.8 | B |
| | Springston Rolleston Rd South | L | 215 | 10.1 | A | L | 229 | 15.1 | B |
| | | T | 345 | 10.4 | A | T | 349 | 15.5 | B |
| | | R | 26 | 9.6 | A | R | 26 | 13.9 | B |
| | | **South Total** | 586 | 10.3 | A | **South Total** | 605 | 15.3 | B |
| | Selwyn Rd West | L | 96 | 8.5 | A | L | 103 | 8.4 | A |
| | | T | 237 | 7.7 | A | T | 273 | 8.5 | A |
| | | R | 107 | 7.9 | A | R | 124 | 8.6 | A |
| | | **West Total** | 440 | 7.9 | A | **West Total** | 501 | 8.5 | A |
| | **Intersection:** | | **2030** | **8.1** | **A** | **Intersection:** | **2215** | **10.7** | **B** |
| Lincoln Rolleston Road & Selwyn Road | Lincoln Rolleston Rd North | T | 356 | 5.2 | A | T | 359 | 5.1 | A |
| | | R | 8 | 3.3 | A | R | 8 | 3.6 | A |
| | | **North Total** | 364 | 5.2 | A | **North Total** | 368 | 5.1 | A |
| | Selwyn Rd East | L | 731 | 2.4 | A | L | 802 | 2.4 | A |
| | | T | 607 | 2.8 | A | T | 598 | 3.0 | A |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Lincoln Rolleston Road & Selwyn Road | | **East Total** | 1338 | 2.6 | A | **East Total** | 1400 | 2.7 | A |
| | Selwyn Rd West | L | 7 | 3.4 | A | L | 8 | 3.6 | A |
| | | R | 295 | 8.6 | A | R | 325 | 8.3 | A |
| | | **West Total** | 302 | 8.5 | A | **West Total** | 333 | 8.2 | A |
| | **Intersection:** | | **2004** | **3.9** | **A** | **Intersection:** | **2101** | **4.0** | **A** |

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