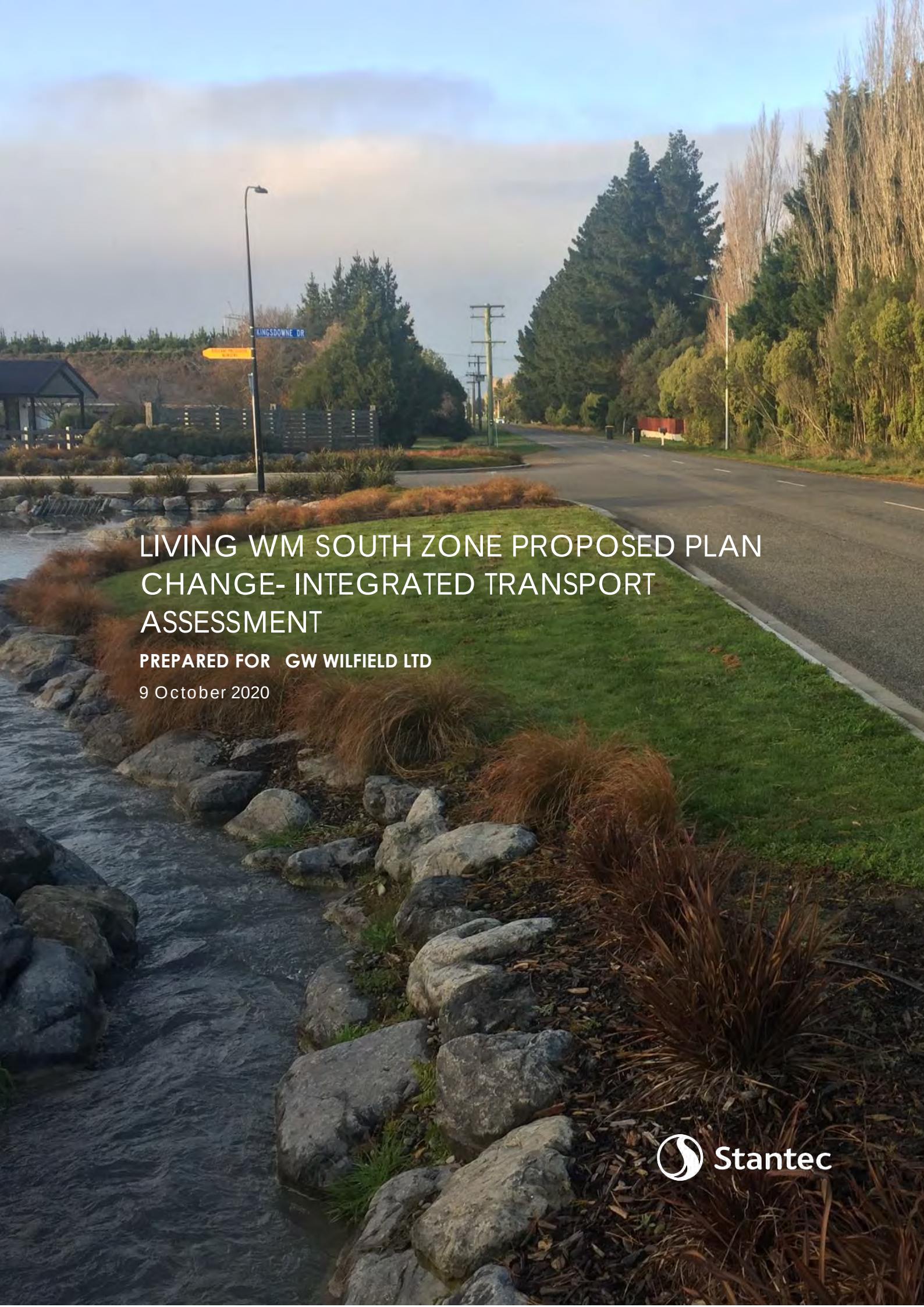
Appendix D

Integrated Traffic Assessment



LIVING WM SOUTH ZONE PROPOSED PLAN CHANGE- INTEGRATED TRANSPORT ASSESSMENT

PREPARED FOR GW WILFIELD LTD

9 October 2020

Stantec

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GW Wilfield Ltd

Living WM South Zone Proposed Plan Change- Integrated Transport Assessment

CONTENTS

APPENDICES

1. Introduction

GW Wilfield Ltd proposes a Private Plan Change (PPC) to the Selwyn District Plan to re-zone approximately 33.4ha of Inner Plains zoned land to the south of West Melton to Living West Melton (Living WM) South.

The land is to the south of the existing Wilfield subdivision, which is subject to an ongoing PPC (Plan Change 59) to re-zone it from a combination of Living 2 and Living 2A zones to a new Living WM South zone.

A development masterplan indicates that the proposed rezoning of land could result in approximately 131 additional residential lots in West Melton.

The proposed PPC area is currently zoned Inner Plains which generally provides for rural activity. The rezoning proposal which will enable residential development would generate additional traffic volumes and transport activity including walking and cycling, resulting in a need for consideration of whether different transport infrastructure is required to accommodate that activity.

This Integrated Transport Assessment (ITA) assesses the integration of the proposed rezoned land with the transport network. It considers the ability of the transport network to accommodate the additional traffic that could be generated if the proposed PPC area is re-zoned. It also assesses the proposed Outline Development Plan, with key considerations being connectivity to adjacent development for vehicles and active travel modes and vehicle access locations on Weedons Ross Road.

2. Site Location

The land subject to the proposed PPC is on the southern edge of West Melton and on the eastern side of Weedons Ross Road, as indicated in **Figure 1**. It is approximately 15km from the western edge of Christchurch via State Highway 73 (SH73) and 8km from Rolleston via Weedons Ross Road and the Christchurch Southern Motorway Stage 2 (CSM2) interchange.

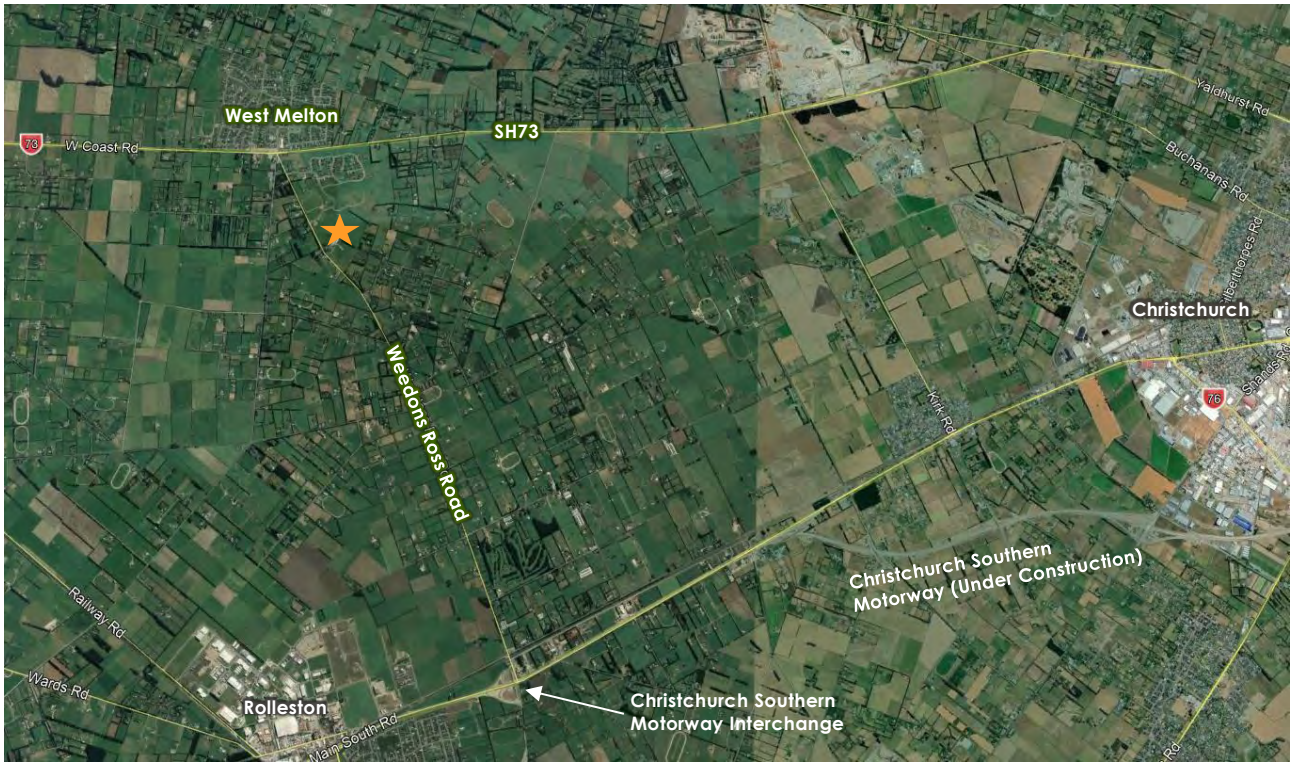


Figure 1: Site Location in Wider Context (Aerial Image Source- Google Earth)

Figure 2 outlines the area subject to the proposed PPC in the context of the Selwyn District Plan zoning. As stated, the PPC area is zoned Inner Plains which is a rural zoning. The adjacent Wilfield subdivision land is zoned L2 and L2A. The entirety of the Wilfield subdivision is subject to an ongoing PPC request to re-zone it to a new Living WM South zone. All other residentially zoned land in West Melton is on the northern side of SH73.

Figure 2: Existing District Plan Zoning

Figure 3 shows the location of the proposed PPC area relative to the West Melton village and key activities. A number of community facilities are on the southern side of SH73 including the West Melton Domain and Bowling Club, the West Melton Tavern, St Paul's Church and the West Melton Community Centre.

West Melton Primary School and the West Melton Village shopping centre are located on Weedons Ross Road north of SH73.

Figure 3: Site Location in West Melton (Aerial Image Source- Canterbury Maps)

Figure 4 shows the latest Wilfield subdivision plan. Kingsdowne Drive provides all access to the subdivision, with two intersections on Weedons Ross Road. Silver Peaks Drive is another main loop road providing property access to the north-eastern part of the subdivision. Ridgeland Way provides access to the south-eastern part of the subdivision.

Figure 4: Consented Wilfield Subdivision Layout

3. Existing Transport Infrastructure

3.1 Weedons Ross Road

Weedons Ross Road is classified as an arterial road in the Selwyn District Plan, given its important role of connecting SH73 to SH1 and the CSM2 interchange at Rolleston.

It has a rural formation along the site frontage (Photographs 1-4), with a 6.0-6.2m seal width and wide grass berms. There is a curve in the road alignment midway along the site frontage (visible in Photographs 1 and 4).

The road has an open road speed limit along much of the site frontage which reduces to 60km/h approximately 150m north of the road curve and 250m south of the southern Kingsdown Drive intersection. The 60km/h speed limit continues into West Melton. Having driven the site frontage, it is considered that the proximity to the open road speed change point, the curve in the road and the narrow carriageway mean that southbound vehicle speeds along the frontage would typically be approximately 80km/h.

Weedons Ross Road has an open road speed limit for approximately 2km south of the site, to the Newtons Road intersection. Within that section of road, the carriageway width is approximately 6m, there are several curves in the road and there is access to Melton Estate winery, a contractor's yard and other properties. South of Newtons Road, the carriageway is wider and straight in alignment, but the speed limit is reduced to 80km/h, presumably due to the presence of the Newtons Road and Maddisons Road

crossroad intersections as well as the Weedons golf course, domain and school. It is considered that an 80km/h speed limit over the short distance from the site frontage to Newtons Road would be consistent with the remainder of Weedons Ross Road and appropriate given the narrow carriageway and winding road alignment.

Photograph 1: Weedons Ross Road, South of Curve, Looking North

Photograph 2: Weedons Ross Road, South of Curve, Looking South

Photograph 3: Weedons Ross Road, North of Curve, Looking North

Photograph 4: Weedons Ross Road, North of Curve, Looking South

The two Kingsdowne Drive intersections have been formed as simple T-intersections with localised widening on the subdivision side of the road only. Photograph 5 shows the southern Kingsdowne Drive intersection.

Photograph 5: Southern Weedons Ross Road / Kingsdowne Drive Intersection

Between the two Kingsdowne Drive intersections (Photograph 6), the rural road formation is retained. There is no footpath along this section of Weedons Ross Road.

Photograph 6: Weedons Ross Road Between to Kingsdowne Drive Intersections, Looking North

The Kingsdowne Drive (North) footpath connects to Weedons Ross Road and there is a kerb cutdown crossing point for pedestrians to cross to the footpath on the western side of the road, as shown in Photograph 7.

Photograph 7: Footpath Connection to Wilfield Subdivision North of Kingsdowne Drive Intersection

North of the northern Kingsdowne Drive intersection, there is a gravel shoulder and a sealed footpath with kerb and channel on the western side of the road along the church frontage. Further north (i.e. close to the West Melton Road intersection) the seal is widened to provide for car parking outside the businesses.

3.2 Kingsdowne Drive

Kingsdowne Drive is a loop road which provides the only two points of access to the Wilfield subdivision currently. At the northern and southern ends of the subdivision, Kingsdowne Drive meets Weedons Ross Road at priority-control T-intersections. Within the subdivision, Kingsdowne Drive has a 9m wide carriageway and one footpath, as shown in Photograph 8.

Photograph 8: Kingsdowne Drive Looking West, Ridgeland Way on Left

3.3 Ridgeland Way

Ridgeland Way, shown in Photograph 9, is currently formed as a short cul-de-sac with an 8m wide carriageway and one footpath. As shown in Photograph 8, it meets Kingsdowne Drive at a standard local road T-intersection.

Photograph 9: Ridgeland Way, Looking Towards Kingsdowne Drive

3.4 SH73

Along the Wilfield subdivision frontage, SH73 is formed as a two-lane rural road. Photograph 10 shows SH73 along the subdivision frontage. The road has a generally straight east to west alignment, with one curve at the Weedons Ross Road intersection.

Photograph 10: Wilfield Subdivision on SH73 Frontage - Looking West

There is a footpath on the southern side of SH73 which runs from the Weedons Ross Road intersection to a crossing point between Wilfield and Gainsborough. Photograph 11 shows a pedestrian refuge island which has been installed at the crossing point. This was put in place instead of the underpass referenced in the District Plan subdivision rules (rule 12.1.3.55 (b)).

Photograph 11: SH73 Footpath and Pedestrian Crossing Point

The 70km/h speed limit restriction for West Melton starts outside the Wilfield subdivision, approximately 500m east of the Weedons Ross Road intersection and in advance of the pedestrian crossing point. As part of corridor improvements, the speed limit was relocated from its previous position closer to the Weedons Ross Road intersection.

3.5 SH73 / Weedons Ross Road Intersection

Weedons Ross Road meets SH73 at a priority-control crossroad intersection (Photographs 12 and 13) with STOP signs on Weedons Ross Road. There are right turn bays marked on both SH73 approaches. Both Weedons Ross Road approaches only have sufficient width for one lane of queuing traffic, although there is space for two vehicles at the stop line.

Photograph 12: SH73 / Weedons Ross Road Intersection, from SH73 Eastern Approach

Photograph 13: Southern Approach to Weedons Ross Road / SH73 Intersection, West Melton Road on Left

West Melton Road meets the western side of Weedons Ross Road only approximately 15m south of the SH73 intersection.

3.6 Off-Road Cycle / Pedestrian Provision

Generally, within the existing Wilfield subdivision, pedestrians are provided with footpaths within the road corridors and cyclists are expected to share the subdivision roads with traffic.

There are several off-road connections, primarily intended for pedestrians, but which can also be used by cyclists. These include a link from the north-western corner of the subdivision to the crossing point on SH73, linking to the Gainsborough subdivision across the road.

3.7 Bus Network

Metro operates an express commuter bus service on weekdays from Darfield to Christchurch City in the morning, with a return in the evening. The service has stops in Kirwee and West Melton. As shown in **Figure 5**, the service stops at West Melton School and Preston Downs subdivision on Weedons Ross Road and on Halkett Road outside the Gainsborough subdivision. The service stops in West Melton at 7:30am on the inbound service, and 5:30pm on the outbound service. The service takes approximately 45 minutes in each direction between West Melton and the city centre bus exchange.

Figure 5: 86 Darfield – City Bus Route through West Melton

Rolleston High School is serviced by a West Melton bus route. As indicated by **Figure 6**, currently it does not pass the site, although such services respond to demand.

Figure 6: Rolleston High School Bus Route

4. Existing Travel Patterns

4.1 Daily Traffic Patterns

Daily traffic volumes for SH73, in the vicinity of West Melton, Weedons Ross Road and West Melton Road have been sourced from NZTA and the Selwyn District Council (SDC) and are shown in **Table 4-1**. The SH73 volumes are annual average daily traffic (AADT) volumes for 2019. The count location east of Dawsons Road is approximately 5km east of West Melton, while the count location east of Aylesbury Road is approximately 7km west of West Melton.

Table 4-1: Daily Traffic Volumes on Surrounding Roads

Count Location	Year	Daily Traffic Volumes
SH73 east of Dawsons Road	2019	13,300 vpd
SH73 east of Aylesbury Road	2019	7,200 vpd
Weedons Ross Road south of West Melton	2018	1,200 vpd
West Melton Road west of Weedons Ross Road	2019	1,500 vpd

The AADT at the SH73 count site west of West Melton has grown at approximately 3.3% per annum over the last 10 years.

4.2 Hourly Patterns

Figure 7 shows the pattern of hourly traffic volumes on Weedons Ross Road, south of SH73 (between Newtons Road and Maddisons Road), recorded by the Selwyn District Council over the course of a seven-day period in February 2017. The main characteristics of the two-way hourly traffic patterns can be summarised as follows:

- The weekday morning and evening two-way peak hour traffic volumes are approximately 180 vehicles per hour (vph) between 7:00am – 8:00am (of which 110vph is southbound), and 5:00pm – 6:00pm (of which approximately 150vph is northbound);
- The two-way weekday traffic volumes drop gradually to approximately 100vph around midday;
- The weekend traffic volumes are typically about 150vph between 11:00am – 5:00pm.

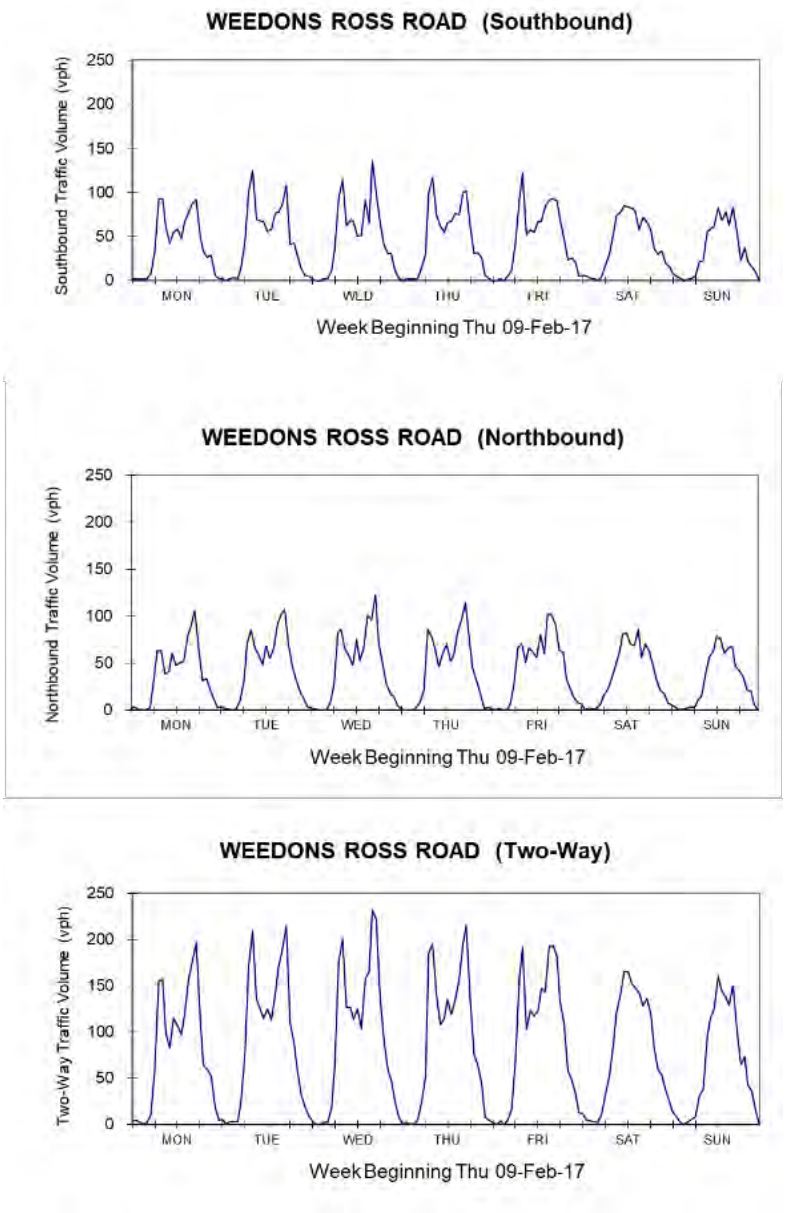


Figure 7: Weedons Ross Road Traffic Volumes- February 2017

4.3 Intersection Traffic Volumes

Stantec undertook turning movement surveys at four key intersections on Wednesday 20 May 2018. The intersections surveyed were:

- SH73 / Weedons Ross Road;
- Weedons Ross Road / West Melton Road;
- Weedons Ross Road / Kingsdowne Drive North; and
- Weedons Ross Road / Kingsdowne Drive South.

The traffic surveys were conducted during the morning and evening peak periods of 7:00am to 9:00am and 2:45pm to 6:00pm respectively. The evening traffic survey included the end of the school day which generates a short duration peak from 2:45pm to 3:15pm. The peak hours in each period occurred from 7:15am to 8:15am and 4:45pm to 5:45pm. **Figures 8** and **9** summarise the surveyed peak hour traffic volumes in each period.

Traffic volumes on SH73 eastbound are relatively high in the morning peak period as drivers are headed to Christchurch for work and vice versa in the evening.

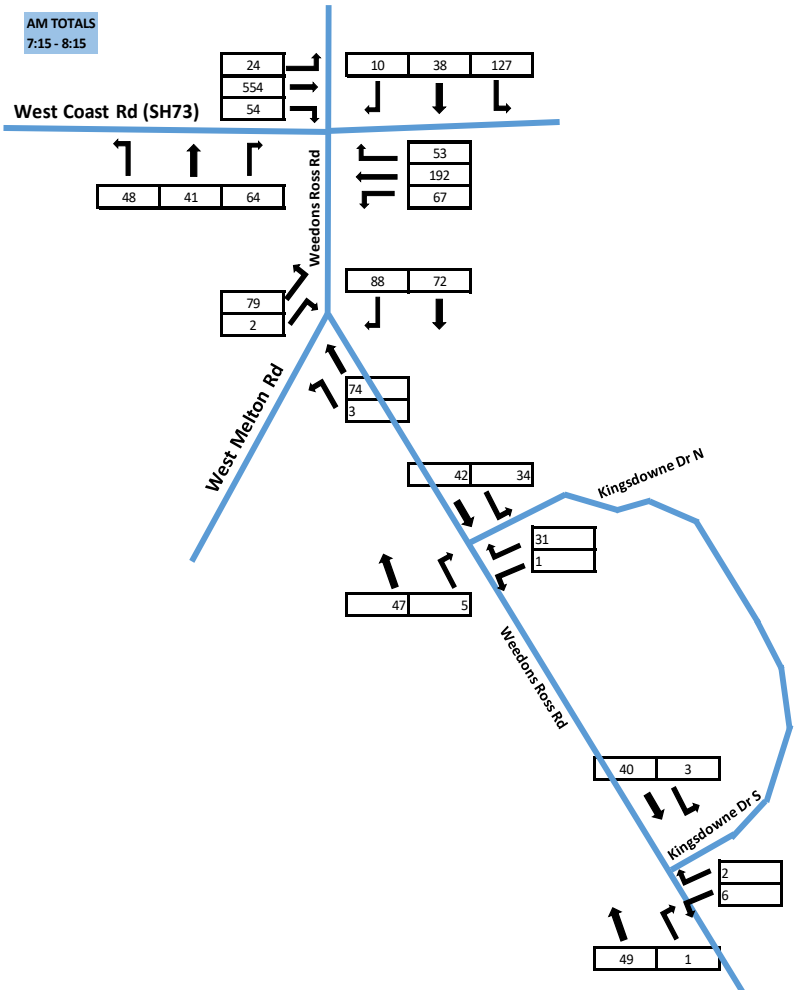


Figure 8: Existing AM Peak Hour (7:15am-8:15am) Turning Volumes (May 2018)

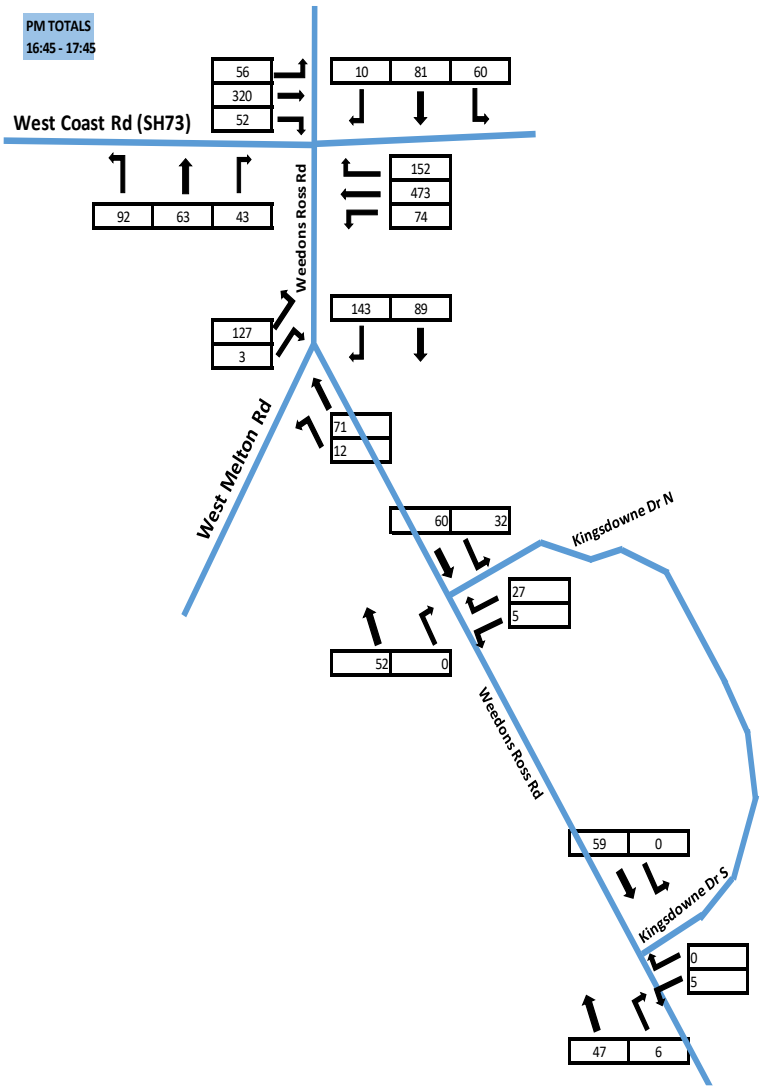


Figure 9: Existing PM Peak Hour (16:45pm-17:45pm) Turning Volumes (May 2018)

4.4 SH73 / Weedons Ross Road Intersection Performance

From the turning movement survey video footage, a delay survey was carried out for the SH73 / Weedons Ross Road intersection. Average stopline delays (includes queuing time) for the two Weedons Ross Road approaches were calculated and are reported in Table 4-2.

Table 4-2: Average Weedons Ross Road Approach Peak Hour Stop line Delays at SH73 Intersection

Approach	AM Peak Average Delay	PM Peak Average Delay
Weedons Ross Road South	32s	49s
Weedons Ross Road North	17s	30s

The intersection is currently operating with quite high delay during peak times. The delays on the southern approach to the intersection are higher than those on the northern approach due to the higher right turn volumes and represent levels of service D-E for drivers.

During the morning peak period, up to six vehicles were observed queued on the southern Weedons Ross Road approach to the intersection, with up to four vehicles queued on West Melton Road. From observations, the queues do clear and there are times where there is little or no queuing. There is interaction between the queue on Weedons Ross Road and the queue on West Melton Road given the proximity of the two intersections.

Figures 10 and **11** below show the average delays on the two Weedons Ross Road intersection approaches by 15-minute periods. The average delays clearly peak during some 15-minute periods and are much lower during others. This fits with observations that queues do clear and there are periods with minimal queuing.

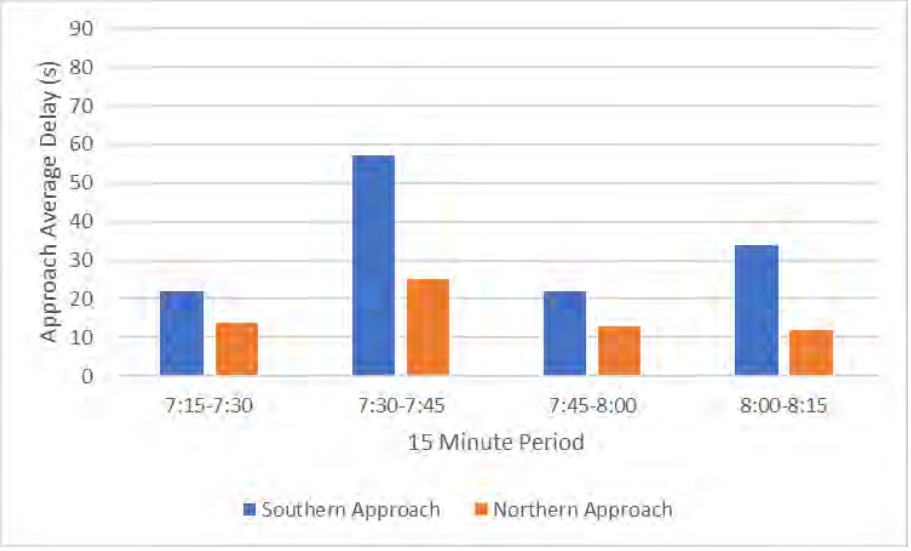


Figure 10: Morning Peak Hour Approach Average Delays by 15 Minute Period

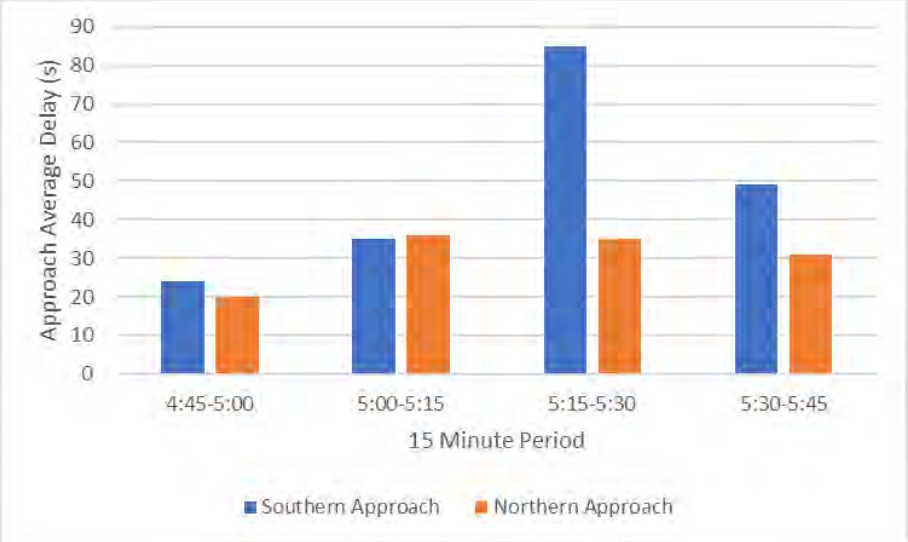


Figure 11: Evening Peak Hour Approach Average Delays by 15 Minute Period

5. Road Safety

A review of the reported road crashes surrounding the area of the proposed Plan Change has been carried out using NZTA's Crash Analysis System. The review covered the SH73 / Weedons Ross Road intersection, SH73 250m to the west and 1.2km to the east, Weedons Ross Road 250m to the north and approximately 3.7km to the south to the Newtons Road intersection, and West Melton Road for 250m from the Weedons Ross Road intersection. It also covered the existing Wilfield subdivision. Crashes reported during the most recent full five-year period of 2015 – 2019 have been analysed as well as any crashes reported in 2020.

As at September 2020 and as indicated in **Figure 12**, a total of 11 crashes have been reported across the search area since the start of 2015.

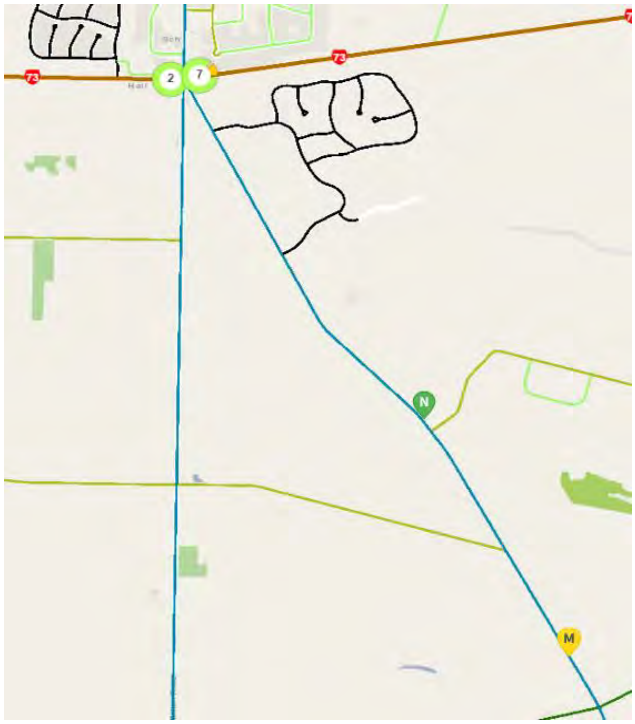


Figure 12: Reported Crashes in Vicinity of Proposed PPC Area

Most of the crashes (eight including one minor injury crash) occurred in West Melton. Five of those occurred at the SH73 / Weedons Ross Road intersection (two in 2020) and most involved vehicles coming out of the side road being hit. Other crashes within the village occurred at commercial driveways.

The remaining three crashes were loss-of-control crashes which are typical rural crash types. Two of those were isolated incidents which occurred on Weedons Ross Road south of the site.

No crashes have been reported within the Wilfield subdivision, at the Kingsdowne Drive intersections on Weedons Ross Road or at property accesses on the rural section of Weedons Ross Road.

6. Future Development

6.1 Christchurch Southern Motorway

The CSM2 is currently under construction and nearing completion. It is opening to traffic in stages, with priority on opening the citybound lanes. These sections of work are expected to be completed in October/November 2020, with the finishing works on the CSM2 currently programmed for completion in early 2021. The southern end of the CSM2 alignment is shown below. The CSM2 will be expected to improve travel times and travel time reliability from Rolleston to Christchurch. The CSM2 could provide a route option for travel from Wilfield to the southern side of Christchurch.

Figure 13: CSM2 Alignment- Southern End (NZTA Website)

6.2 SH73 Speed Limit

NZTA has announced that from 12 October 2020, SH73 through West Melton will have a reduced 60km/h speed limit, as indicated in **Figure 14**.

Figure 14: Extent of 60km/h Speed Limit in West Melton (NZTA Website)

6.3 Weedons Ross Road Seal Widening

The Selwyn District Council has proposed to improve seal widths and address ongoing maintenance issues, such as edge breaks, along Weedons Ross Road (along the 5.3km from Maddisons Road to near West Melton). The project was previously scheduled for completion in 2020/2021. The project is now likely to be funded as a subsidised low-cost low risk project, likely due for completion no earlier than 2021/2022.

6.4 SH73 / Weedons Ross Road Intersection Upgrade

Traffic signals are proposed to be installed at the SH73 / Weedons Ross Road intersection as part of the NZ Upgrade Programme. According to the NZTA website, the 'Canterbury Package' of the programme, which includes the West Melton intersection project, has a scheduled construction period of late 2022 to 2024/25.

No details on the possible traffic signalised intersection design is available at this time.

The traffic signals will benefit the community by improving access to the highway from Weedons Ross Road and providing a safe location for pedestrians to cross the highway.

6.5 Future Cycling Network

The Selwyn District Council Walking and Cycling Strategy Action Plan identifies a potential district cycle route on West Melton Road linking West Melton to Rolleston. The route is at this stage planned for 2026/27.

6.6 Public Transport Network

The Canterbury Regional Public Transport Plan 2018-28 provides a transport network with retention of a high frequency route between Rolleston and the CBD via Hornby and Riccarton. There is no indication of additional services being provided to or through West Melton. Long term, rapid transit is considered for linkage between Christchurch and Rolleston.

If additional public transport servicing West Melton is considered to respond to demand, it would likely focus on connections to hubs where park n ride opportunities exist.

A wider business case "PT Futures" is currently being developed to refine the business case for investment in public transport.

6.7 Plan Change 59

Private Plan Change 59 proposed to re-zone the Wilfield subdivision from a mixture of Living 2 and Living 2A to a new Living West Melton (Living WM) South Zone. This will allow balance lots to be subdivided to a similar density as existing residential subdivision. This would potentially increase the lot yield of the area from a maximum of 180 lots to approximately 252 lots, an increase of approximately 72 lots. The PC59 zoning will be supported by a replacement Outline Development Plan (ODP) covering the PC59 area. No new road connections to Weedons Ross Road are included.

7. Proposed Plan Change

7.1 Overview

It is proposed to re-zone approximately 33.4ha of rural land to the south of West Melton for residential use. A concept development plan indicates that approximately 131 residential lots could be developed in the area.

Figure 15 shows an amended Outline Development Plan (ODP) for the Living WM South zone incorporating the proposed re-zoning. A full version of the ODP is contained in **Appendix A** of this report.

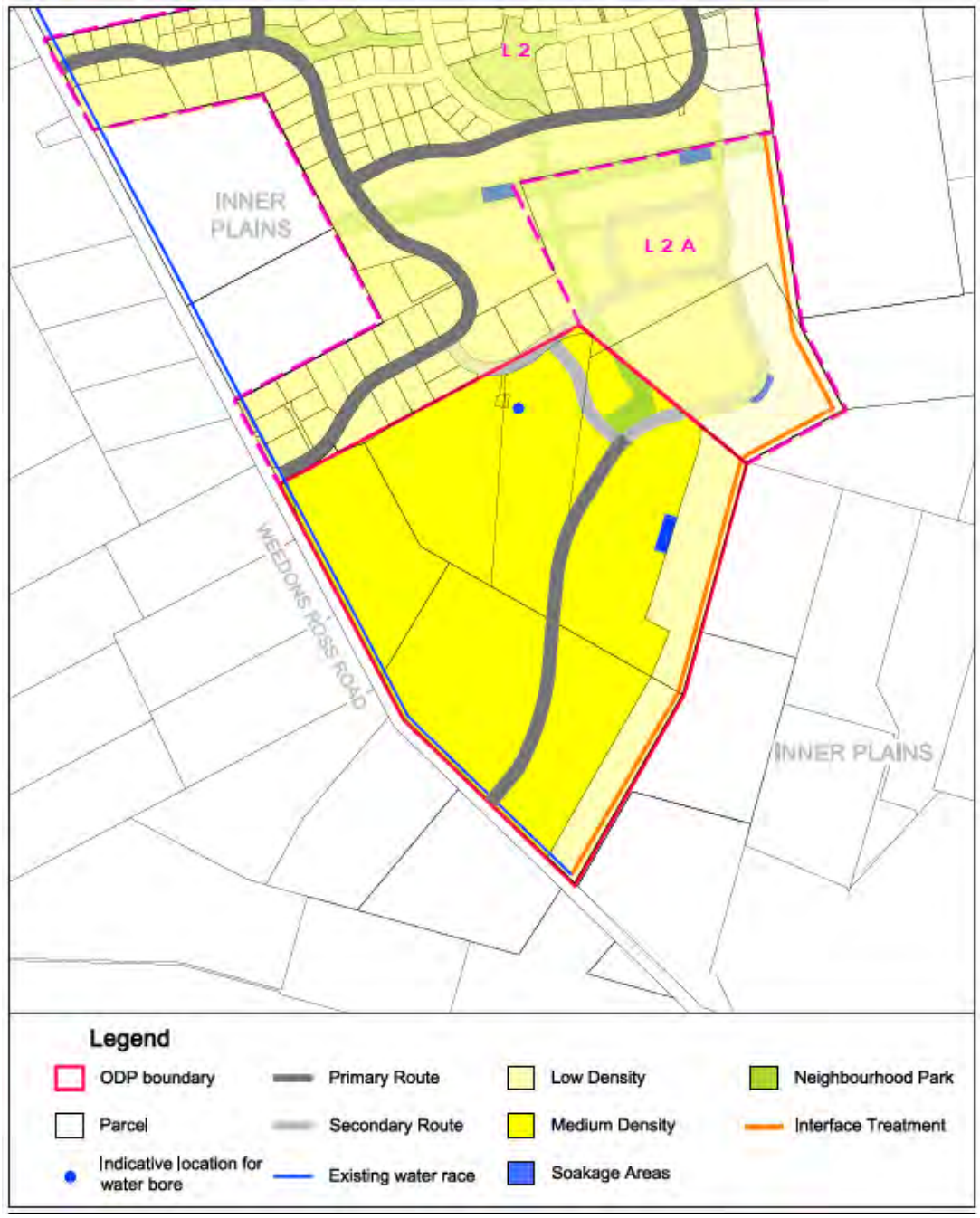


Figure 15: Proposed Outline Development Plan for Proposed Living WM South Zone

7.2 Vehicle Access to Weedons Ross Road

Primary vehicle access to the PPC area is proposed from Weedons Ross Road. As shown on the proposed ODP, the access location is proposed towards the southern end of the Weedons Ross Road frontage. It is proposed midway between the 557 and 581 Weedons Ross Road driveways, to allow flexibility for localised intersection provision and to minimise impacts on those driveways.

This location is far enough from the curve in the road to the north-west that a sightline of approximately 210m will be available in that direction (Photograph 12), exceeding the Austroads Safe Intersection Sight Distance requirement of 181m for an 80km/h design speed. As outlined earlier, it is considered that southbound vehicle speeds would typically be approximately 80km/h and the available sightline will be acceptable. Furthermore, it is considered that an 80km/h speed limit would be appropriate along the site frontage once it is developed and it may be warranted along the remainder of the road to Newtons Road regardless.

Photograph 14: Sightline to North from Proposed Intersection Location

Good visibility will be available in the other direction, with a clear sightline of in excess of 400m available.

The formation of the intersection, including whether widening and/or auxiliary turning lanes would be warranted, would be determined at the subdivision design stage. The design will depend on the speed environment, including whether the speed limit change is extended further out to include the intersection in the urban area.

Secondary access to the PPC area will be via a connection to Ridgeland Way. It is intended as a means of integration with the existing subdivision. Other locations for a secondary connection, i.e. directly to Kingsdowne Drive, are not available due to existing residential lot ownership.

Ridgeland Way will also continue into the PPC area, providing a more direct route to/from the south for people living in the south-eastern part (currently L2A) of the existing Wilfield subdivision.

7.3 Internal Roading

The ODP shows key structuring elements of the future road network. It shows the main road through the PPC area as a primary route as far as the internal intersection with the short link road to Ridgeland Way. Other roads including the continuation of Ridgeland Way are indicated as secondary roads. The exact alignments of these roads and other minor local roads would be designed through the subdivision design stage. Roads within Wilfield are provided with either 9m or 8m carriageway widths depending on their status and 20m wide corridors and a consistent approach for the proposed PPC area is expected given the low density of residential development proposed.

7.4 Pedestrians / Cyclists

Footpaths will be able to be provided along all roads within the PPC area as they are throughout the wider Wilfield subdivision.

Off-road shared pedestrian / cycle paths are proposed within the reserve linking to Wilfield and out to Weedons Ross Road just south of the southern Kingsdowne Drive intersection. An off-road path is proposed from that point along the Wilfield side of Weedons Ross Road, connecting to the existing infrastructure to the north of the northern Kingsdowne Drive intersection. These off-road paths are indicated in the ODP Transport Plan (**Figure 16**).

Cyclists will be able to use the off-road links through Wilfield and would be expected to share subdivision roads with traffic, which is typical for local roads in residential subdivisions.

It is considered existing subdivision standards can suitably address future road design requirements, and specific cross-sections to cover the PPC area are not necessary.

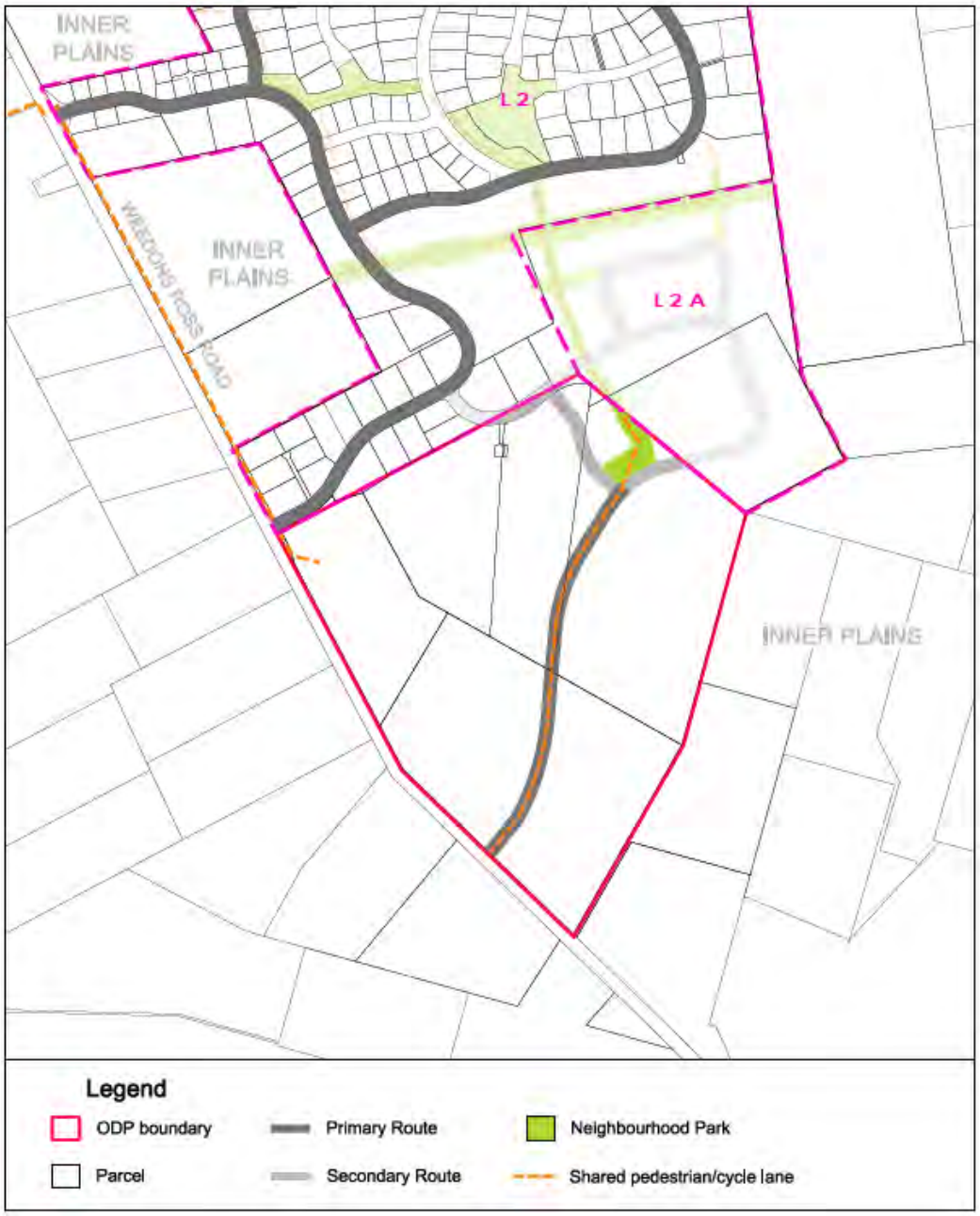


Figure 16: ODP Transport Plan

7.5 Public Transport

Public transport uptake by residents of the proposed PPC area would likely be low, due to the long walking distance to the village centre. If a bus service connected West Melton to Rolleston, there would be an option to utilise Kingsdowne Drive to minimise walk distances. As most of the Wilfield subdivision is already constructed, and there is uncertainty with the future provision of services when Wilfield is fully developed, specific public transport infrastructure is not included in the Plan Change provisions. However, the well-connected pedestrian network does facilitate walking access if a route is provided.

As such, if a service is provided, the zone provides a basic level of public transport accessibility for more mobile residents and visitors, or for residents to use a park and ride option. It is noted that the distance from the site to the Christchurch CBD via the Rolleston CSM2 interchange and CSM2 is similar to the use of SH73, and as such park and ride at Rolleston would be a possible option for commuting to the Christchurch CBD

As noted earlier, West Melton is serviced by a school bus route to Rolleston. It could be expected that as demand from Wilfield and the PPC area, a stop along Weedons Ross Road is likely to be feasible to reduce student walk distances.

8. Traffic Generation / Distribution

8.1 Traffic Generation

A daily traffic generation rate of six vehicle movements per day (vpd) per household has been used and accepted previously in West Melton. This is lower than the 9-10vpd per household rate used in cities due to the rural location of West Melton and the likelihood of residents making linked trips e.g. visiting the supermarket and the petrol station on their way home from work in Christchurch.

It is noted that the intersection traffic counts carried out recently could not reliably be used for calculating traffic generation of the existing households due to the large proportion of houses under construction at the time and the associated unknown construction traffic generation.

It is expected that 10% of the daily traffic movements generated by the development will occur within the morning and evening peak hours.

The following table summarises the forecast traffic generation for the consented Wilfield subdivision and the potential extra lots in the Plan Change area.

Table 8-1: Site Traffic Generation Summary

Scenario	Number of Lots	Daily Traffic Generation	Peak Hour Traffic Generation
Consented Subdivision Plus Plan Change 59	252	1,510vpd	150vph
Extra Traffic Generation Associated with Proposed Re-Zoning	131	790vpd	80vph
Total	383	2,300vpd	230vph

The extra 131 lots that could be developed in the Plan Change area would represent an increase of 52% in the number of lots in the wider subdivision south of SH73. The corresponding increase in subdivision traffic generation would equate to approximately 80 vehicle movements per hour (vph) during the peak hours.

8.2 Traffic Distribution

Previously 15%-20% of traffic generated by the Wilfield subdivision was recorded to be entering from and exiting to the south along Weedons Ross Road. With the ongoing increase in employment opportunities in Rolleston and the easy access to the CSM2 via the Weedons Ross Road interchange, it is considered the proportion of traffic to/from the south will increase to at least 25%.

Based on previous analysis for West Melton using Census journey to work data, it is estimated that 10% of journeys could be to / from West Melton or the rural areas surrounding West Melton, and the remainder would be to the east towards Christchurch.

The following table contains the estimated distribution of both the traffic generated by the consented Wilfield subdivision and the additional traffic that could be generated if the proposed Plan Change is approved.

Table 8-2: Peak Hour Traffic Distribution of Wilfield Traffic (Consented Plus PC59) and Additional Traffic from Proposed Rezoning

Direction	Consented Wilfield Plus Plan Change 59	Proposed Plan Change
South- Weedons Ross Road	38vph	20vph
East- SH73	98vph	51vph
North- Weedons Ross Road	7vph	4vph
West- SH73	7vph	4vph

Based on standard residential traffic distribution, it has been assessed that 75% of traffic could be exiting the subdivision in the morning peak hour and 65% could be entering the subdivision during the evening peak hour.

9. Traffic Effects

9.1 Local Subdivision Roads

The Selwyn District Plan has guidance on new road standards, based on their position in the road hierarchy. **Figure 17** is the relevant table from the District Plan.

Type of Road	Legal Width (m)		Carriageway Width (m)		Traffic lanes	Parking lanes	Specific provision for cycles (on road or off road)	Pedestrian Provision
	Min	Max	Min	Max	Min. No. of	Min No. Of		Minimum
Local - Major	16	20	8.5	9	2	1	Optional	One side
Local - Intermediate	13	15	7	8	2	1	NA	One side

Figure 17: Selwyn District Plan Table E13.8 Road Standards

Based on the traffic generation that could potentially be served by the ODP roads within the proposed PPC area, it is considered that the primary road into the area, which could carry 100vph, would be a 'Local-Major' road as far as the intersection with the short link road to Ridgeland Way. Other roads would have a 'Local-Intermediate' status or less.

The carriageway widths that have been constructed in the Wilfield subdivision (9m Kingsdowne Drive, 9m Silver Peaks Drive, and 8m Ridgeland Way) are consistent with the relevant standards in the table and the new roads in the proposed PPC area will be able to be built to the corresponding standards.

For PC59, it was estimated that, in total, Ridgeland Way could carry up to 336vpd and 34vph during peak hours. These were considered low traffic volumes consistent with the 'Local-Intermediate' road classification. NZS4404 Land Development and Subdivision Infrastructure outlines that a suburban local road serving up to 100 households could be as narrow as 5.7m with kerbside car parking permitted within that. This confirmed that the existing Ridgeland Way carriageway width would be wide enough for its lower level local road function and to accommodate future traffic volumes if PC59 was approved.

It is considered that very few residents living in the proposed PPC area would use Ridgeland Way to travel to/from West Melton and SH73. Also, the continuation of Ridgeland Way into the PPC area would provide an alternative route to/from that part of the subdivision. As a result, the traffic volumes on Ridgeland Way (south of Kingsdowne Drive), and therefore Kingsdowne Drive, would not be expected to noticeably increase as a result of the proposed PPC.

9.2 SH73 / Weedons Ross Road Intersection

There is no need to assess the effect of additional traffic generation on the performance of the existing SH73 / Weedons Ross Road intersection given the imminent plans to upgrade it to a traffic signalised intersection. The performance of the future signalised intersection and the effect of the additional traffic that could be generated by the proposed PPC area have been modelled using SIDRA Intersection 8.

The planned layout of the signalised intersection is not known but it has been modelled with combined left turn / through lanes and separate right turn lanes on all approaches. Right turn phases have been allowed for on both the main road and side road phases.

Morning and evening peak hours have been modelled without and with the proposed PPC area developed. This analysis has made use of previously modelled traffic volumes for the PC59 application, with the 'with PC59' scenario being treated as the base for this assessment. Those modelled traffic volumes included through volumes on SH73 15% higher than those recorded at the time to allow for background traffic growth.

The following two figures show the forecast performance of the signalised intersection during the morning and evening peak hours without the proposed PPC.

Movement Performance - Vehicles

Mov ID	Turn	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
South: weedons ross s												
1	L2	51	6.0	0.528	43.9	LOS D	3.8	28.2	0.99	0.77	0.99	31.6
2	T1	44	12.0	0.528	39.3	LOS D	3.8	28.2	0.99	0.77	0.99	31.8
3	R2	122	8.0	0.794	49.4	LOS D	5.3	39.8	1.00	0.94	1.33	29.5
Approach		217	8.3	0.794	46.1	LOS D	5.3	39.8	1.00	0.86	1.19	30.4
East: sh73 e												
4	L2	78	9.0	0.398	21.2	LOS C	8.3	64.0	0.73	0.66	0.73	39.8
5	T1	233	13.0	0.398	16.6	LOS B	8.3	64.0	0.73	0.66	0.73	40.2
6	R2	56	9.0	0.426	45.9	LOS D	2.3	17.0	0.99	0.75	0.99	30.4
Approach		366	11.5	0.426	22.0	LOS C	8.3	64.0	0.77	0.67	0.77	38.3
North: weedons ross n												
7	L2	134	3.0	0.911	56.5	LOS E	8.0	57.6	1.00	1.11	1.63	28.2
8	T1	34	3.0	0.911	51.9	LOS D	8.0	57.6	1.00	1.11	1.63	28.4
9	R2	11	20.0	0.074	42.8	LOS D	0.4	3.3	0.94	0.67	0.94	31.1
Approach		178	4.0	0.911	54.8	LOS D	8.0	57.6	1.00	1.08	1.59	28.4
West: sh73 w												
10	L2	25	13.0	0.867	35.1	LOS D	29.0	209.0	0.95	1.00	1.14	34.9
11	T1	671	3.0	0.867	30.4	LOS C	29.0	209.0	0.95	1.00	1.14	35.2
12	R2	47	2.0	0.345	45.3	LOS D	1.9	13.5	0.99	0.74	0.99	30.6
Approach		743	3.3	0.867	31.5	LOS C	29.0	209.0	0.96	0.99	1.13	34.9
All Vehicles		1504	6.1	0.911	34.1	LOS C	29.0	209.0	0.92	0.90	1.11	34.0

Figure 18: Morning Peak Hour Intersection Performance Without Proposed PPC

Movement Performance - Vehicles

Mov ID	Turn	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
South: weedons ross s												
1	L2	89	0.0	0.905	61.1	LOS E	8.0	56.1	1.00	1.08	1.57	27.5
2	T1	62	2.0	0.905	56.6	LOS E	8.0	56.1	1.00	1.08	1.57	27.6
3	R2	69	7.0	0.589	52.6	LOS D	3.2	24.0	1.00	0.79	1.08	28.8
Approach		221	2.8	0.905	57.2	LOS E	8.0	56.1	1.00	0.99	1.42	27.9
East: sh73 e												
4	L2	125	7.0	0.886	38.1	LOS D	32.1	233.4	0.90	0.97	1.11	33.7
5	T1	573	4.0	0.886	33.5	LOS C	32.1	233.4	0.90	0.97	1.11	34.0
6	R2	160	3.0	0.880	58.3	LOS E	8.2	58.8	1.00	1.01	1.48	27.6
Approach		858	4.3	0.886	38.8	LOS D	32.1	233.4	0.92	0.98	1.18	32.6
North: weedons ross n												
7	L2	63	7.0	0.885	59.1	LOS E	7.5	54.2	1.00	1.05	1.51	28.0
8	T1	83	1.0	0.885	54.5	LOS D	7.5	54.2	1.00	1.05	1.51	28.2
9	R2	11	0.0	0.085	49.3	LOS D	0.5	3.2	0.96	0.67	0.96	29.6
Approach		157	3.3	0.885	56.0	LOS E	7.5	54.2	1.00	1.02	1.47	28.2
West: sh73 w												
10	L2	59	2.0	0.505	21.9	LOS C	13.5	100.0	0.74	0.67	0.74	39.8
11	T1	387	8.0	0.505	17.4	LOS B	13.5	100.0	0.74	0.67	0.74	40.1
12	R2	55	2.0	0.299	47.1	LOS D	2.3	16.7	0.97	0.74	0.97	30.1
Approach		501	6.6	0.505	21.2	LOS C	13.5	100.0	0.76	0.68	0.76	38.7
All Vehicles		1737	4.7	0.905	37.6	LOS D	32.1	233.4	0.89	0.90	1.11	32.9

Figure 19: Evening Peak Hour Intersection Performance Without Proposed PPC

Allowing for right turn phases on both the main road and the side road result in long cycle times and delays on all approaches. Overall, the intersection is forecast to operate with average delays of 34-38s and with levels of service C/D during the two peak hours.

The following two figures summarise the forecast performance of the intersection with the proposed PPC area developed.

Movement Performance - Vehicles

Mov ID	Turn	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	95% Back of Queue Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
South: Weedons Ross S												
1	L2	54	6.0	0.507	47.4	LOS D	4.4	33.2	0.99	0.77	0.99	30.7
2	T1	47	12.0	0.507	42.7	LOS D	4.4	33.2	0.99	0.77	0.99	30.9
3	R2	163	8.0	0.836	54.6	LOS D	8.0	60.1	1.00	0.96	1.35	28.3
Approach		264	8.3	0.836	51.0	LOS D	8.0	60.1	0.99	0.89	1.21	29.2
East: SH73 E												
4	L2	91	9.0	0.408	22.9	LOS C	9.6	74.2	0.72	0.67	0.72	39.0
5	T1	233	13.0	0.408	18.2	LOS B	9.6	74.2	0.72	0.67	0.72	39.4
6	R2	56	9.0	0.480	51.9	LOS D	2.6	19.3	1.00	0.75	1.00	28.9
Approach		379	11.5	0.480	24.3	LOS C	9.6	74.2	0.76	0.68	0.76	37.3
North: Weedons Ross N												
7	L2	134	3.0	0.825	53.7	LOS D	8.2	58.8	1.00	0.98	1.32	28.9
8	T1	35	3.0	0.825	49.2	LOS D	8.2	58.8	1.00	0.98	1.32	29.0
9	R2	11	20.0	0.058	44.6	LOS D	0.4	3.5	0.92	0.67	0.92	30.7
Approach		179	4.0	0.825	52.3	LOS D	8.2	58.8	1.00	0.96	1.29	29.0
West: SH73 W												
10	L2	25	13.0	0.857	35.8	LOS D	31.0	223.3	0.94	0.96	1.09	34.7
11	T1	671	3.0	0.857	31.1	LOS C	31.0	223.3	0.94	0.96	1.09	35.0
12	R2	48	2.0	0.397	51.3	LOS D	2.2	15.6	0.99	0.74	0.99	29.1
Approach		744	3.3	0.857	32.6	LOS C	31.0	223.3	0.95	0.95	1.08	34.5
All Vehicles		1566	6.2	0.857	35.9	LOS D	31.0	223.3	0.92	0.87	1.05	33.4

Figure 20: Morning Peak Hour Intersection Performance With Proposed PPC

Movement Performance - Vehicles

Mov ID	Turn	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	95% Back of Queue Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
South: weedons ross s												
1	L2	91	0.0	0.906	66.5	LOS E	8.9	62.6	1.00	1.07	1.53	26.4
2	T1	63	2.0	0.906	62.0	LOS E	8.9	62.6	1.00	1.07	1.53	26.5
3	R2	88	7.0	0.833	63.3	LOS E	4.9	36.2	1.00	0.95	1.42	26.5
Approach		242	3.1	0.906	64.2	LOS E	8.9	62.6	1.00	1.03	1.49	26.5
East: sh73 e												
4	L2	160	7.0	0.879	36.7	LOS D	35.0	254.5	0.87	0.92	1.03	34.1
5	T1	573	4.0	0.879	32.1	LOS C	35.0	254.5	0.87	0.92	1.03	34.4
6	R2	160	3.0	0.880	63.4	LOS E	9.0	64.6	1.00	1.00	1.44	26.5
Approach		893	4.4	0.880	38.5	LOS D	35.0	254.5	0.89	0.93	1.10	32.6
North: weedons ross n												
7	L2	63	7.0	0.892	65.0	LOS E	8.5	61.3	1.00	1.05	1.49	26.8
8	T1	86	1.0	0.892	60.4	LOS E	8.5	61.3	1.00	1.05	1.49	27.0
9	R2	11	0.0	0.094	55.0	LOS E	0.5	3.6	0.97	0.67	0.97	28.3
Approach		160	3.3	0.892	61.8	LOS E	8.5	61.3	1.00	1.03	1.45	27.0
West: sh73 w												
10	L2	59	2.0	0.473	21.5	LOS C	14.0	103.7	0.69	0.63	0.69	40.0
11	T1	387	8.0	0.473	16.9	LOS B	14.0	103.7	0.69	0.63	0.69	40.3
12	R2	58	2.0	0.316	51.7	LOS D	2.7	19.5	0.97	0.75	0.97	29.0
Approach		504	6.6	0.473	21.4	LOS C	14.0	103.7	0.72	0.65	0.72	38.6
All Vehicles		1799	4.7	0.906	39.2	LOS D	35.0	254.5	0.87	0.87	1.08	32.4

Figure 21: Evening Peak Hour Intersection Performance With Proposed PPC

For most movements, the level of service remains unchanged and the increases in delays resulting from the extra traffic from the proposed PPC area would be negligible. Overall, the average delay across the intersection is forecast to increase by 1-2s. In practice, the additional approximately 60vph (two-way) from the proposed PPC area that could use the SH73 intersection during peak hours equate to an extra one vehicle per minute or 1-2 per signal phase. This level of traffic increase would not have a noticeable impact on the performance of the intersection which is expected to be built with plenty of capacity to allow for future traffic growth.

9.3 Wider Road Network

It is considered that more than 25% of the proposed PPC area traffic generation could be to/from the south along Weedons Ross Road given the proximity to Rolleston and the accessibility to the CSM2 via the Weedons Ross Road interchange. However, it has conservatively been assessed that the proposed PPC area could generate an additional 51vph (two-way) on SH73 east of West Melton. This represents

approximately an extra one vehicle movement, either westbound or eastbound, per minute during peak times. It is considered that this level of increase in traffic would not be noticeable on the state highway.

The proposed PPC area could generate an additional 20-30vph to the south. Weedons Ross Road carries relatively low traffic volumes for an arterial road connecting to a full motorway interchange and it is considered that the low volumes of additional traffic that could be generated on the road by the proposed PPC will readily be able to be accommodated recognising improvements to the road are scheduled in the Selwyn District Council Long Term Plan.

10. Planning Requirements

10.1 Selwyn District Plan

10.1.1 Transport Network Objectives and Policies

Section B2.1 of the District Plan contains objectives and policies related to transport network issues. Relevant policies are listed below in italics and each policy is followed by discussion on the degree to which the proposed Plan Change achieves the policies.

> *Policy B2.1.2- Manage effects of activities on the safe and efficient operation of the District's existing and planned road network, considering the classification and function of each road in the hierarchy.*
>
> *Policy B2.1.3- Recognise and protect the primary function of roads classified as State Highways and Arterial Roads to ensure the safe and efficient flow of 'through' traffic en route to its destination.*
>
> *Policy B2.1.12- Address the impact of new residential or business activities on both the local roads around the site and the District's road network, particularly Arterial Road links with Christchurch City.*

These three policies are closely related.

As discussed previously, additional traffic that could be generated by the proposed PPC would be accommodated on the wider road network, recognising improvements are planned for a signalised intersection of SH73 / Weedons Ross Road and to Weedons Ross Road with linkage to the CSM2. Changes in traffic on SH73 east and west of West Melton will be comparatively small.

> *Policy B2.1.4(a)- Ensure all sites, allotments or properties have legal access to a legal road which is formed to the standard necessary to meet the needs of the activity considering:*
> *- the number and type of vehicle movements generated by the activity;*
> *- the road classification and function; and*
> *- any pedestrian, cycle, public transport or other access required by the activity*

Roads within the proposed Plan Change area will be able to comply with all District Plan design requirements and be built to the appropriate local road standards. The existing Ridgeland Way and Kingsdowne Drive cross-sections will continue to be appropriate for their standing in the local road hierarchy.

> *Policy B2.1.10- Ensure vehicle crossings, intersections, pathways, roadside signs and noticeboards are designed and positioned to ensure good visibility for all road users, and to allow safe passage, access and egress*

The proposed intersection on Weedons Ross Road for the PPC area will allow a suitable sightline for an 80km/h design speed, anticipating that the speed limit would be lowered below 100km/h to south of the proposed PPC area. The intersection will be able to be designed to the appropriate standard with localised road upgrades as necessary and to be determined at the time of subdivision design. Any intersections within the Plan Change area would be able to be designed during subdivision planning to ensure that desirable visibility is achieved.

The proposed PPC is not expected to noticeably increase traffic volumes on Ridgeland Way and Kingsdowne Drive and therefore the existing intersections on Weedons Ross Road and Kingsdowne Drive will continue to be of appropriate standards.

The residential lots will be of large enough sizes that individual vehicle crossings will be able to be positioned to ensure good visibility is available.

Other details of subdivision design will also be considered at a later stage. It is considered safe pedestrian and road networks will be able to be provided in the proposed PPC area.

> *Policy B2.1.11- Ensure roads are designed, constructed, maintained and upgraded to an appropriate standard to carry the volume and types of traffic safely and efficiently*

New roads within the PPC area will be able to be designed, constructed and maintained to an appropriate standard for a residential development. These details will be confirmed during subdivision design. The extension of Ridgeland Way would likely be designed to a consistent standard with the existing section of Ridgeland Way, which is appropriate for a 'Local-Intermediate' road. The main road in the PPC area would be expected to be consistent with the Kingsdowne Drive standard (9m carriageway in a 20m reserve).

> *Policy B2.1.5- Ensure the development of new roads is:*
> *-integrated with existing and future transport networks and landuses; and*
> *-is designed and located to maximise permeability and accessibility; through achieving a high level of connectivity within and through new developments to encourage use of public and active transport; whilst having regard to the road hierarchy.*
>
> *Policy B2.1.13- Minimise the effects of increasing transport demand associated with areas identified for urban growth by promoting efficient and consolidated land use patterns that will reduce the demand for transport*
>
> *Policy B2.1.14- Encourage people to walk or cycle within and between townships by providing a choice of routes for active transport modes and ensuring there is supporting infrastructure such as parking for cycles, at destinations.*
>
> *Policy B2.1.15- Require pedestrian and cycle links in new and redeveloped residential or business areas, where such links are likely to provide a safe, attractive and accessible alternative route for pedestrians and cyclists, to surrounding residential areas, business or community facilities.*

These four policies are primarily related to pedestrian and cyclist connectivity, and minimising the need for additional roading infrastructure.

There is already good permeability for pedestrians and cyclists throughout the Wilfield subdivision, with footpaths alongside all roads and off-road connections for pedestrians and cyclists providing more direct alternative routes. The proposed PPC area will tie into the off-road links and additional connectivity is proposed along Weedons Ross Road to the existing pedestrian infrastructure to the north. This continues on to the village where the traffic signals will provide a safe and convenient crossing location for pedestrians, along with the existing crossing from Wilfield across to Gainsborough.

10.1.2 Growth of Townships Objectives and Policies

Section B4 of the District Plan contains objectives and policies related to the growth of townships. Of particular relevance to this application are the following two policies relating to West Melton:

> *Policy B4.3.98: Provide a primary focus for new residential or business development north of SH73 and south of Halkett Road, and to allow only a limited extent of new low density residential development south of SH73.*
>
> *Policy B4.3.99: Promote a consolidated pattern of future urban growth in West Melton*

The proposed Plan Change is contrary to B4.3.98 in that the proposed PPC area is south of SH73. The explanation for this policy states new residential growth will be enabled south of the highway but will be limited in extent and density to minimise effects on the safety and efficiency of the highway. It is

considered that this policy will not be as relevant once the SH73 / Weedons Ross Road intersection is signalised. The signalisation will provide safe and reliable access to the highway for traffic to/from the south and it will also provide a safe and reliable crossing for pedestrians. It is worth noting that a number of community facilities, as outlined earlier, are located on the southern side of SH73 and will be easily accessible for residents.

The proposed Plan Change is not considered contrary to B4.3.99 in that the proposed Plan Change area is immediately adjacent to the existing Wilfield subdivision. It will be well connected to the Wilfield subdivision, particularly for pedestrians and cyclists with a network of off-road paths already existing in Wilfield and proposed in the PPC area. The Wilfield subdivision is also connected to the remainder of West Melton for pedestrians through footpath connections along Weedons Ross Road, along SH73 and across SH73 to Gainsborough.

10.1.3 Roading Rules

Any new roads in the Plan Change area will be able to comply with the relevant Roading rules in section 5.1 Road and Engineering Standards. This includes compliance with the new road standards in Appendix E13.3.1. As outlined earlier, the main road through the PPC area would be a 'Local-Major' road and the other roads in the area would be 'Local- Intermediate' roads. The existing section of Ridgeland Way is constructed to an appropriate standard for a 'Local- Intermediate' road and the proposed PPC is not expected to noticeably increase the traffic volumes on it.

10.2 Canterbury Regional Policy Statement

The Canterbury Regional Policy Statement objectives and policies in Chapter 5 Land-Use and Infrastructure and Chapter 6 Recovery and Rebuilding of Greater Christchurch have been reviewed.

The relevant Chapter 5 policies relate to urban growth being attached to existing urban areas, the safety and efficiency of the strategic and arterial road network being maintained, and connectivity for pedestrians and cyclists being provided. Chapter 6 focusses on new residential development occurring in the planned locations, transport effectiveness and integration of land use and infrastructure. The site is located outside the projected infrastructure boundary for West Melton as shown on Chapter 6 Map A.

Generally, the policies relating to transport are similar to those in the Selwyn District Plan which have been discussed previously. The proposed Plan Change area is adjacent to the existing Wilfield subdivision and there is good connectivity from the area through the existing Wilfield subdivision and to the remainder of West Melton.

Whilst the additional development may generate additional demand for public transport which is not well provided for in West Melton, by being located adjacent to the existing township the additional demand (most likely in combination with additional growth in Darfield) could assist the viability of increasing frequency of the service.

10.3 National Policy Statement – Urban Development

The National Policy Statement Urban Development 2020 sets policy around urban development. New development capacity is considered against whether that development capacity is "infrastructure-ready". Based on the assessment provided, it is considered that the there is adequate existing and planned infrastructure to support the wider transport needs of the PPC development. The ODP further requires connections to the existing transport network in locations that support safe and efficient integration of the site, and proposes additional pedestrian infrastructure along Weedons Ross Road. It is also considered that the development is generally well connected along the transport corridors. Whilst existing public transport services are limited, opportunities exist to access future service improvements either locally, or at nearby park and ride locations.

11. Conclusion

The Proposed Plan Change proposes an extension of the West Melton urban area to the south along Weedons Ross Road to provide for low density residential housing. This would result in the area being able to potentially accommodate approximately 131 more residential lots.

The additional residential lots could generate extra traffic volumes of approximately 790 vehicle movements per day and 80 vehicle movements per peak hour. Across the wider traffic network, including

on Weedons Ross Road south of the site and on SH73 east and west of West Melton, the additional traffic volumes would be accommodated noting there are widening improvements proposed to the arterial route along Weedons Ross Road, and signalisation of its intersection with SH73 in West Melton.

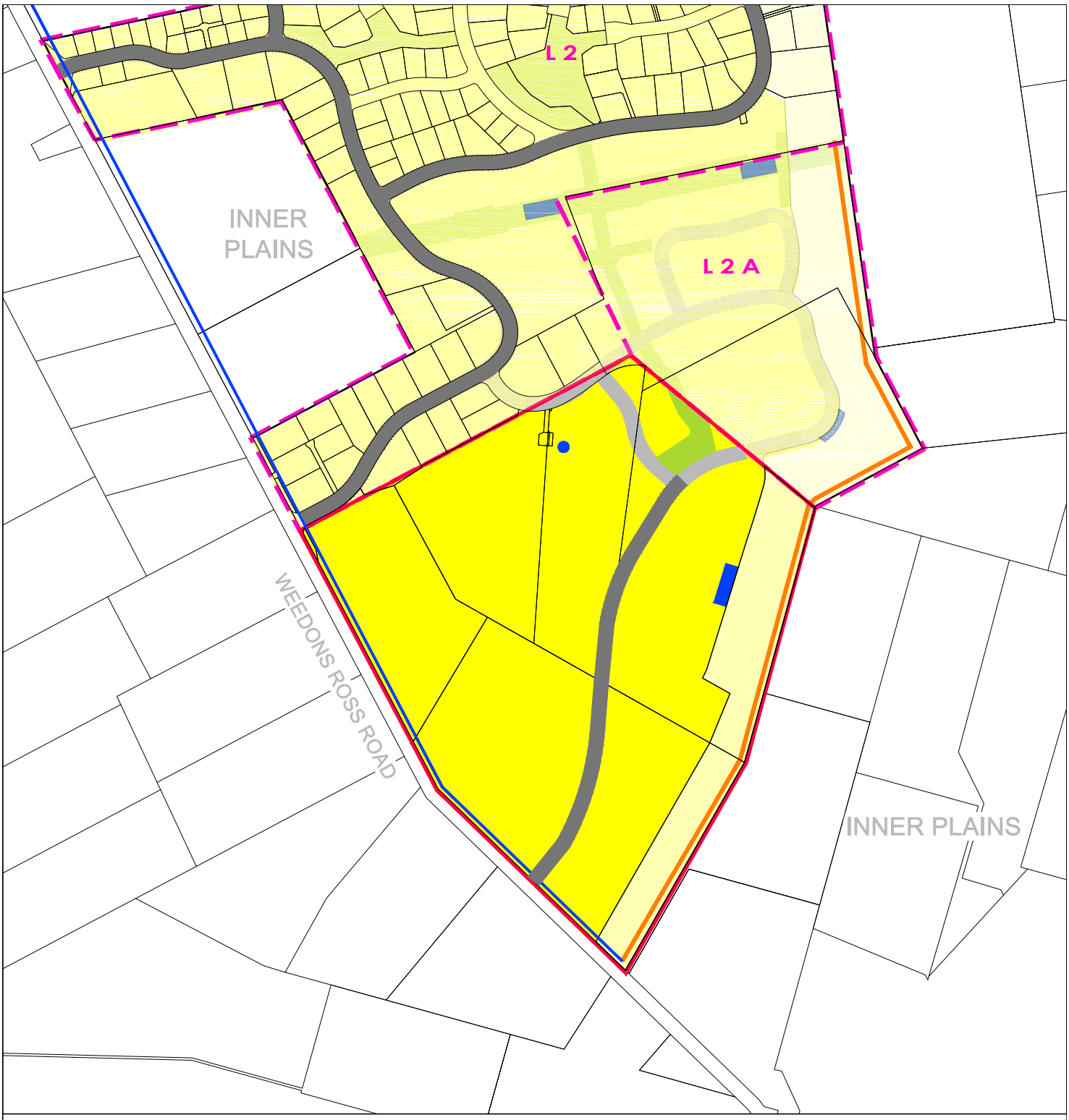
An ODP is proposed that will enable integration with the Wilfield subdivision and existing urban area. The new intersection on Weedons Ross Road is proposed in a location to enable safe connection to the transport network, and an extension of the pedestrian/cycle network is proposed along Weedons Ross Road.

Whilst the site is currently not well serviced by public transport, that is the case for West Melton which only has a peak period service available. The site is well located if future connections are made between West Melton and the Rolleston Hub, or for access to park and ride services at Rolleston.

With the level of development planned and provisions assessed, the Plan Change can be supported from a transportation perspective.

Appendices

Appendix A Outline Development Plan



Legend

- ODP boundary
- Parcel
- Indicative location for water bore
- Primary Route
- Secondary Route
- Existing water race
- Low Density
- Medium Density
- Soakage Areas
- Neighbourhood Park
- Interface Treatment

Note:

All sections adjacent to Inner Plains zoned land will have a notice on their LIM referring to any potential reverse sensitivity issues between Residential and Rural landuses.

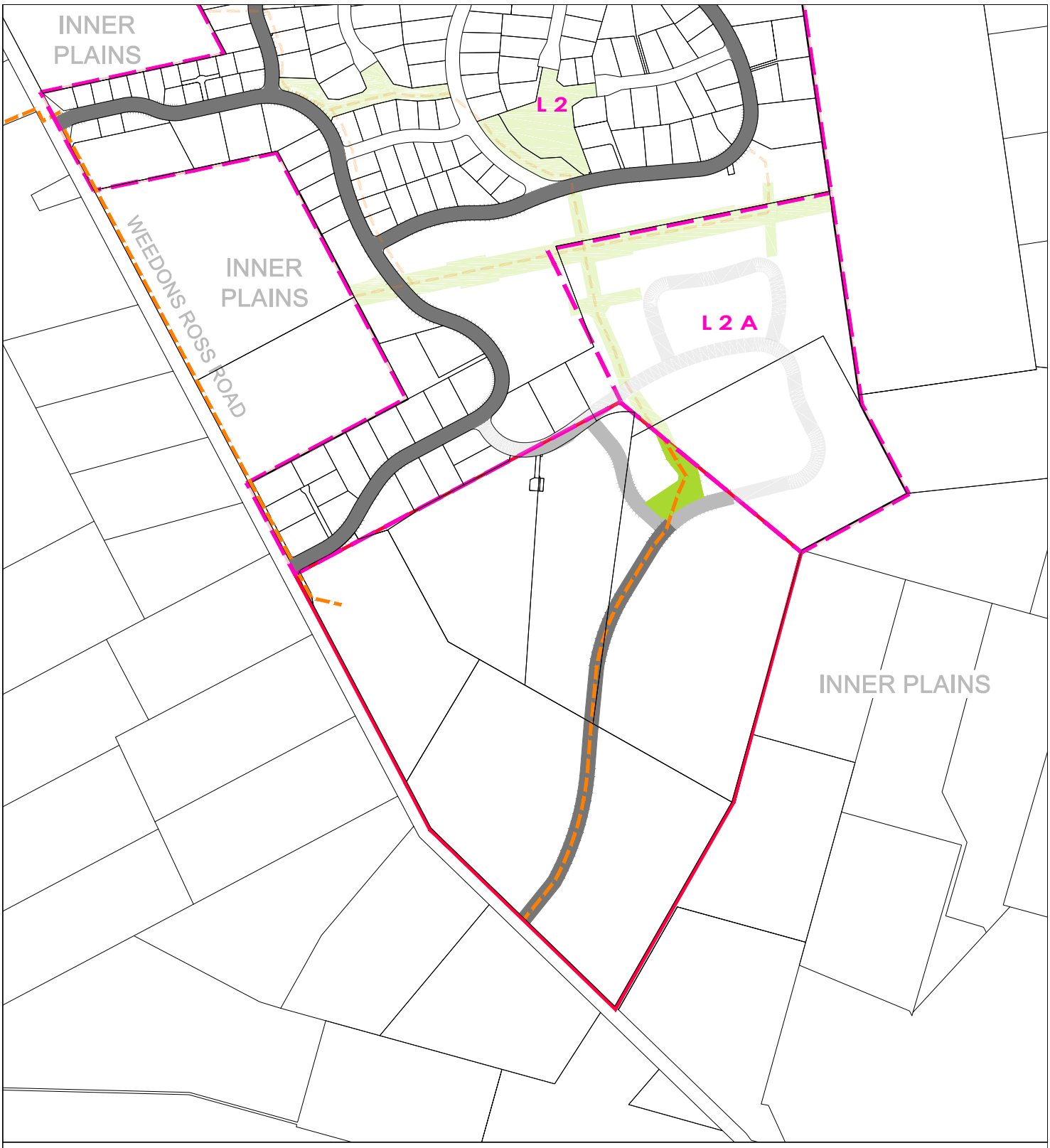
Interface treatment includes having larger residential sections as perimeter blocks where sections immediately adjoin a boundary with Inner Plains.

Outline Development Plan

OVERALL Plan

Living West Melton
(Living WM) South Zone

Scale: 1:7500@A4



Legend

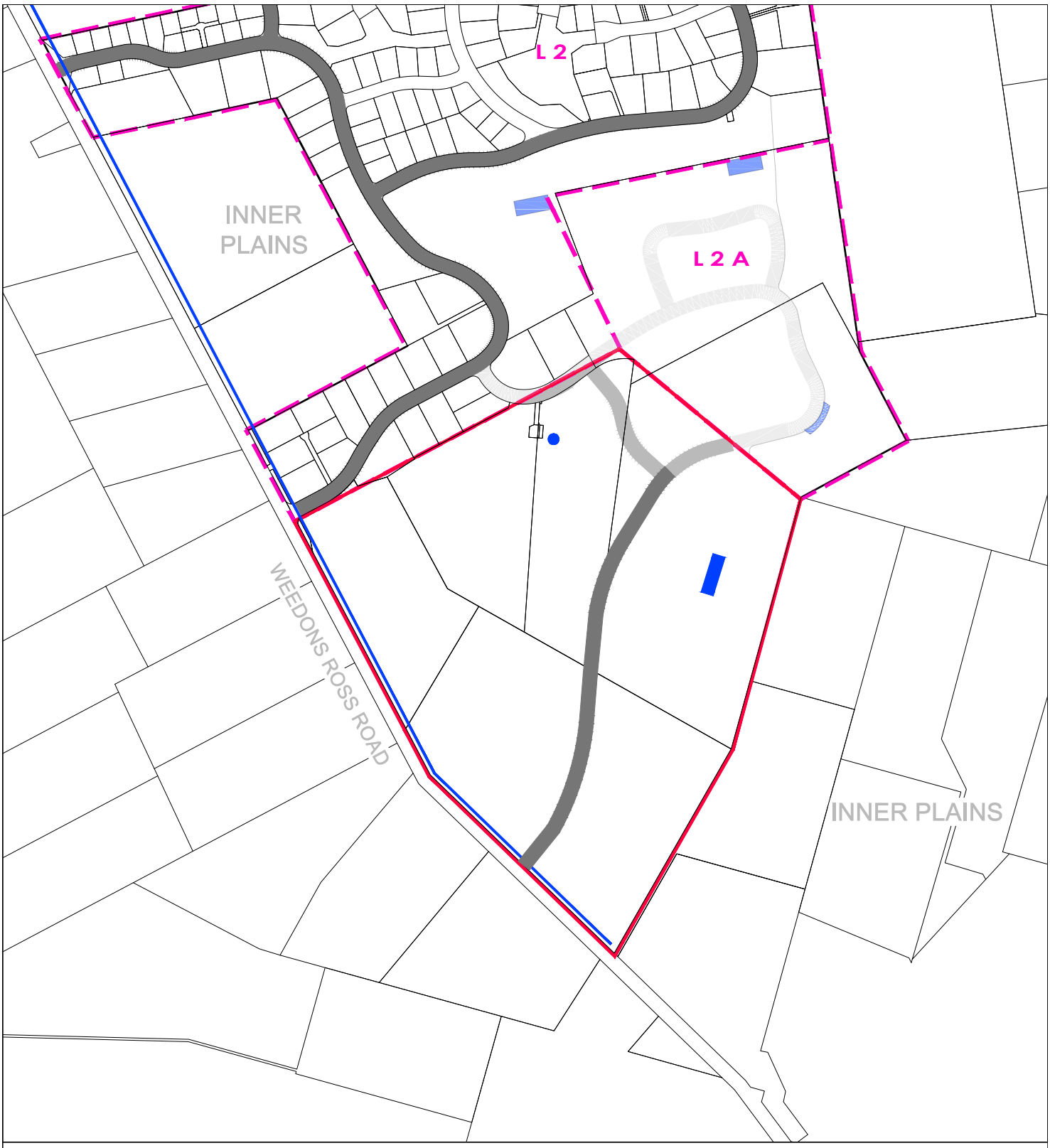
- ODP boundary
- Parcel
- Primary Route
- Secondary Route
- Neighbourhood Park
- Shared pedestrian/cycle lane

Outline Development Plan

TRANSPORT Plan

Living West Melton
(Living WM) South Zone

Scale: 1:7500@A4



Legend

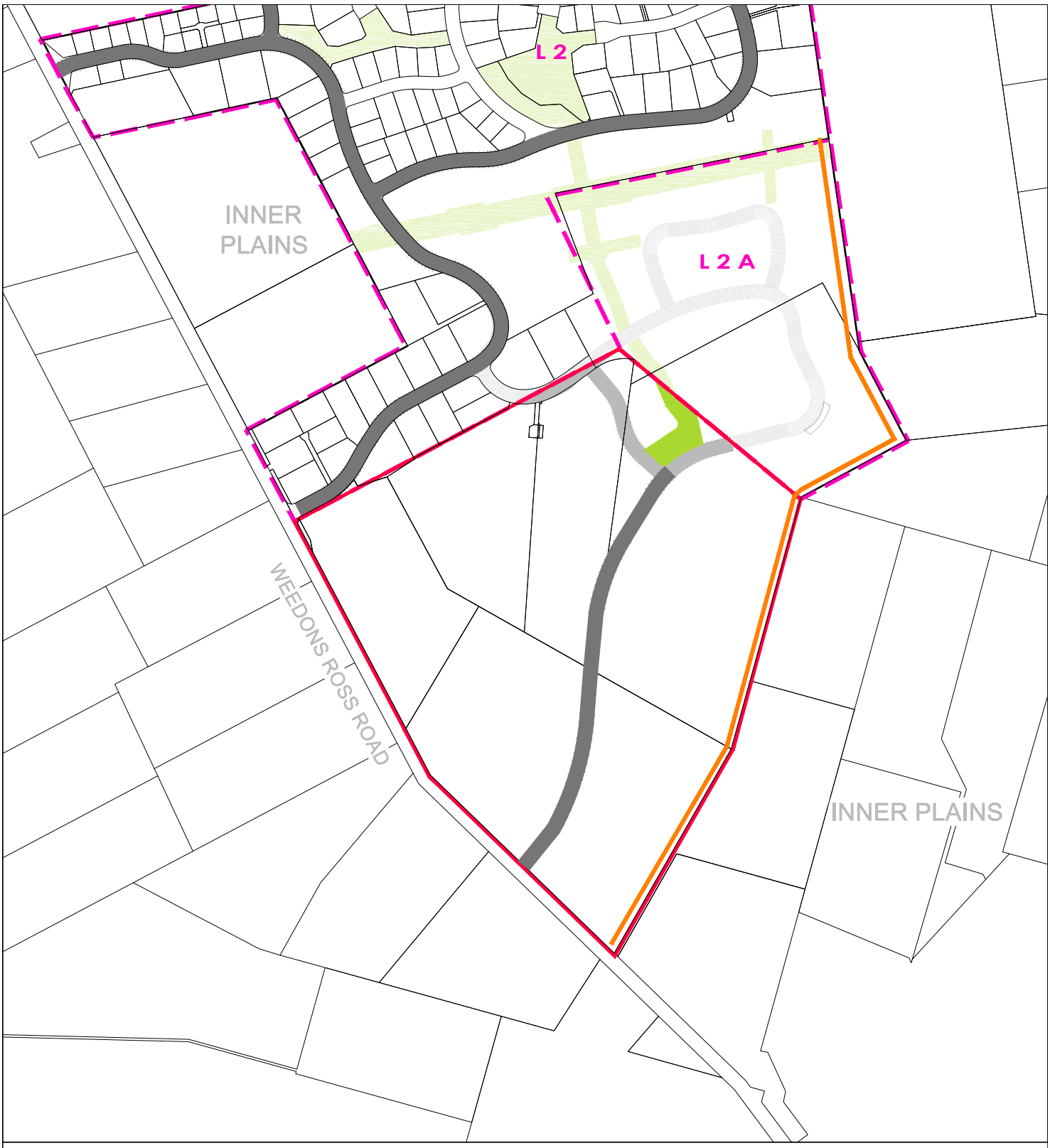
- ODP boundary
- Parcel
- Primary Route
- Secondary Route
- Indicative location for water bore
- Existing water race
- Soakage Areas

Outline Development Plan

BLUE NETWORK Plan

Living West Melton
(Living WM) South Zone

Scale: 1:7500@A4



Legend

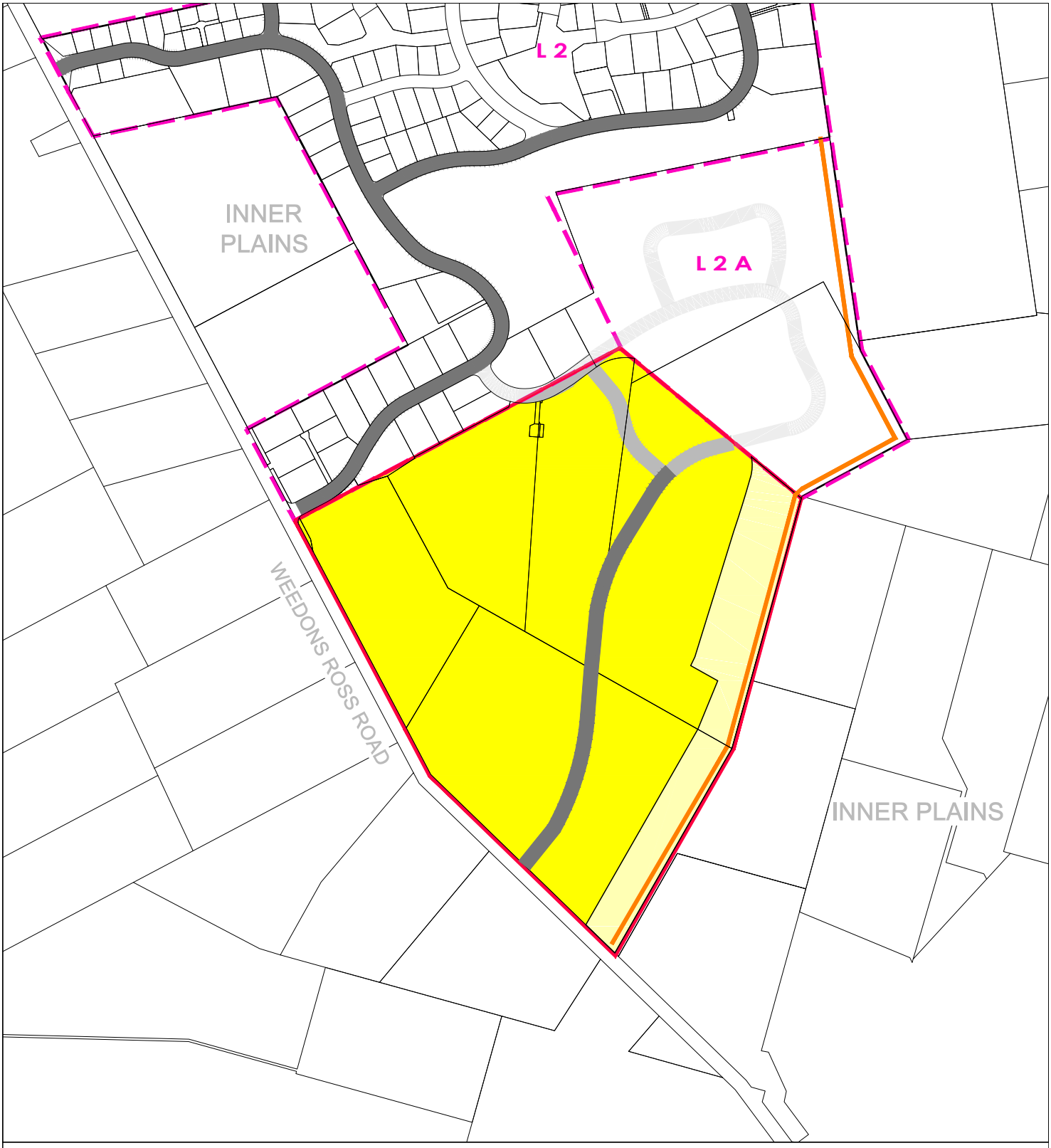
- ODP boundary
- Parcel
- Primary Route
- Secondary Route
- Neighbourhood Park

Outline Development Plan

GREEN NETWORK Plan

Living West Melton
(Living WM) South Zone

Scale: 1:7500@A4



Legend

- ODP boundary
- Parcel
- Primary Route
- Secondary Route
- Low Density
- Medium Density
- Interface Treatment

Note:

All sections adjacent to Inner Plains zoned land will have a notice on their LIM referring to any potential reverse sensitivity issues between Residential and Rural landuses.
Interface treatment includes having larger residential sections as perimeter blocks where sections immediately adjoin a boundary with Inner Plains.

Outline Development Plan

LANDUSE Plan

Living West Melton
(Living WM) South Zone

Scale: 1:7500@A4

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