# Appendix 6: Integrated Transport Assessment

# BIRCHS ROAD PLAN CHANGE

## INTEGRATED TRANSPORT ASSESSMENT

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**Quality Assurance Information**

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# 1 INTRODUCTION

1.1 Conifer Grove Trustees Limited (CGT) is proposing to initiate a private plan change on land to the south of Prebbleton. The land is presently zoned Inner Plains in the Selwyn District Plan, and if approved, the Plan Change would result in this being rezoned to Living 3. The area of land is sufficient that up to 16 residential lots could be created.

1.2 This Integrated Transport Assessment (ITA) evaluates the effects of the development that would be facilitated by the proposed Plan Change on the adjacent transportation networks. Where potential adverse effects are identified, ways in which these can be addressed are set out.

1.3 The ITA has been prepared using the guidance specified in the New Zealand Transport Agency's 'Integrated Transport Assessment Guidelines'[1]. The guidelines identify four levels of scope for an ITA including 'simple', 'moderate', 'broad', and 'extensive', with each increase in scope representing an increasing degree of anticipated geographic or policy effects of a proposal. A 'simple' ITA has been prepared in this instance, as the transport effects of the development facilitated by the proposed Plan Change are expected to primarily be limited to the immediate vicinity of the site.

[1] Abley, S. Durdin, P. Douglass, M. (2010) Integrated Transport Assessment Guidelines, NZ Transport Agency research report 422. 110pp.

# 2 SITE LOCATION AND CONTEXT

## Background

2.1 The Plan Change area is situated approximately 12.5km south-west of the Christchurch City centre, 5.7km from Hornby and sits on the outskirts of Prebbleton. The location of the site in the context of the wider area is shown in **Figure 2.1**. The site is on land that is almost triangular in shape contained between Birchs Road, Trices Road and Hamptons Road to the east, north and south-west respectively. The majority of this land that is bordered by Trices Road to the north is already zoned Living 2A and this block of land splits the proposed Plan Change land into the two sections shown in **Figure 2.2**.

**Figure 2.1 Plan Change Location: Regional View**

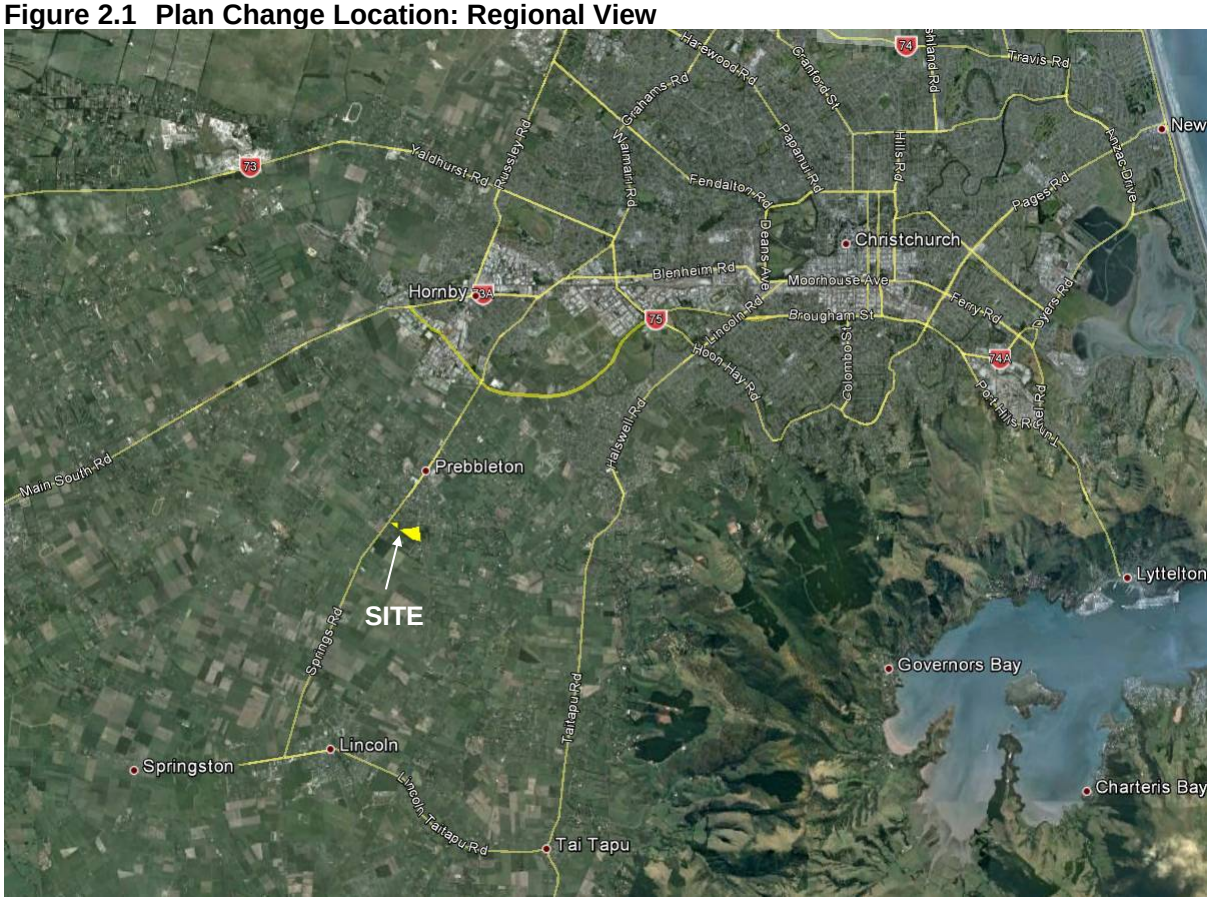
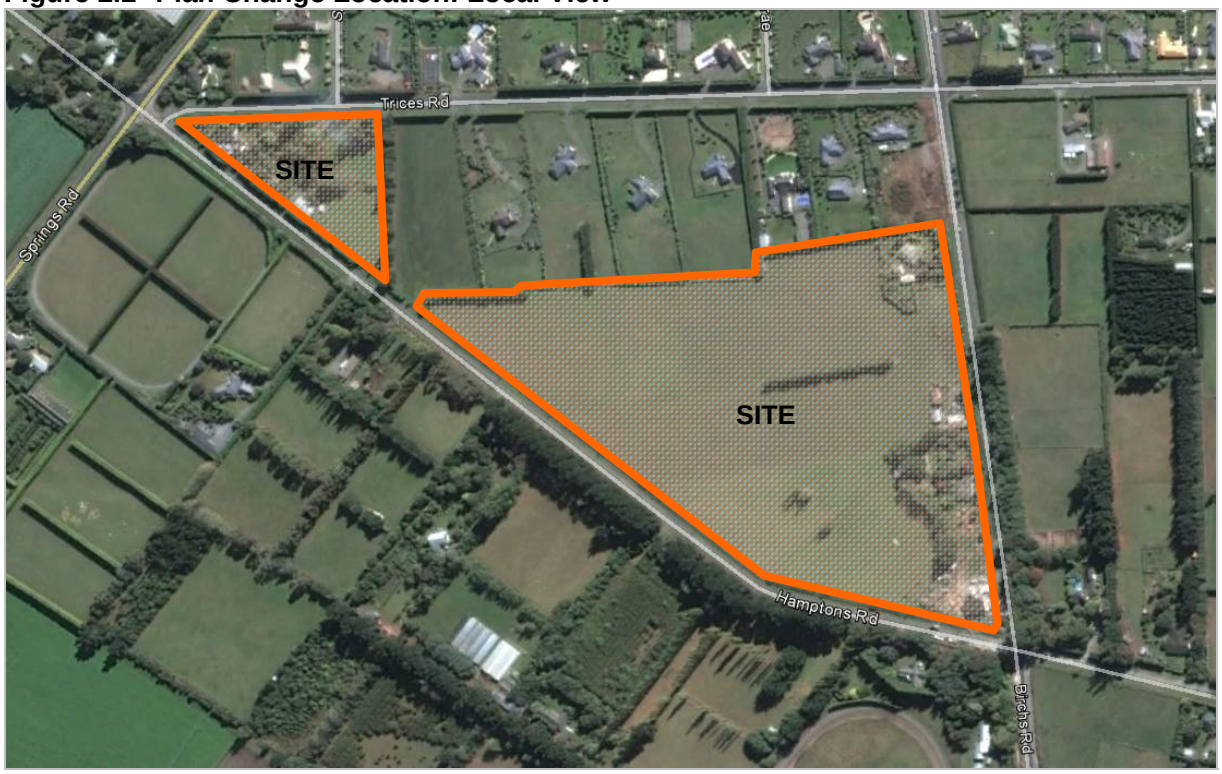
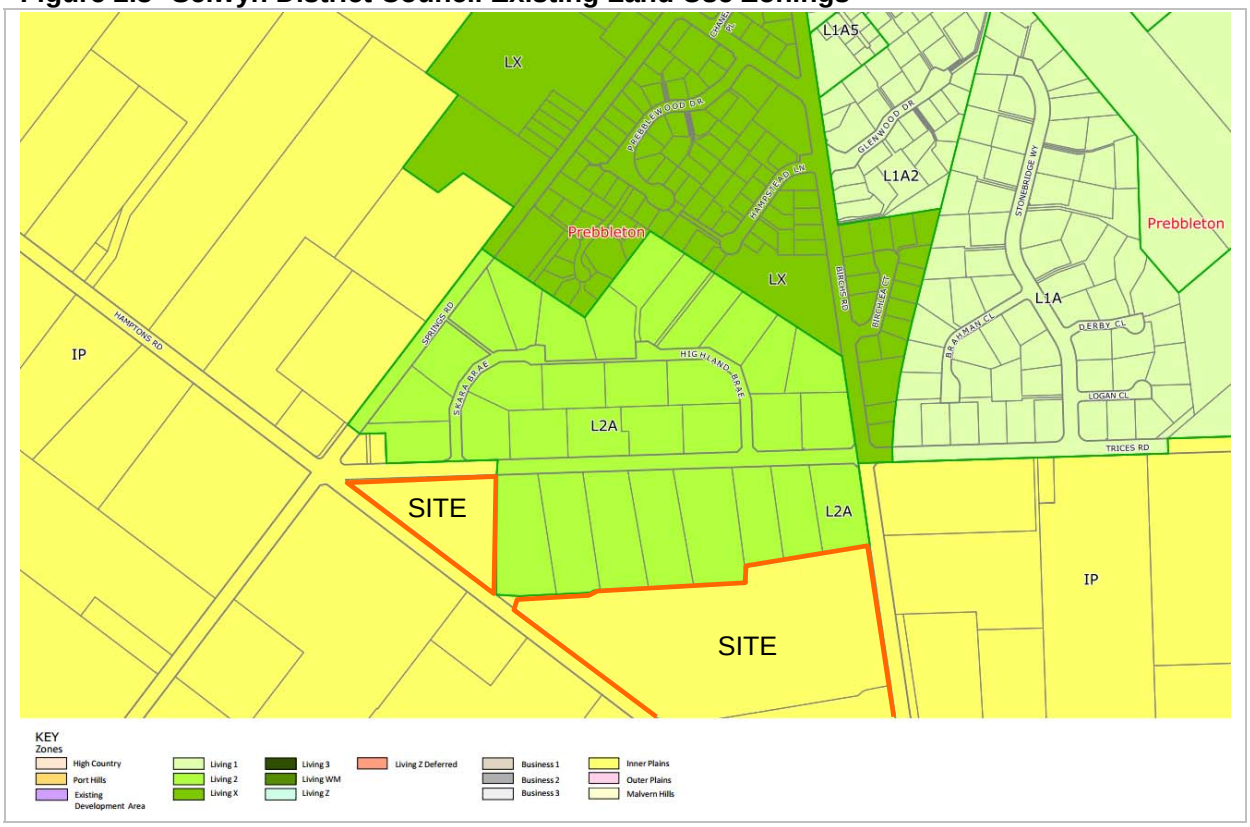


**Figure 2.2 Plan Change Location: Local View**




2.2 The site is currently zoned Inner Plains (IP) in the Selwyn District Plan as shown in **Figure 2.3**. The existing residential area of to the north on both sides of Trices Road is Zoned Living 2A (L2A), such that it is similar to the zoning intended by this Plan Change except that the section sizes within the Plan Change will be larger.

**Figure 2.3 Selwyn District Council Existing Land Use Zonings**



# 3 EXISTING TRANSPORT NETWORKS

**East of the Site**

3.1 Birchs Road forms the eastern boundary to the site and runs in a north-south direction from Lincoln in the south to Prebbleton to the north where it forms the minor leg of a T-intersection with Springs Road. The section of road that is adjacent to the site has a chip sealed surface and a typical carriageway width of 7.4m allowing for a two way, two way road. There is a 7.0m wide grass verge between the site boundary and the Hampton Road carriageway.

3.2 The speed limit changes twice on Birchs Road along the boundary to the site. The first change heading south from the Prebbleton Township is from 50km/h to 70km/h near the northern part of the site around 110m south of Trices Road. Further south the speed limit changes to 100km/h near the southern end of the site around 60m north of Hamptons Road. The road is generally marked with a centreline and two edge lines however there is a painted flush median and hatched sealed shoulders at the speed limit change from 70km/h to 50/km/h. The markings in this location narrow the driving lanes from 3.3m to 3.0m to encourage motorists to slow down by providing a visual cue of the change from a rural to urban road environment. A general view of Birchs Road just south of the 50/70km/h speed limit change is shown in **Figure 3.1**.

3.3 There is a separated shared path for cyclists and pedestrians on the eastern side of Birchs Road that can be seen on the left hand side of Figure 3.1.

**Figure 3.1 Birchs Road looking south (site on right of image)**

**North of the Site**

3.4 From Birchs Road heading to the west, Trices Road forms the northern boundary road to the site. The western section of the site has direct access to Trices Road whereas a block of land containing L2A zoned land with residential units sits between the eastern section of the site and Trices Road.

3.5 Trices Road has an 8.0m wide carriageway with a single traffic lane in each direction marked with a centreline only and has a 70km/h speed limit. A view of Trices Road looking east adjacent to the western part of the site is shown in **Figure 3.2**.

**Figure 3.2 Trices Road looking east (site on right of image)**

3.6 Trices Road forms the stop controlled approach to a T-intersection with Hamptons Road just 25m east of the Springs Road / Hamptons Road intersection. Both of these intersections are shown in **Figure 3.3**.

**Figure 3.3 Trices Road intersecting Hamptons Road from right, Springs Road passing through in background.**


**South-West of the Site**

3.7 Hamptons Road forms the south-western boundary of the Plan Change site and generally runs in a south-easterly alignment with a slight bend in the road around 200m west of Birchs Road.

3.8 Adjacent to the site, Hamptons Road has a carriageway width of 5.8m and has a 100km/h speed limit. There is a 10.0m wide grass verge between the site boundary and the Hampton Road carriageway. The only delineation is a centreline around the slight bend in the road as indicated in **Figure 3.4**.

**Figure 3.4 Looking west along Hamptons Road**

**West of the Site**

3.9 Springs Road is the most trafficked road near the site and runs in a south-west to north-east direction to the west of the site but does not form a boundary. It passes Lincoln University 6.5km to the south-west and forms the main road through Prebbleton to the north-east of the site. As shown previously in Figure 3.3, Hamptons Road forms a stop controlled cross intersection with Springs Road and around 1km to the north-east is the Springs Road / Birchs Road intersection. Springs Road looking towards the north-east is shown in **Figure 3.5** and at the Birchs Road intersection in **Figure 3.6**.

**Figure 3.5 Looking north east along Springs Road north of Hamptons Road**

**Figure 3.6 Looking north east along Springs Road at the Birchs Road Intersection**

**Road Hierarchy**

3.10 The Selwyn District Plan classifies Springs Road and Trices Road as an Arterial road. Birchs Road is classified as a Collector road and the section of Hamptons Road adjacent to the site is not classified and therefore is a Local road.

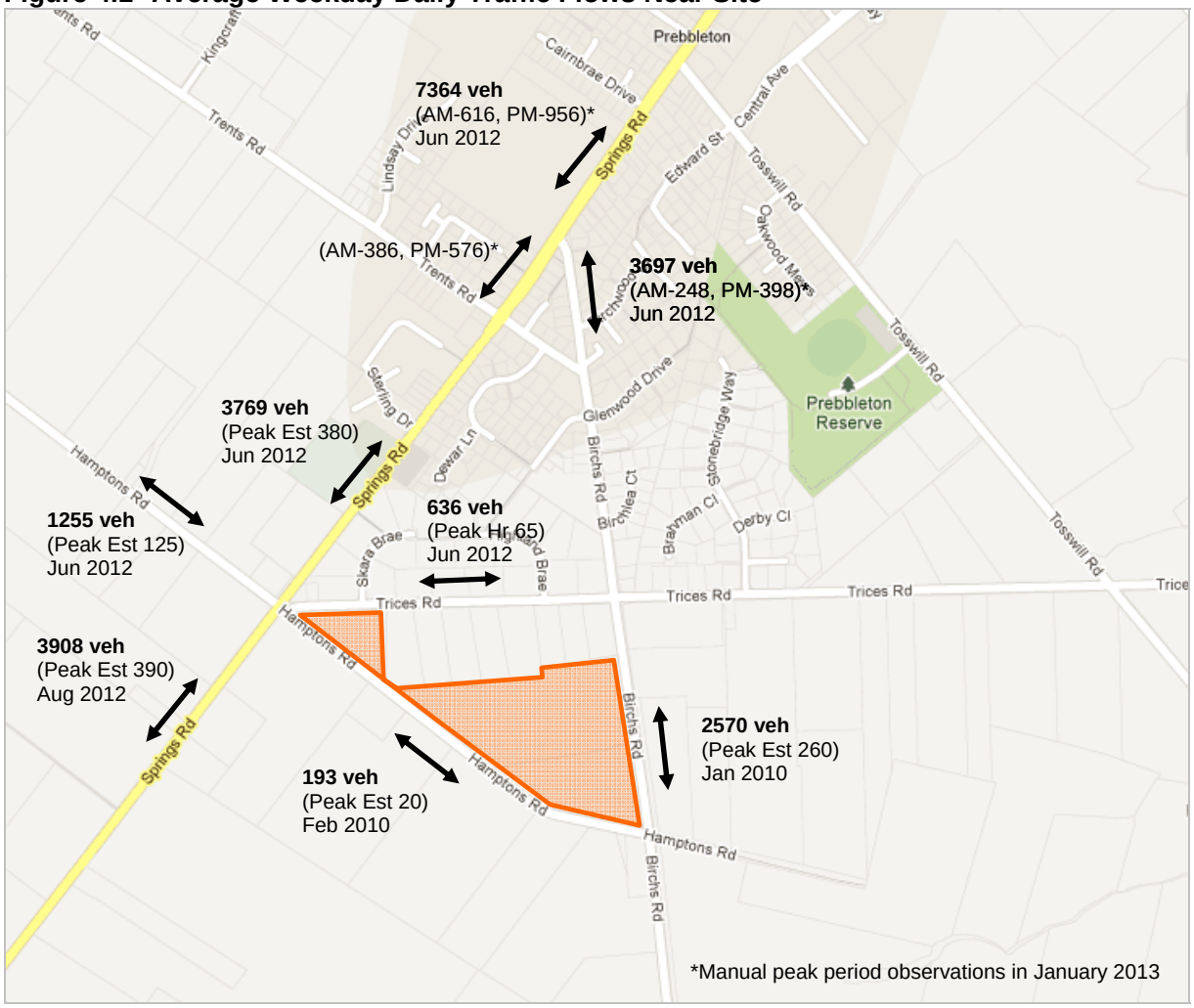
# 4 EXISTING TRANSPORT DEMANDS AND NETWORK PERFORMANCE

### Traffic Flows

4.1 Selwyn District Council undertakes regular traffic counts at a number of locations throughout the District. The Council stores the traffic count information within their RAMM database as average annual daily traffic (AADT) counts. The council has supplied traffic count information for the roads in the vicinity of the site and these are summarised in **Figure 4.1**.

4.2 The Springs Road / Birchs Road intersection was manually surveyed to inform this ITA. This was undertaken on Thursday 10 January 2013 during the typical morning peak period of 0800-0900 and on Monday 14 January during the typical evening peak period of 1700-1800. The turning movements during the survey are included in **Appendix A**. The peak traffic volumes observed are referenced in Figure 4.1 and an estimated peak period is calculated for the other count locations as 10% of the daily traffic flow. The date of each count is included for reference.

**Figure 4.1 Average Weekday Daily Traffic Flows Near Site**



4.3 Given the low traffic volumes that occur even during the peak periods of the day, the delays incurred by vehicles in waiting for a gap in at intersections is low. Table 6.1 of the Austroads Guide to Traffic Management, Part 3 (Traffic Studies and Analysis) provides guidelines regarding the need for detailed traffic analyses at intersections. An extract from the Guide is shown in **Table 4.1** that summarises those two way traffic volumes below which detailed analyses of an unsignalised intersection are not necessary.

**Table 4.1 Extract from Austroads Guide Regarding Thresholds for Intersection Analyses**

| Major Road Type | Major Road Traffic Volume (vph) | Minor Road Traffic Volume (vph) |
|---|---|---|
| Two lane road | 400 | 250 |
| | 500 | 200 |
| | 600 | 100 |

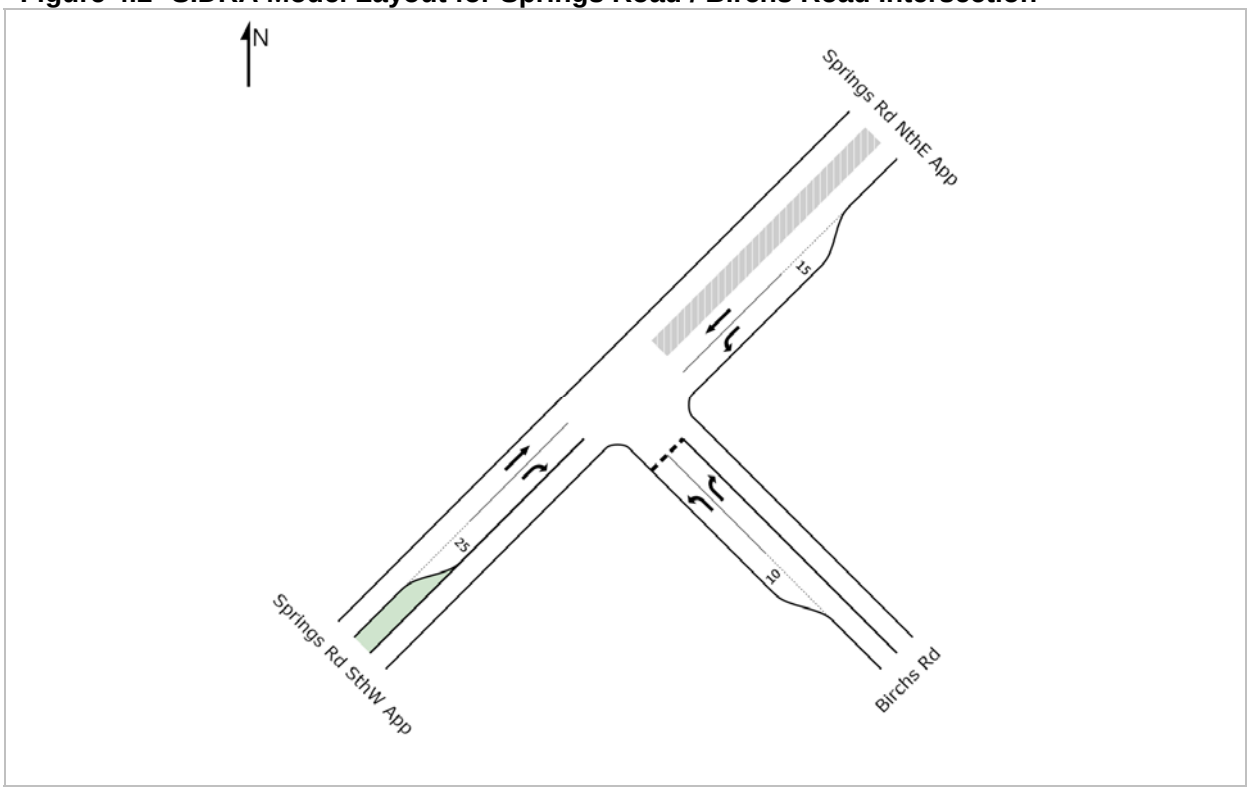
4.4 It can be seen that for the most part, the traffic volumes in the area are light and do not require a formal assessment. Rather, in the majority of cases, any delay will be due to the intersection geometry (that is the driver slowing down, negotiating the turn and then accelerating to the desired speed). Consequently, given the roading hierarchy in the area, only the Springs Road / Birchs Road intersection has been formally assessed, using the computer software package SIDRA Intersection.

4.5 SIDRA Intersection offers a range of outputs for any given model. The outputs selected for this analysis are:

- Degree of Saturation (DOS);
  - The DOS is a ratio of the demand placed on the intersection against the capacity of the intersection. A DOS equal to 1.0 indicates that the intersection is operating at its maximum theoretical capacity.
- Average delay (seconds);
  - Average delay is the average delay experienced by vehicles travelling through an intersection and includes deceleration, queuing, stopping and acceleration.
- Level of Service (LOS); and
  - The LOS generally describes the traffic conditions in terms of travel time, volume, capacity, freedom to manoeuvre and convenience. The LOS ranges from A to F where A represents the least impediment to vehicle movement and F represents heavy congested conditions.
- 95th percentile back of queue (in vehicles).
  - The 95th percentile back of queue and queue distance is the value below which 95% of all observed queue lengths fall (i.e. 5% of all observed queue lengths exceed this value).

4.6 The layout used in the model for this intersection is shown in **Figure 4.2**.

**Figure 4.2 SIDRA Model Layout for Springs Road / Birchs Road Intersection**




4.7 The results of the SIDRA model for the Springs Road / Birchs Road intersection is shown in **Table 4.2** for the morning peak and in **Table 4.3** for the evening peak.

**Table 4.2 Springs Road / Birchs Road Intersection, existing performance, AM peak**

| Movement | Degree of Saturation | Average Delay (secs) | Level of Service | 95% Queue Length (veh) |
|---|---|---|---|---|
| South East: Birchs Road | | | | |
| Left | 0.011 | 8.0 | A | 0.0 |
| Right | 0.217 | 9.6 | A | 0.8 |
| North East: Springs Rd NthE App | | | | |
| Left | 0.051 | 6.6 | A | 0.0 |
| Through | 0.136 | 0.0 | A | 0.0 |
| South West: Springs Rd SthW App | | | | |
| Through | 0.076 | 0.0 | A | 0.0 |
| Right | 0.005 | 8.1 | A | 0.0 |

**Table 4.3 Springs Road / Birchs Road Intersection, existing performance, PM peak**

| Movement | Degree of Saturation | Average Delay (secs) | Level of Service | 95% Queue Length (veh) |
|---|---|---|---|---|
| South East: Birchs Road | | | | |
| Left | 0.014 | 9.0 | A | 0.0 |
| Right | 0.272 | 12.9 | B | 1.1 |
| North East: Springs Rd NthE App | | | | |
| Left | 0.151 | 6.6 | A | 0.0 |
| Through | 0.167 | 0.0 | A | 0.0 |
| South West: Springs Rd SthW App | | | | |

| Movement | Degree of Saturation | Average Delay (secs) | Level of Service | 95% Queue Length (veh) |
|---|---|---|---|---|
| Through | 0.151 | 0.0 | A | 0.0 |
| Right | 0.004 | 9.5 | A | 0.0 |

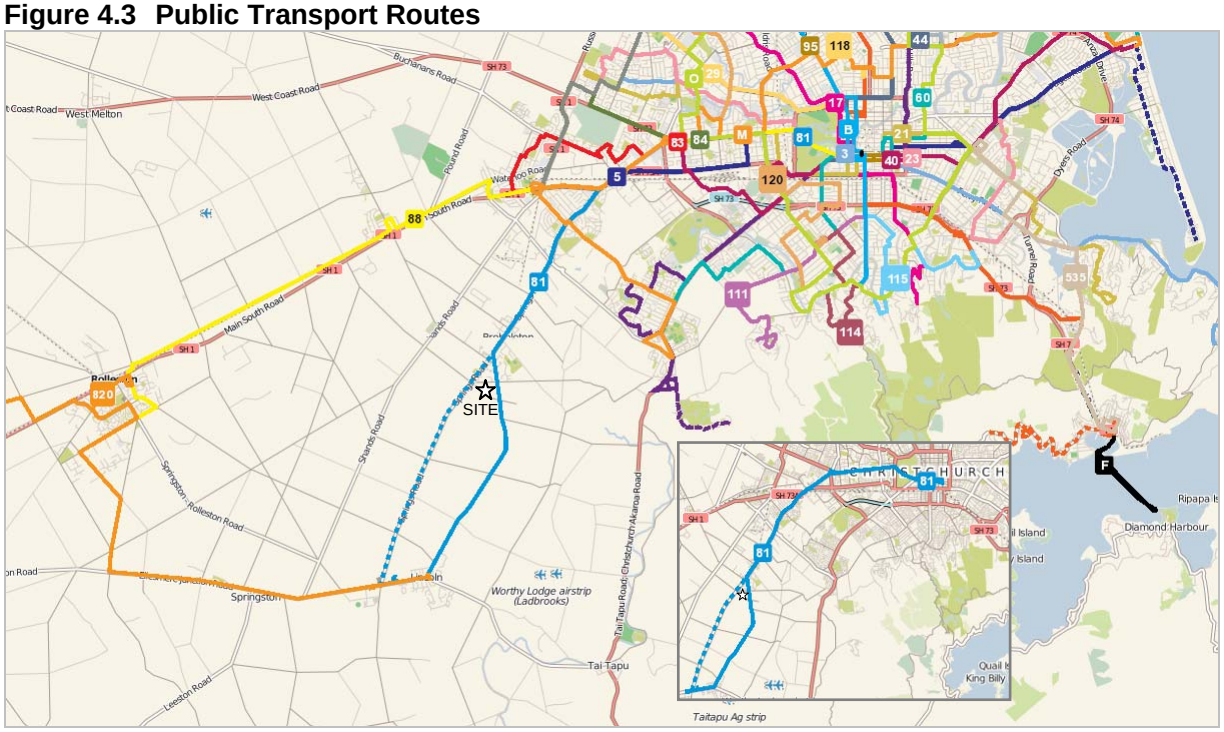
4.8 The results of the SIDRA modelling shows there is significant capacity at the Springs Road / Birchs Road intersection with the existing traffic flows and high levels of service are provided.

4.9 We acknowledge that Lincoln University was not open during the time of the survey and that additional traffic is likely to occur on Springs Road when students are studying at the University. During peak times the traffic going to and from Lincoln University is likely to be tidal in nature with vehicles predominantly travelling southbound in the morning peak and northbound in the evening peak. Accordingly, the through traffic from the survey has been factored up by 40% in the anticipated tidal direction as a highly conservative sensitivity test and the SIDRA models showed that LOS B would still prevail at the intersection and delays increase by no more than two seconds.

### Public Transport

4.10 The regional bus services are shown in **Figure 4.3**. There is one public bus service (Route 81) that passes the site on Birchs Road. The location of the site and the route is shown within the inset of Figure 4.3. Route 81 has a frequency between 7 to 15 minutes during peak periods and in off peak times this frequency increases to 20 minutes. Later in the evening there is a bus every hour until just before midnight.

**Figure 4.3 Public Transport Routes**



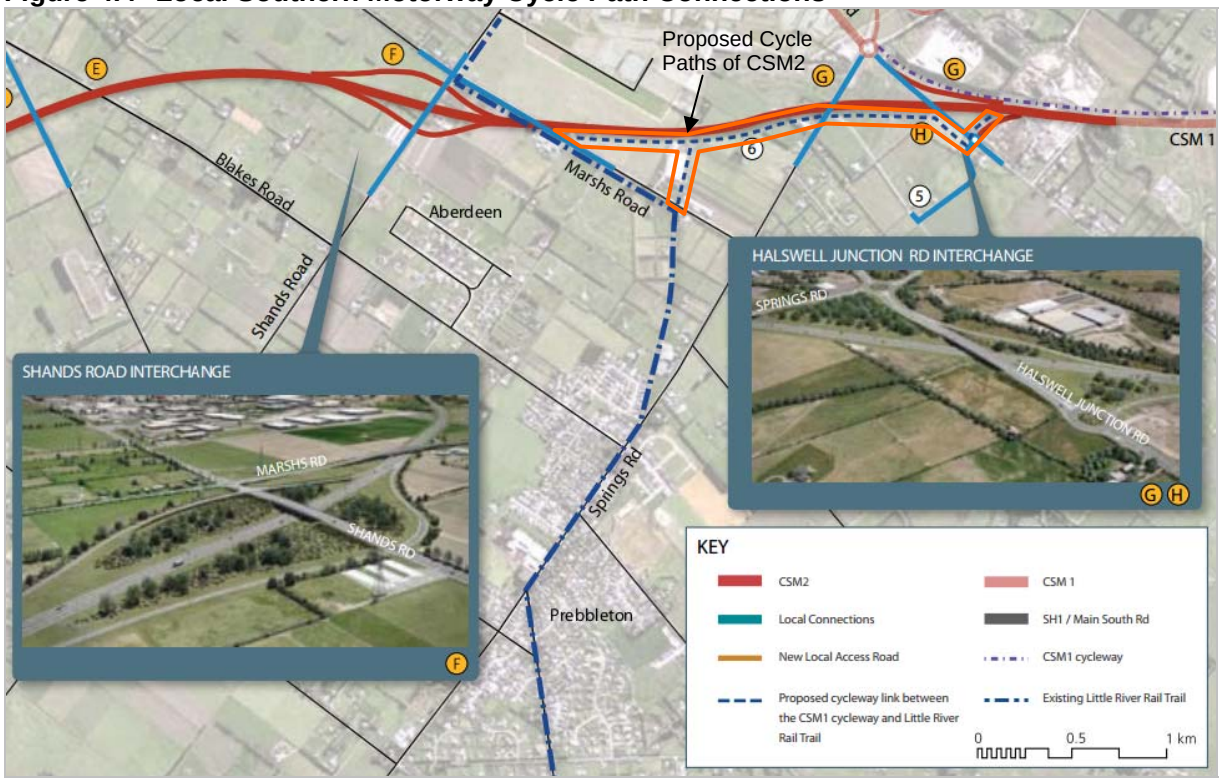
4.11 The nearest bus stop for northbound buses is at the corner of Birchs Road and Hamptons Road and excellent shelter is provided. The closest southbound bus stop is at the intersection of Birchs Road and Glenwood Drive in Prebbleton. Again excellent shelter is provided and this stop is 530m north of the northern point of the site on Birchs Road.

### Active Transport

4.12 A two way off road cycle / pedestrian facility is provided on the eastern side of Birchs Road as part of the Little River Rail Trail from Hornby to Little River. On Birchs Road the trail is off road from Lincoln and extends north just inside the speed limit change to 50km/h north of the site. From this point, cycle lanes are provided on-street up to Springs Road but there are off road paths to assist with negotiating turns onto and off Springs Road.

4.13 Once the second stage of the Christchurch Southern Motorway (CSM2) is completed the Little River Rail Trail will connect to the cycle paths along the motorway as shown in **Figure 4.4**. The combination of these mostly off road facilities in the future will provide a high quality and safe cycle and walking route into the Christchurch urban area. Until such time there is a 2km stretch of Springs Road where cyclists can use on the sealed shoulders (typically just under 1m wide) to connect to stage one of the Christchurch Southern Motorway (CSM1) cycle paths.

**Figure 4.4 Local Southern Motorway Cycle Path Connections**



**Road Safety**

4.14 A search of the NZTA Crash Analysis System (CAS) database has been carried out for the most recent five-year period 2007-2011 inclusive. Although crashes can take up to three months to enter CAS, crashes in 2012 have also been extracted and included in this analysis. The search area included the southern part of Prebbleton and the adjacent road network to the Plan Change area. This was achieved via a buffer of 200m outside the area created by Springs Road, Birchs Road and Hamptons Road. The records and crash locations are summarised in **Figure 4.5** and a summary of the accidents is included in **Appendix B**.

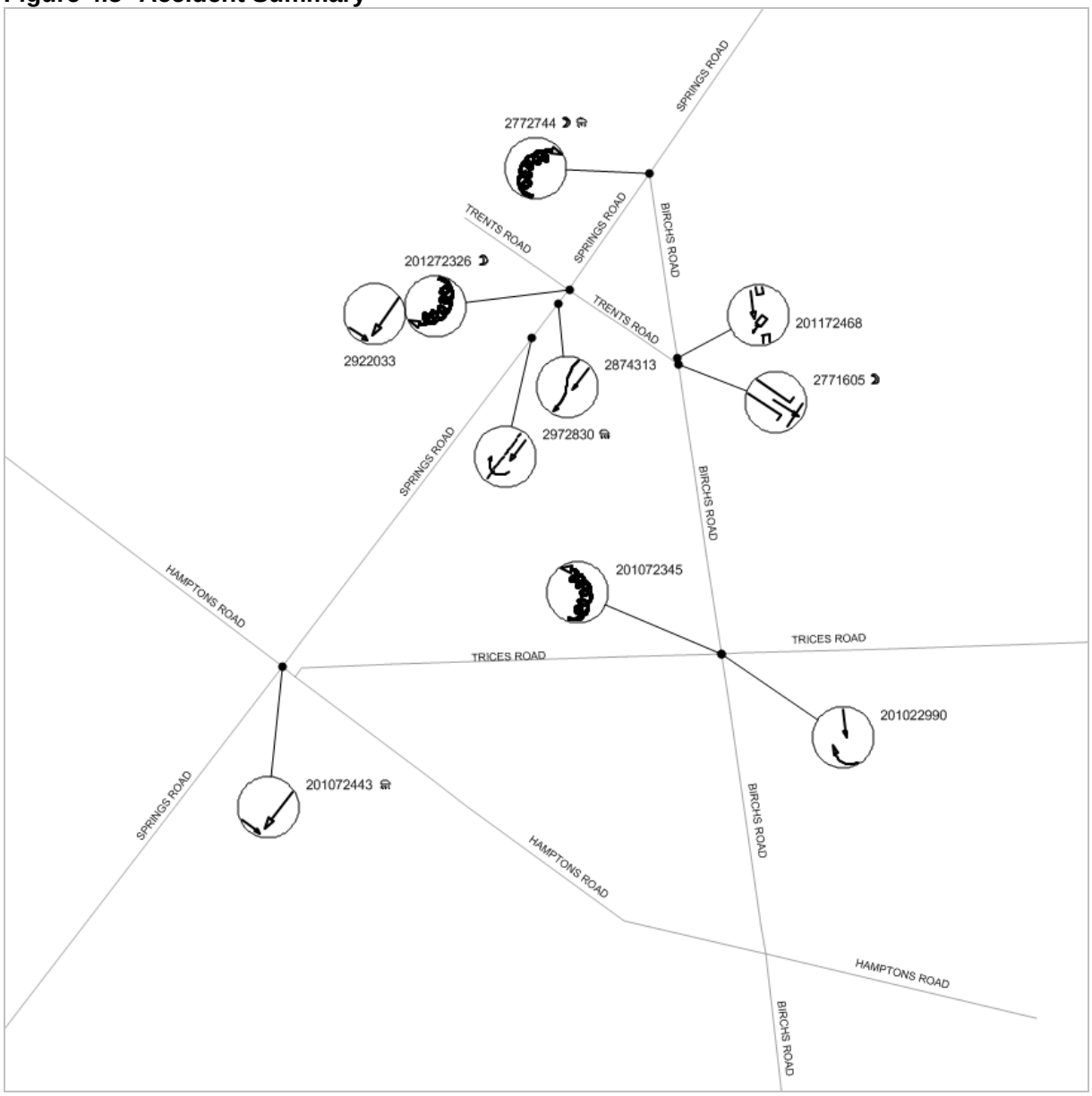
4.15 In total, ten crashes have been reported, of which two resulted in minor injuries while the remainder were non-injury. Four of the crashes occurred on Birchs Road with two each at the Trents Road and Trices Road intersections. The remaining six crashes occurred on Springs Road and of these two occurred mid block, two at the Trents Road Intersection and one each at the Hamptons Road and Birchs Road intersections.

4.16 Three crashes were single vehicle loss-of-control accidents with two involving inexperienced drivers and one may have involved alcohol as a factor. Two crashes involved inattention from drivers and a further crash involved a driver not looking when moving from a parking space. One vehicle missed the end of a road and alcohol was suspected. Of the three crashes where vehicles did not give way one was as a result of age and sun strike and the other was due to vehicle malfunction. Six of the ten involved two cars. None of the reported contributing factors to the reported crashes described unsafe vehicle manoeuvres except for one where a driver overtook on no-passing lines.

4.17 Three of the crashes occurred on the intersections surrounding the site of which one involved an inexperienced driver. The other two involved failure to giveway but these were the crashes involving age and sun strike and vehicle malfunction as factors.

4.18 The reported accidents do not indicate any existing road safety issues on the road network in the area in particular on the roads surrounding the Plan Change site.

**Figure 4.5 Accident Summary**

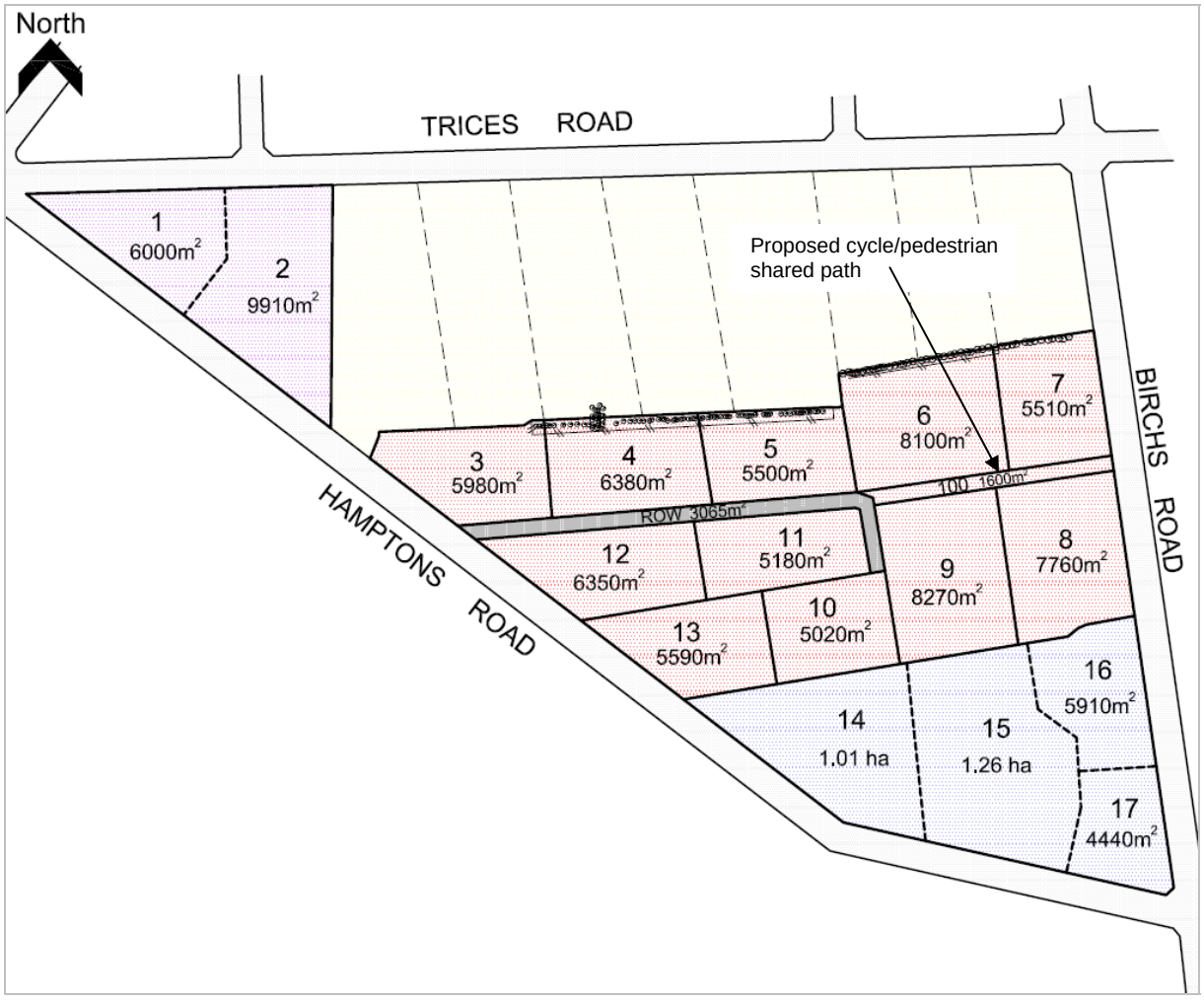


# 5 PROPOSED PLAN CHANGE

5.1 If approved, the proposed Plan Change will result in approximately 12.3ha of land which is presently zoned as Inner Plains being rezoned to Living 3. The latest site layout plans shown in **Figure 5.1** allow for 16 residential lots and one lot (Lot 17) on the south eastern corner that will house the existing power substation. There are three existing residences on the site that are contained within Lots 1, 7 and 16 meaning there will be 13 new residential lots created by the Plan Change.

5.2 **Figure 5.1** shows how the proposed Plan Change will connect to the road network (a larger plan has been included in **Appendix C**). It is intended that properties will have direct access to the road network and via a right of way (ROW) for those lots without road frontage. There is one additional residence on Birchs Road in Lot 8 although this section of land is already served by a driveway access point. The remaining new residential lots will gain access to the road network on the lower order Hampton Road.

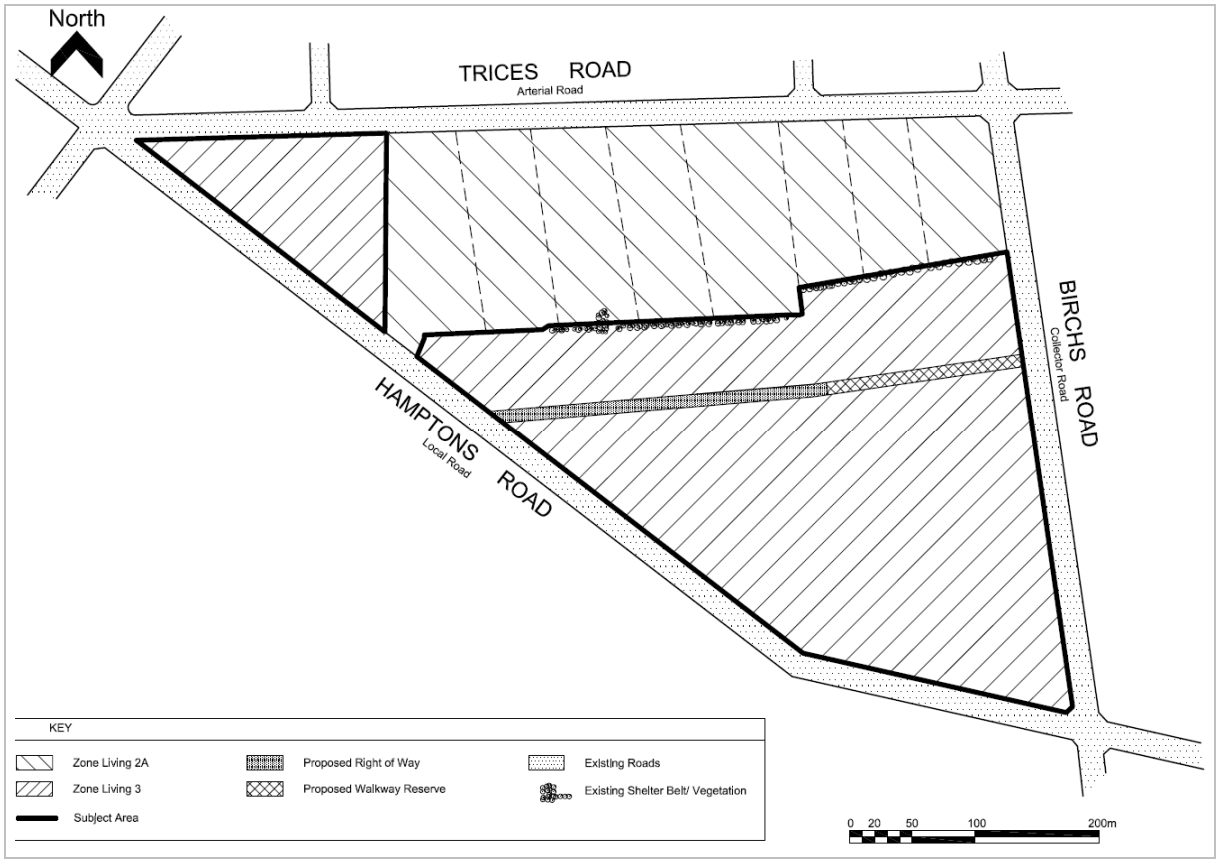
**Figure 5.1 Indicative Site Plan**




5.3 Although the layout shown in the indicative plan includes a ROW with a cul-de-sac, there is the potential to provide a higher degree of connectivity for non-motorised road users through the provision of a shared path that extends through to Birchs Road. The path will reduce cycle and walking distances and make these modes of travel more attractive. The path will link in well with existing infrastructure on Birchs Road.

5.4 Should this Plan Change be given approval an Outline Development Plan (ODP) will be included in the Selwyn District Plan as shown in **Figure 5.2** (a larger plan has been included in **Appendix D**). The ODP shows some of the proposed plan change features such as the ROW and shared path.

**Figure 5.2 Proposed Outline Development Plan**



# 6 ANTICIPATED TRAVEL PATTERNS

### Current Traffic Generation of the Site

6.1 The Plan Change area currently has three residential properties. There will be some traffic generation by these properties; however, the extent of this will be low, in the order of 20-30 vehicle movements per day. For the analysis of the proposed Plan Change, the existing generation has been assumed to be nil in order to provide a robust analysis.

### Traffic Generation of the Proposed Plan Change

6.2 Traffic generation rates have been found through reference to the New Zealand Trip Database Bureau (TDB) and from surveys of a similar nature to the development that could occur under the proposed Plan Change. Generally, for residential development in rural areas, trip chaining occurs which means that the traffic generation rate per household is lower than that within more urbanised areas. Consequently, a (conservative) daily trip rate of 8 trips per dwelling per day has been allowed for, with 1 vehicle movement per residence in each of the peak hours. The trip generation rates used within this analysis are shown in **Table 6.1**.

**Table 6.1 Estimated Residential Trip Rates**

| Time Period | | Trip Rates Per Dwelling | | |
|---|---|---|---|---|
| | | Entering Site | Exiting Site | Total |
| Weekday | Morning peak hour (0800-0900) | 0.25 | 0.75 | 1.0 |
| | Evening peak hour (1700-1800) | 0.65 | 0.35 | 1.0 |
| | **Daily** | **4.00** | **4.00** | **8.00** |

6.3 Based on these trip rates, the trip generation of the maximum development that could occur under the proposed Plan Change is shown in **Table 6.2** assuming that there will be 16 residences established.

**Table 6.2 Trip Generation for the Development Facilitated by the Proposed Plan Change**

| Time Period | | Trip Generation | | |
|---|---|---|---|---|
| | | Entering Site | Exiting Site | Total |
| Weekday | Morning peak hour (0800-0900) | 4 | 12 | 16 |
| | Evening peak hour (1700-1800) | 10 | 6 | 16 |
| | **Daily** | **64** | **64** | **128** |

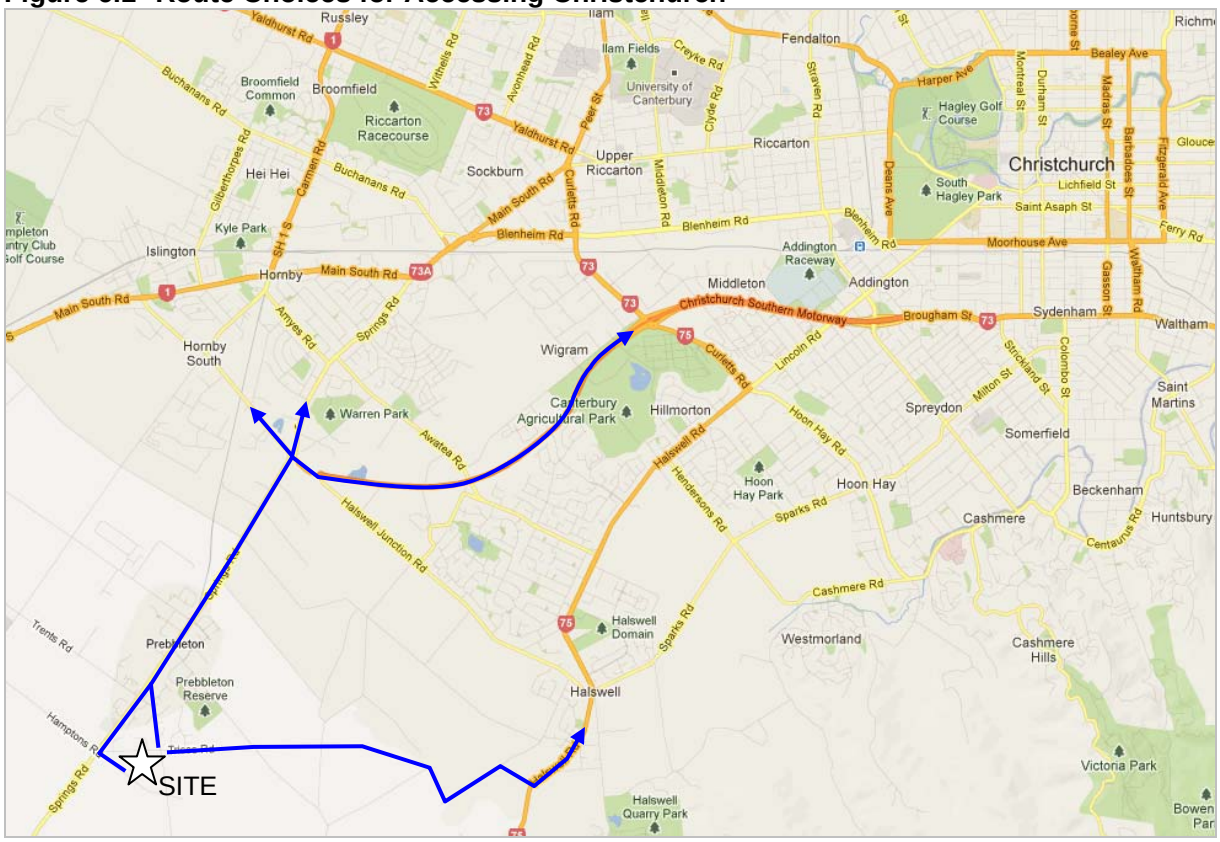
### Vehicle Distribution and Assignment

6.4 Distribution of the vehicle movements will depend on the intended destination of the trip. With Prebbleton being located close to the city of Christchurch it is likely that much of the traffic will commute towards Christchurch in the morning peak period and the reverse would occur in the evening peak. Other destinations will include the likes of Lincoln and Rolleston but to a lesser extent. Therefore, for this assessment it has been assumed that 90% of the traffic will have a destination to the north or into Christchurch and the remaining 10% will have a destination to the south or west of the site.

6.5 Drivers have two choices to access the city of Christchurch. The first route is to head north on Birchs Road or west on Hamptons Road followed by Springs Road and then disperse towards the final destination via the roads that connect at the Haswell Junction Road / Springs Road / Southern Motorway roundabout. The alternative route would be to head east along Trices Road and enter Christchurch via Halswell Road and Lincoln Road. These routes are depicted in **Figure 6.1**.

6.6 Stage 1 of the Christchurch Southern Motorway opened in December 2012 providing a safer and faster route into Christchurch from the southwest. It is likely that this would provide a far more attractive route than travelling through Halswell unless the destination was near Halswell. In this regard, the conservative approach to traffic assignment is to assume all traffic heading to Christchurch will take the Birchs Road / Springs Road route as this involves turning right at the Springs Road / Birchs Road intersection.

**Figure 6.1 Route Choices for Accessing Christchurch**



# 7 APPRAISAL OF TRANSPORT EFFECTS

### Intersection Performance

7.1 Through comparing the traffic assignment described in Section 6 with the existing traffic volumes shown in Figure 4.2, it can be seen that the proposed Plan Change generally does not increase the traffic flows to such an extent that a formal assessment is required of the various intersections.

7.2 As before however, an assessment has been carried out of the Springs Road / Birchs Road intersection, in view of this being the busiest intersection and also where the highest proportion of traffic associated with the Plan Change could gain access onto the wider network. To be robust all of the additional Plan Change traffic has been assigned through the intersection. Assessment past this point will not be necessary with the low additional traffic volumes involved. The SIDRA Intersection model has been used to assess the intersection allowing for full development of the Plan Change and the results are shown in **Table 7.1** for the morning peak and in **Table 7.2** for the evening peak.

**Table 7.1 Springs Road / Birchs Road Intersection, AM peak, with full development of the Plan Change area**

| Movement | Degree of Saturation | Average Delay (secs) | Level of Service | 95% Queue Length (veh) |
|---|---|---|---|---|
| South East: Birchs Road | | | | |
| Left | 0.011 | 8.0 | A | 0.2 |
| Right | 0.234 | 9.7 | A | 6.8 |
| North East: Springs Rd NthE App | | | | |
| Left | 0.054 | 6.6 | A | 0.0 |
| Through | 0.136 | 0.0 | A | 0.0 |
| South West: Springs Rd SthW App | | | | |
| Through | 0.076 | 0.0 | A | 0.0 |
| Right | 0.005 | 8.1 | A | 0.0 |

**Table 7.1 Springs Road / Birchs Road Intersection, PM peak, with full development of the Plan Change area**

| Movement | Degree of Saturation | Average Delay (secs) | Level of Service | 95% Queue Length (veh) |
|---|---|---|---|---|
| South East: Birchs Road | | | | |
| Left | 0.014 | 9.0 | A | 0.0 |
| Right | 0.287 | 13.1 | B | 1.2 |
| North East: Springs Rd NthE App | | | | |
| Left | 0.157 | 6.6 | A | 0.0 |
| Through | 0.167 | 0.0 | A | 0.0 |
| South West: Springs Rd SthW App | | | | |
| Through | 0.151 | 0.0 | A | 0.0 |
| Right | 0.004 | 9.6 | A | 0.0 |

7.3 The results of the SIDRA model show that with the additional traffic from the development of the Plan Change area, the Springs Road / Birchs Road intersection will perform well within capacity. The degree of saturation on every approach is less than 30%, there are no changes to the levels of service and the delays at the

intersection for the non-priority movements increase by only 0.2 seconds. This would be indiscernible to a driver.

### Active Transport

7.4 The indicated layout of the site showed that a shared path would be provided from the centre of the site to Birchs Road. This path will connect with the ROW and therefore reduce cycle and walking distances and make these modes of travel more attractive. The path will link in well with existing infrastructure on Birchs Road.

### Road Safety

7.5 The proposed site accesses will be designed to comply with best practice and the District Plan and thus it is unlikely that any adverse safety effects will arise as a result of vehicles entering and exiting the site. The wide grass berms that exist within the current road reserve will enable excellent visibility to be achieved from the site access points onto the external road network which will further enhance the safety of the access points.

7.6 The majority of the new vehicle movements associated with the development facilitated by the Plan Change will enter and exit the site via driveways or a ROW on Hamptons Road. This is an ideal situation in terms of roads safety as accessing the higher order roads in the network will occur at existing intersections.

7.7 The analysis of the existing crash history highlights that there are no existing road safety issues on the adjacent road network. The low increase in traffic volume is therefore unlikely to create any additional safety issues.

### Summary / Conclusions

7.8 The analysis set out above shows that the traffic associated with the proposed Plan Change can be accommodated on the roading network without significant adverse efficiency or safety-related issues arising.

# 8 COMPLIANCE WITH POLICY FRAMEWORK

**Canterbury Regional Policy Statement (RPS) and Proposed Change 1 (PC1)**

8.1 The Canterbury Regional Policy Statement (RPS) has been prepared to meet the requirements of the Resource Management Act 1991, and aims to promote sustainable management of natural and physical resources. The RPS covers the area of Greater Christchurch; the proposed Plan Change is located just within the western boundary of this area.

8.2 Chapter 12 of the RPS outlines policies relating to Settlement and The Built Environment. The relevant transport policies within this section of the RPS are:

- **Policy 1**: Promote settlement and transport patterns and built environments that will:
  - *(a) result in increasingly effective and efficient use of resources, particularly energy.*
  - *(b) reduce the rate of use of non-renewable energy sources.*
  - *(c) minimise the adverse effects of emissions into the atmosphere resulting from the use of motor vehicles and building heating.*
  - *(d) incorporate energy efficient approaches to building orientation, form and design.*
- **Policy 3**: Encourage settlement patterns that will make efficient use of the regional transport network.

8.3 Chapter 15 of the RPS outlines four policies directly relevant to transport. These policies are:

- **Policy 1**: *"Protect Canterbury's existing transport infrastructure and land transport corridors necessary for future strategic transport requirements by avoiding, remedying, or mitigating the adverse effects of the use, development or protection of land and associated natural and physical resources on transport infrastructure."*
- **Policy 2**: *"Promote the use of transport modes which have low adverse environmental effects."*
- **Policy 3**: "*Promote changes* in movement patterns, travel habits and the location of activities, which *achieve a safe, efficient and cost-effective use of the transport infrastructure and reduce the demand for transport."*
- **Policy 4**: *"Ensure that in the provision, realignment or maintenance of transport infrastructure,* adverse *effects on natural resources that meet the criteria of sub-chapter 20.4 are avoided, remedied, or mitigated."*

8.4 Sub-chapter 20.4 of the RPS outlines matters of "regional significance" from an environmental conservation (plant, wildlife, heritage) view point, but this is not applicable to the subject site from a transportation perspective.

8.5 The proposed Plan Change integrates well with the existing transport infrastructure, with access arrangements limiting the effects on the strategic road network. The existing walking and cycling infrastructure near the Plan Change area provides for walking and cycling within the area, particularly to and from the Prebbleton and Lincoln townships. Trips to and from larger activity centres could be undertaken by public transport using the bus service that runs adjacent to the eastern edge of the site linking Christchurch to Lincoln.

8.6 Proposed Change 1 (PC1) to the RPS provides objectives and policies that specifically address the development of the Greater Christchurch area for the years 2007-2041 with specific emphasis on the period to 2026. It also sets out the sub-regional land use distribution for Greater Christchurch and identifies specific areas for urban development. The selection of these areas has taken into account the need to ensure that the transport network remains effective and efficient.

8.7 The policies relating to transport for the Plan Change area are:

***Policy 1**: "Except as provided for in Policy 12 and in Chapter 12, Policy 8 (Papakainga Housing), urban activities within the Greater Christchurch shall only occur within the Urban Limits delineated on Map 1."*

***Policy 7**: "Development of Activities in Greenfields, Intensification Areas, and Key Activity Centres should give effect to urban design best practice. The principles of the Urban Design Protocol (Ministry for the Environment, 2005) shall be observed when preparing or assessing any urban development and the following matters shall be provided for:*

- *good safe connectivity within the area, and to surrounding areas, by a variety of transport modes, including motor vehicles, cycling, pedestrian and public transport, and provision for easy and safe transfer between modes of transport,*
- *location within walkable distance to, community, social and commercial facilities,*
- *provision for effective, efficient and attractive walk and cycleways, preferably integrated with open space and stormwater detention areas, within, across and linking beyond the area,*
- *provision for a range of areas of residential densities and lot sizes, with higher residential densities located within walking distance of Key Activity Centres and commercial centres,*
- *effective and efficient use of existing and new infrastructure networks.*

***Policy 9**: "(a) Development of Greenfield Development Areas, Intensification Areas and Key Activity Centres, shall avoid overloading existing transport network infrastructure, particularly strategic roads, and avoid detracting from the primary through-traffic function of state highways and arterial roads, (b) The Canterbury Regional Council, territorial authorities and transport infrastructure providers shall ensure that the land transport networks within Greater Christchurch provide for the safe, sustainable, integrated movement of goods and people both within the sub-region, and to and from locations outside the sub-region."*

***Policy 10**: "Ensure urban activities do not adversely effect the operations and thus viability of strategic transport infrastructure, including:*

*a) Christchurch International Airport.*
*b) Port of Lyttelton.*
*c) Strategic land transport network.*
*d) Rangiora Airfield."*

8.8 The development of the Plan Change area will be consistent with PC1 Policy 7. Existing high quality cycling and pedestrian facilities can be accessed from the site and a shared path within the site will offer improved access to these facilities.

8.9 The Plan Change area will have direct and safe access to the existing classified road network, which is consistent with PC1 Policy 9.

8.10 The activities associated with the Plan Change area will not affect the operations and thus viability of strategic transport infrastructure which is consistent with PC1 Policy 10.

**Canterbury Regional Land Transport Strategy**

8.11 The Canterbury Regional Land Transport Strategy (RLTS) 2012-2042 has a vision that "*Canterbury has an accessible, affordable, integrated, safe, resilient and sustainable transport system*". The vision is supported by the following objectives:

- *Increase transport safety for all users*
- *Protect and promote public health*
- *Assist economic development*
- *Improve levels of accessibility for all.*

8.12 To deliver on the objectives a set of regional transport outcomes has been identified.

- Reduced greenhouse gas emissions from use of the domestic transport system.
- *Improved resilience of the transport network to infrastructure damage or emergencies.*
- *Improved resilience of the transport system to external changes.*
- *Improved land use and transport integration.*
- *Reduction in fatal and serious injuries for all modes.*
- *Improved personal safety and reduced security risks to all transport users.*
- *Improved health from increase in time spent travelling by active means.*
- *Increased proportion of the population travelling by active means.*
- *Reduced community exposure to vehicle pollutants, noise and vibration.*
- *Improved journey time reliability on the strategic transport network.*
- *Increased energy efficiency per trip.*
- *Regional and inter-regional journey time reliability on key freight routes is maintained.*
- *Freight hubs are protected and maintained.*
- *Connectedness is enhanced.*
- *Increased travel choices for households to access urban and suburban centres.*
- *Improved mobility for the transport disadvantaged.*

8.13 The RLTS takes into account the priorities, needs and aspirations contained in the New Zealand Land Transport Strategy and the Land Transport Management Act as well other national policy documents specifically addressing vehicle emissions, road safety, walking and cycling and climate change.

8.14 Of importance to the proposed Plan Change, the RLTS acknowledges the differences between urban and rural areas with respect to their characteristics and ability to contribute to the outcomes sought as follows.

- *Private motor vehicles – Private motor vehicles will continue to be the primary mode in rural areas, or between rural areas and urban areas as the distances to be travelled are often too far and the population too dispersed to provide realistic alternatives. Maintenance of the rural road network is essential to maintain high levels of access and mobility in rural Canterbury.*
- *Walking – Walking will be limited in rural areas given the long distances that are usually associated with rural trips. Trips made in and around rural centres can often be made on foot. Walking can be supported by pedestrian facilities in rural centres.*
- *Cycling – Cycling can provide access in and around rural centres. In remote rural areas cycling may be impractical given the long distances that are usually associated with rural trips. Cycling can be supported by providing a low speed environment and parking for cycles in rural centres as well as safety improvements and road user behaviour marketing campaigns on rural routes where there is potential for frequent cycle use.*

- *Public transport – Public transport in rural areas will be limited due to the dispersed populations. Some local community transport schemes may be viable and intercity services may connect some rural centres to larger urban areas.*
- *Taxis – Taxi services are unlikely to be commercially viable given the low population densities and high levels of private car ownership in rural areas.*

8.15 The proposed Plan Change is considered to be consistent with the RLTS. A high standard, pedestrian and cycle environment exists on the surrounding transportation network which will enable promotion of these modes of transport and the shared path will encourage the use of these facilities.

8.16 There is currently one public transport service operating on Birchs Road and a northbound stop is located adjacent to the Plan Change site on the corner of Birchs Road and Hamptons Road. This bus service is destined to the Christchurch CBD and therefore provides an alternative to the private vehicle for commuting into Christchurch.

8.17 The Plan Change area can provide safe and direct access to the existing district road network, and will not adversely impact on the effectiveness of the adjacent strategic transport network.

**Canterbury Regional Passenger Transport Plan**

8.18 The purpose of the Regional Passenger Transport Plan is to set out how the Regional Council intends to give effect to the public transport service components of the Regional Land Transport Strategy, and to contribute to the purpose of the Public Transport Management Act 2008 in an efficient and effective manner. The Plan is currently being reviewed.

8.19 There is currently one public transport service operating on Birchs Road and a northbound stop is located adjacent to the Plan Change site on the corner of Birchs Road and Hamptons Road. This bus service is destined to the Christchurch CBD and therefore provides an alternative to the private vehicle for commuting into Christchurch.

**Selwyn District Plan**

8.20 The following policies in the District Plan relate to the transportation effects associated with the proposed Plan Change:

- ***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 B2.1.4(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.*
- ***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.*
- ***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.*

8.21 The scale of the Plan Change means that the traffic effects are very minimal. The layout of the Plan Change will ensure safe and efficient operation of the overall road network. The proposed shared path and the excellent cycle and walking facilities that already exist will encourage walking and cycling trips.

8.22 The site can be well integrated with the existing road network, thereby ensuring that the safety and efficiency of the existing road network is not compromised. Further, the large existing grass verges surrounding the site of the site will support excellent sight distances at the site accesses.

# 9 CONCLUSIONS

9.1 This report has identified, evaluated and assessed the various transport and access elements of a proposed Plan Change just south of Prebbleton of rezoning land which is presently zoned as Inner Plains to Living 3 and would accommodate up to 16 dwellings.

9.2 The existing road network operates safely and efficiently. The development facilitated by the proposed Plan Change can be accommodated on the adjacent roading network without any capacity, efficiency or road safety issues arising.

9.3 The proposed Plan Change is in accordance with the transportation aspects of relevant overarching strategic planning documents. It is also likely to comply with the District Plan Rules.

9.4 Overall the proposed Plan Change can be supported from a traffic and transportation perspective and it is considered that there are no traffic and transportation reasons why the Plan Change could not be recommended for approval.

# BIRCHS ROAD PLAN CHANGE

Appendix A

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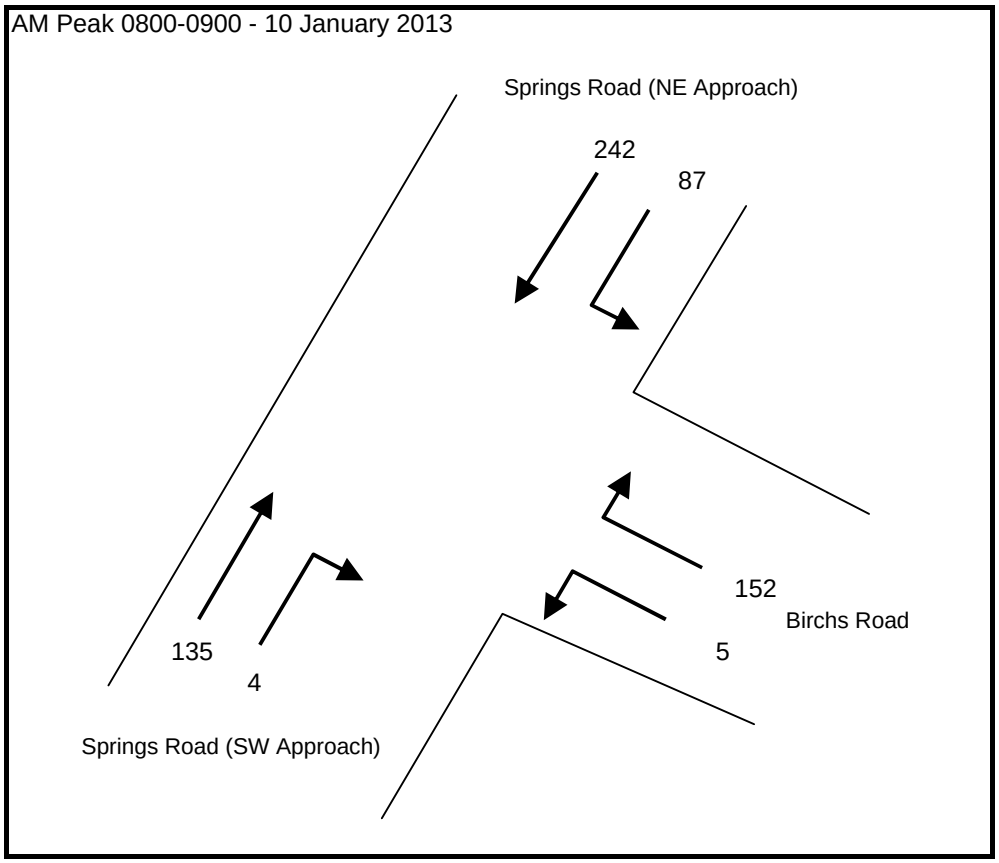
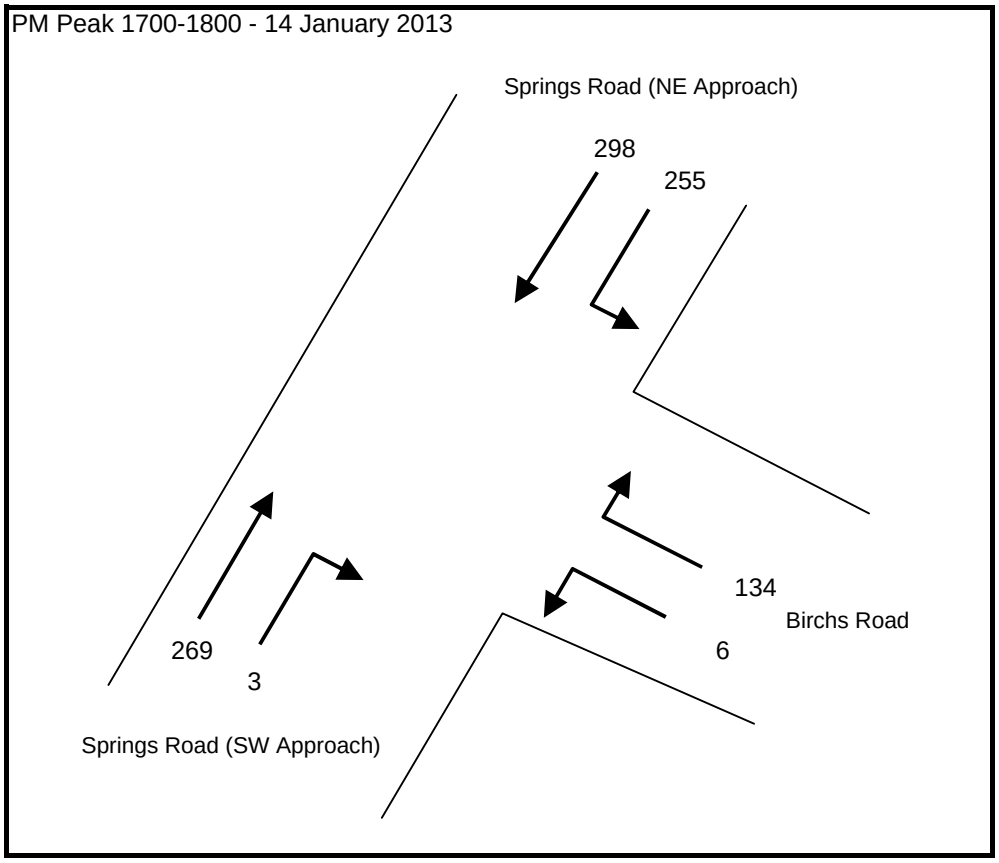
# Springs Road / Birchs Road Intersection Survey



# BIRCHS ROAD PLAN CHANGE

Appendix B

| First Street | D/I/R | Distance | Second street or landmark | Crash Number | Date DD/MM/YYYY | Day | Time HHMM | Description of Events | Crash Factors (ENV = Environmental factors) | Road | Natural Light | Weather | Junction | Cntrl | Tot Inj F A T | S E R | M I N |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| BIRCHS ROAD | 10N | | TRENTS ROAD | 201172468 | 22/08/2011 | Mon | 1303 | VAN1 SBD on BIRCHS ROAD hit CAR2 parking/unparking | CAR2 didnt see/look behind when pulling out from parked position | Dry | Bright | Fine | T Type Junction | Nil | | | |
| BIRCHS ROAD | I | | TRENTS ROAD | 2771605 | 02/03/2007 | Fri | 0030 | CAR1 SBD on TRENTS ROAD missed inters or end of road | CAR1 alcohol test above limit or test refused, too fast on straight, lost control | Dry | Dark | Fine | T Type Junction | Give Way Sign | | | |
| BIRCHS ROAD | I | | TRICES ROAD | 201022990 | 23/10/2010 | Sat | 1539 | CAR1 SBD on BIRCHS ROAD hit CAR2 turning right onto BIRCHS ROAD from the left | CAR2 did not stop at stop sign, attention diverted by driver dazzled by sun/lights, didnt see/look when required to give way to traffic from another direction ENV: dazzling sun | Dry | Bright | Fine | X Type Junction | Stop Sign | | | 4 |
| BIRCHS ROAD | I | | TRICES ROAD | 201072345 | 06/07/2010 | Tue | 0940 | CAR1 NBD on BIRCHS ROAD lost control turning left, CAR1 hit Traffic Sign, Tree | CAR1 too fast entering corner, lost control when turning, new driver showed inexperience | Dry | Overcast | Fine | X Type Junction | Stop Sign | | | |
| SPRINGS ROAD | I | | BIRCHS ROAD | 2772744 | 30/07/2007 | Mon | 0543 | CAR1 NBD on SPRINGS ROAD lost control turning right, CAR1 hit Fence, Tree on right hand bend | CAR1 too fast entering corner, lost control when turning, new driver showed inexperience ENV: slippery, heavy rain | Wet | Dark | Heavy Rain | T Type Junction | Give Way Sign | | | |
| SPRINGS ROAD | I | | HAMPTONS ROAD | 201072443 | 26/07/2010 | Mon | 0754 | CAR1 SBD on SPRINGS ROAD hit CAR2 crossing at right angle from right | CAR2 too fast to give way at intersection, did not stop at stop sign | Wet | Overcast | Fine | X Type Junction | Stop Sign | | | |
| SPRINGS ROAD | 30S | | TRENTS ROAD | 2874313 | 17/12/2008 | Wed | 1455 | CAR1 SBD on SPRINGS ROAD changing lanes to left hit VAN2 | CAR1 overtaking at no passing line, cut in after overtaking, misjudged speed, etc of vehicle coming from behind or alongside | Dry | Bright | Fine | Unknown | N/A | | | |
| SPRINGS ROAD | 100S | | TRENTS ROAD | 2972830 | 13/08/2009 | Thu | 1140 | CAR1 SBD on SPRINGS ROAD hit CAR2 U-turning from same direction of travel | CAR2 didnt see/look behind when changing lanes, position or direction | Wet | Overcast | Mist | Unknown | N/A | | | |
| SPRINGS ROAD | I | | TRENTS ROAD | 2922033 | 01/05/2009 | Fri | 1345 | CAR1 WBD on SPRINGS ROAD hit CAR2 crossing at right angle from right, CAR2 hit Fence | CAR1 failed to give way at stop sign, didnt see/look when required to give way to traffic from another direction | Dry | Overcast | Fine | X Type Junction | Stop Sign | | | 1 |
| TRENTS ROAD | I | | SPRINGS ROAD | 201272326 | 28/07/2012 | Sat | 0300 | SUV1 SBD on SPRINGS ROAD lost control turning right, SUV1 hit Post Or Pole on right hand bend | SUV1 alcohol test above limit or test refused, lost control when turning | Dry | Dark | Fine | X Type Junction | Stop Sign | | | |

# BIRCHS ROAD PLAN CHANGE

Appendix C

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North

TRICES ROAD

BIRCHS ROAD

HAMPTONS ROAD

1
6000m$^2$

2
9910m$^2$

3
5980m$^2$

4
6380m$^2$

5
5500m$^2$

6
8100m$^2$

7
5510m$^2$

ROW 3065m$^2$

100 1600m$^2$

8
7760m$^2$

9
8270m$^2$

10
5020m$^2$

11
5180m$^2$

12
6350m$^2$

13
5590m$^2$

14
1.01 ha

15
1.26 ha

16
5910m$^2$

17
4440m$^2$

NOTES:

Areas and dimensions are subject to final survey

Boundaries are from Quickmap and are approximate only

A full assessment of easements will be undertaken after the survey has been completed. This may result in additional easements to those already shown

| REV | DATE | REVISION DETAILS | APP |
|---|---|---|---|
| A | 1/13 | Preliminary Issue | JF |

DRAWING TITLE:
# Conceptual Development Layout over Pt RS 3967, Lot 1 DP 22302 & Lot 9 DP 301739

CLIENT: Conifer Grove Trustees Ltd

Appellation -
Comprised In -
Total Area -
Owners -
Address -

APPROVED: John Ferguson

DRAWN BY: E.Y.

| | | | |
|---|---|---|---|
| DATE: | 12/12 | DESIGN: | JF |
| JOB No: | 504001 | CHECKED: | JF |
| SCALE: | 1-2500@A3 | DRAWING No: | 1/1 |

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# BIRCHS ROAD PLAN CHANGE

Appendix D

North

TRICES ROAD
Arterial Road

BIRCHS ROAD
Collector Road

HAMPTONS ROAD
Local Road

KEY

Zone Living 2A

Zone Living 3

Subject Area

Proposed Right of Way

Proposed Walkway Reserve

Existing Roads

Existing Shelter Belt/ Vegetation

0 20 50 100 200m

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