

West Melton Commercial Plan Change

Mr Robin Butt

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Transportation Assessment Report

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December 2010

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Transportation Assessment Report  
Quality Assurance Statement

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Prepared by:

**Brenda O'Donoghue**

Transportation Engineer



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**Andrew Metherell**

Principal Transportation Engineer



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Approved for Issue by:

**Andrew Metherell**

Principal Transportation Engineer



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PO Box 13-835  
Christchurch  
New Zealand

P: +64 6 834 4210

[www.tdg.co.nz](http://www.tdg.co.nz)

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## 1. Introduction

A private Plan Change request is proposed to rezone approximately 8,330m<sup>2</sup> of currently Living 1 zoned land on the eastern side of Weedons Ross Road within West Melton township (between State Highway 73 and Brinsworth Avenue) to a Business 1 zone. The zoning will facilitate the development of a range of community scale retail, commercial and service uses that will contribute to reducing the dependency of West Melton and the surrounding area on Christchurch and the other town centres in the Selwyn District.

This Transportation Assessment assesses the transportation matters associated with rezoning the site to Business 1, and the need for any specific transport related rules or matters to include in a development plan. An assessment of the rezoning is also undertaken against relevant transportation policies and objectives within planning documents such as the District Plan, Regional Policy Statement, and the Regional Land Transport Strategy.

This assessment also considers the implications of travel to and from the proposed development on the adjacent transport network, and demonstrates how the network can accommodate the altered transport patterns. Whilst this Transportation Assessment addresses travel by private motor vehicle, it also recognises the importance of other forms of transport. Consequently consideration has also been given to public transport, walking and cycling.

## 2. Existing Transport Infrastructure

### 2.1 Site Location

**Figure 1** shows the location of the proposed Plan Change site within the context of the wider transport network, and the road hierarchy classified in the Selwyn District Plan. As can be seen, the site is located on the eastern side of Weedons Ross Road in the West Melton township, approximately 14km to the west of the Christchurch urban boundary, and 23km from Christchurch City Centre.

State Highway 73 (SH73) provides the main transport route through the township, connecting Christchurch with the West Coast, and is classified as a Strategic Road. Weedons Ross Road provides another important link within the Selwyn District, connecting West Melton to the Rolleston area which is approximately 10km to the south of the site, although it currently only has a local road classification. Other roads of note are Halkett Road, which provides alternative access into the northern part of West Melton township.

**Figure 2** shows that the site itself is within the existing extent of West Melton township, being bounded by Weedons Ross Road to the west, a child care centre to the north, residential lots to the east, and a church to the south. Within the township, West Melton Primary School and the West Melton fire service are also located close to the development, on the western side of Weedons Ross Road. Other landuse features in the township include a BP service station on the north-western corner of the SH73/Weedons Ross Road intersection; and the West Melton Community Centre and West Melton Tavern which are both located on the south side of SH73 west of Weedons Ross Road. Sports fields and facilities are located adjacent to West Melton Road, south of SH73.

The Plan Change site is currently unoccupied, and access from Weedons Ross Road is restricted by a reserve strip running between the site and Weedons Ross Road. This reserve strip includes a water channel, with a single concrete bridge crossing just north of the church into the site.

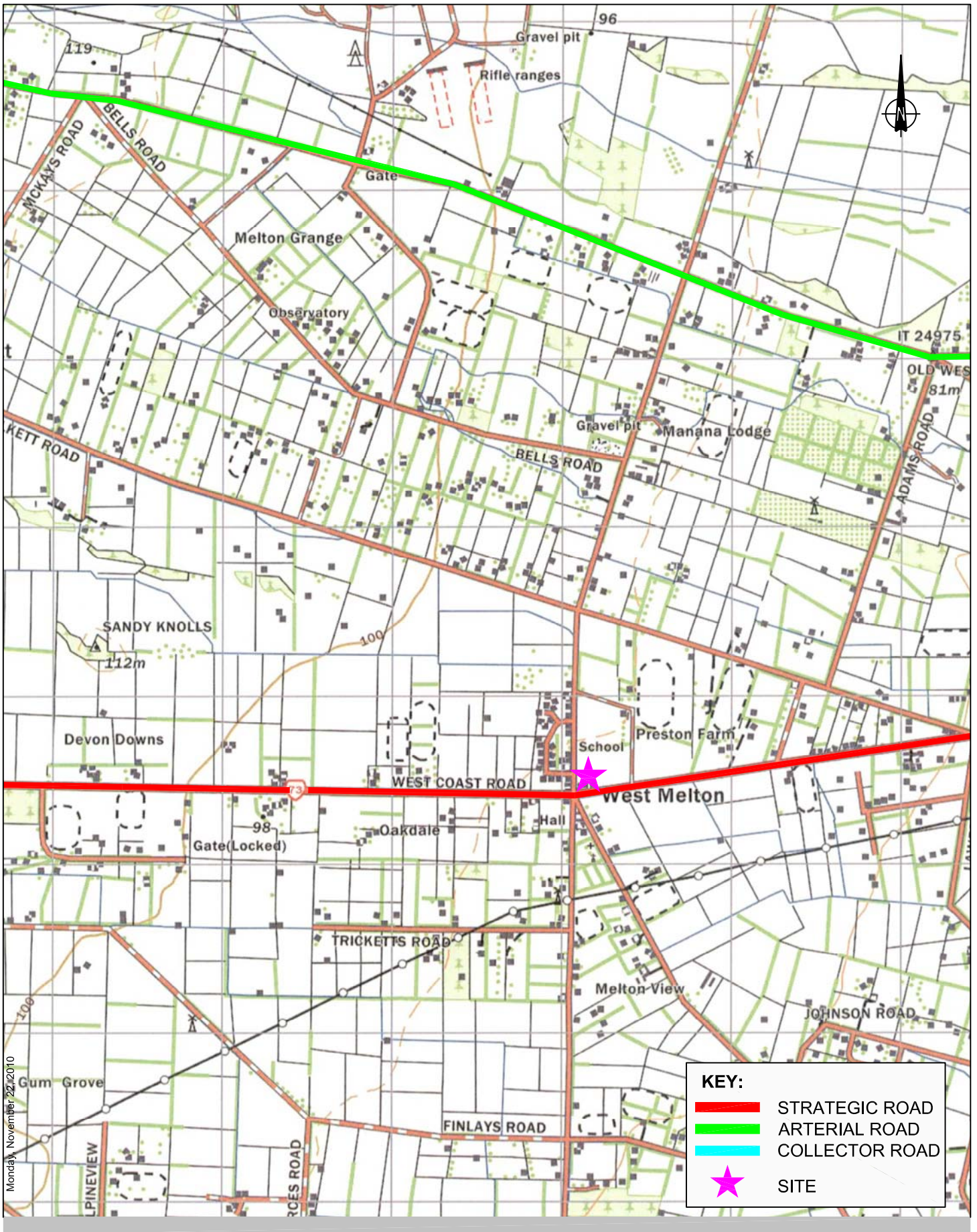
### 2.2 Local Access

#### 2.2.1 Weedons Ross Road

Weedons Ross Road is defined as a Local Road in the District Plan. Within West Melton the road has a straight horizontal alignment with power poles and an open water channel to the east of the carriageway. The posted speed limit is 50km/h on the northern side of the intersection with West Coast Road for approximately 600m to the end of the existing urban area, at which point it changes to an open road restriction. School warning signs are in place in each direction on the approach to the primary school.

As shown in Photograph 1, the road has two 3m wide traffic lanes in the vicinity of the Plan change site. On the western side of the carriageway there is a parking lane of some 2m, a 1.5m wide footpath, and a grass verge. The eastern side of the carriageway in front of the site has a wide sealed shoulder, although there are no-stopping restrictions along most of the site frontage.





## West Melton Commercial Plan Change

### Site Location & Road Hierarchy

Traffic Design Group

1

SCALE: 1:30,000





## West Melton Commercial Local Transport Environment

Traffic Design Group

2

SCALE: 1:2000



**Photograph 1: Weedons Ross Road north of Westview Crescent (south), looking south**

Further south, the eastern side of Weedons Ross Road has been widened adjacent to the Gainsborough subdivision, providing a 2m wide parking lane with mountable kerb and channel. No footpath exists on the eastern side of Weedons Ross Road, and properties gain access to the road with bridged driveways across the water channel.

#### 2.2.2 West Coast Road

West Coast Road runs in a generally straight east to west alignment through West Melton, with a typical two-lane carriageway divided by a centreline. The SH73 posted speed limit is 80km/h within the township boundaries. It forms a priority Stop controlled cross-road intersection with Weedons Ross Road, and right turn bays are provided on each West Coast Road approach to the Weedons Ross Road intersection. The intersection is shown in Photograph 2.



**Photograph 2: West Coast Road / Weedons Ross Road Intersection – Looking West**

The location of the intersection on a bend in West Coast Road results in some restrictions to the drivers view lines from the Weedons Ross Road north approach, when looking to the west. This



is because the road carriageway is very close to the boundary and the north side is on the inside of the bend. At 5m back from the edge line, there is some 190m of sight distance available when looking through the service station forecourt, which is equivalent to the 185m recommended for a 85km/h design speed by Austroads "Guide to Road Design Part 4A: Unsignalised and Signalised Intersections".

### 2.2.3 Other Roads

Westview Crescent intersects with Weedons Ross Road via an uncontrolled intersection opposite the site, and provides an 8m carriageway. It is flanked by residential development and the West Melton Primary School.

Brinsworth Avenue is 8m wide and located further to the north of the site, providing access into the Gainsborough residential subdivision on the eastern side of Weedons Ross Road.

Weedons Ross Road connects with Halkett Road north of the urban area, with Halkett Road being a 6m wide road with centreline. It operates with an open road speed limit, although this is expected to be reduced once further residential development in Gainsborough is established.

## 2.3 Parking

Near the Plan Change site, Weedons Ross Road allows for on-street parking along the western side. There are some parking time restrictions in place during school start and end times outside of the school. Along the eastern side, parking is restricted from Brinsworth Street to the southern end of the Plan Change site. Westview Crescent has no particular parking restrictions.

## 2.4 Public Transport

Red bus 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 a stop in West Melton at the tavern at 7.35am on the inbound service, and 6.10pm on the outbound service. In addition, there is a further service on a Friday, passing through West Melton at 10.30am in the morning heading into the city, and returning through West Melton at 3.40pm. To and from West Melton, the service is \$5 for an adult, and \$3.50 for a child and takes approximately 40min to reach the city centre bus exchange. There are also a number of school buses which service the West Melton Primary School located opposite the site on Weedons Ross Road, with buses parking on the road.

## 2.5 Footpath and Cycle Routes

As indicated by Figure 2, residential development in West Melton is currently predominantly to the north of SH73, and there are some community facilities to the south of SH73. North of SH73, 1.5m wide pedestrian footpaths (shown in Photograph 3) are provided on the western side of Weedons Ross Road for 720m to the northern end of where the Gainsborough subdivision provides direct lot access to Weedons Ross Road. Footpaths are provided on both sides of Westview Crescent.



**Photograph 3: Footpath on West Coast road adjacent to the West Melton Tavern, looking east**

On the southern side of West Coast Road a footpath connects the West Melton Tavern to the community hall, and a footpath connects the tavern to the domain along the western side of West Melton Road. There is also a 250m long section of footpath along the western side of Weedons Ross Road south of West Melton Road.

There is no formally identified pedestrian crossing point across West Coast Road to link the southern and northern sections of Weedons Ross Road.

There are no specific provisions for cyclists in the vicinity of the site, as traffic volumes are low enough that cyclists can comfortably share the available road space.

### 3. Current Travel Patterns

#### 3.1 Daily Traffic Patterns

**Figure 3** illustrates the pattern of daily traffic volumes in the vicinity of the Plan Change site, and has been assembled using the most recent data available from the Selwyn District Council (2009) and NZTA (2009).

The traffic volumes are dominated by the West Coast Road state highway traffic, primarily associated with access to Christchurch City. Notably, traffic volumes on West Coast Road are substantially higher east of West Melton than they are to the west. All roads in the area are operating well within their traffic carrying capacity.

#### 3.2 Hourly Patterns

**Figure 4** shows the pattern of hourly traffic volumes on West Coast Road in the vicinity of the development, recorded by NZ Transport Agency (NZTA) over the course of a seven-day period in September 2009. The main characteristics of the two-way hourly traffic patterns can be summarised as follows:

- the weekday morning and evening two-way peak hour flows reach volumes of some 700vph in the peak hours of 7am – 8am and 5pm – 6pm
- the two-way weekday traffic volumes drop gradually to around 350vph during the early afternoon midway between the peak periods
- eastbound flow peaks on weekday mornings are around 510 vehicles per hour (vph) from 7am to 8am. Volumes in this direction drop to remain at some 200vph for the rest of the day.
- westbound weekday flow peaks with some 490vph in the evening between 5pm and 6pm. Volumes of around 200vph are present during the day increasing towards the peak hour.
- weekend flows typically comprise volumes of some 400 to 600vph two-way between 10am and 6pm on Saturday and Sunday
- traffic volume peaks occur between 5pm and 6pm on Saturday and 4pm to 5pm on Sunday with 590vph and 550vph respectively

Such patterns of traffic movements demonstrate a strong commuter peak and also reflect the importance of West Coast Road as both a commercial route and a recreational route. Even at peak traffic volumes, SH73 operates well within its practical traffic carrying capacity.

**Figure 4** also shows the pattern of hourly traffic volumes on Weedons Ross Road, between SH73 and Westview Crescent, recorded by the Selwyn District Council over the course of a seven-day period in May 2009. The main characteristics of the two-way hourly traffic patterns can be summarised as follows:

- the weekday morning and evening two-way peak hour flows reach volumes of some 250vph during the AM peak hour of 9am – 10am and some 190vph during the peak hour of 4pm – 5pm
- the two-way weekday traffic volumes drop gradually to around 80vph during the early afternoon midway between the peak periods
- southbound flow peaks on weekday mornings rise to around 145 vehicles per hour (vph) from 9am to 10am. Volumes in this direction drop to remain at some 60vph for the rest of the day.



- northbound weekday flow peaks with some 115vph in the morning and evening peaks between 9am and 10am and 4pm and 5pm. Volumes of around 45vph are present during the day increasing towards the peak hour.
- weekend flows typically comprise volumes of some 50 to 100vph two-way between 10am and 6pm on Saturday and Sunday
- traffic volume peaks occur between 4pm and 5pm on Saturday and 4pm to 6pm on Sunday with 100vph and 70vph respectively

The presence of weekday primary school traffic at this site means the associated education related traffic volumes do not generally occur during the same times as work related traffic, hence an AM peak between 9am to 10am and a PM peak between 4pm and 5pm.

### 3.3 Local Traffic Patterns

Traffic Design Group undertook turning movement surveys at West Coast Road / West Melton Road on the 12th February 2008 during the morning and evening peak periods, 7am-9am, and 3pm-6pm. The peak hour in each period is summarised in **Figure 5**. The turning movements show moderate side road volumes undertaking crossing movements, and movements to and from the west, with volumes up to 43 vph being recorded on individual movements.

The current level of service at SH73 / Weedons Ross Road during the evening peak period has been assessed using Sidra Intersection software, generally coinciding with return work to home based trips from 5pm to 6pm.

Level of service has been included in the analysis outputs as a measure of the performance. Level of service (LOS) is defined as a qualitative measure describing operational conditions within a traffic stream, and their perception by motorists and passengers. Six levels of service are defined for each type of facility, from A to F, with LOS A representing the best operating conditions and LOS F the worst. LOS A is a condition of free flow in which individual drivers are virtually unaffected by the presence of others in the traffic stream whereas LOS F is a condition of forced flow, usually involving flow breakdowns, extensive queuing and delays.

Results of this PM one-hour analysis are shown in Table 1 below.

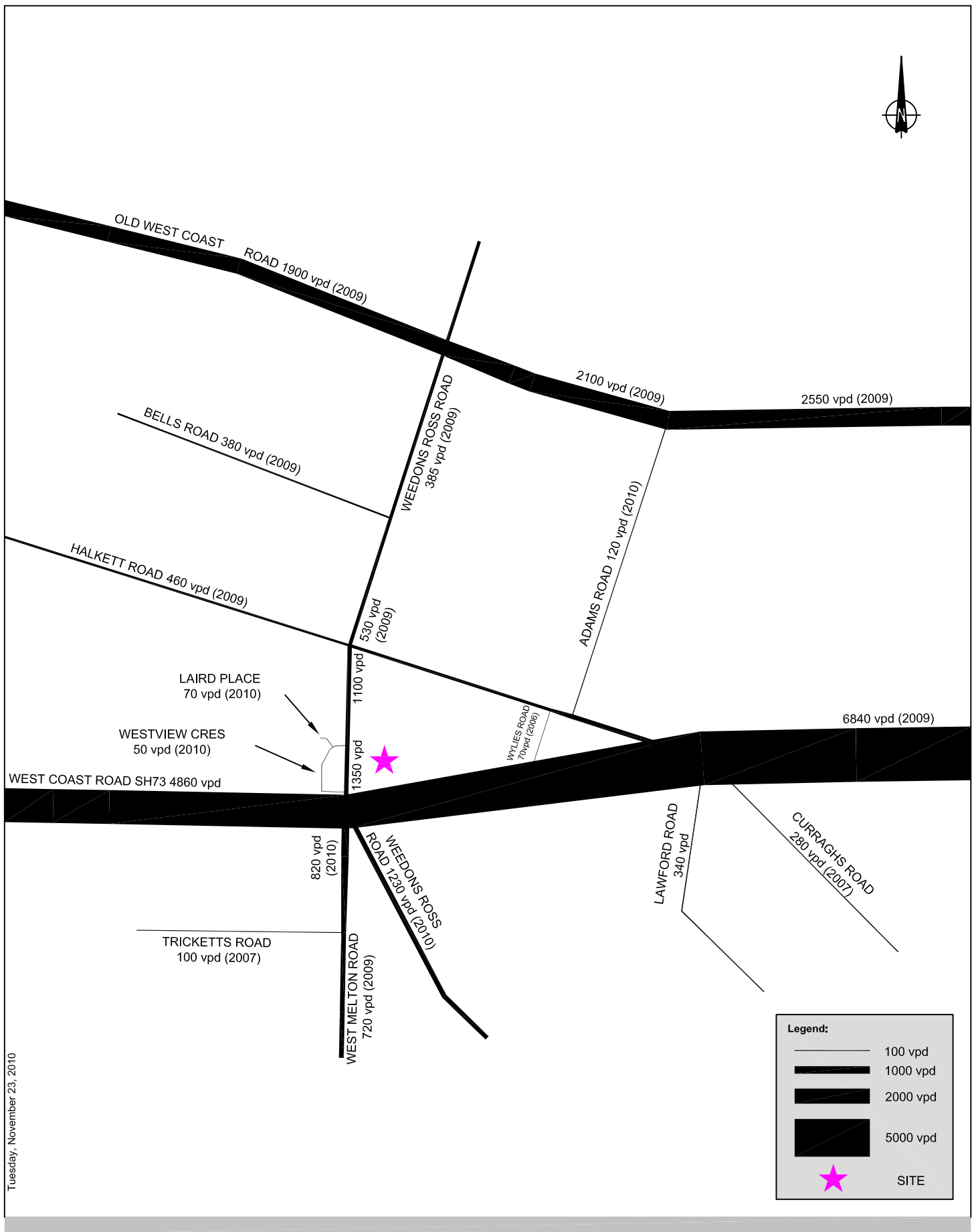
Approach	Volume (vph)	Average Delay (s/veh)	95%ile Queue (veh)	Level of Service
Weedons Ross Road north	54	4.6	0.5	C
Weedons Ross Road south	60	4.0	0.5	C

**Table 1: SH73 / Weedons Ross Road PM (5pm-6pm) – Intersection Performance**

As can be seen in the above table, the existing LOS C for the SH73 / Weedons Ross Road intersection is very good, and represents a small stop line delay of only 4 to 5 seconds per vehicle.

### 3.4 School Related Activity

Observations show that there is localised traffic and pedestrian activity around the school at the start and end of the school day, with a high level of utilisation of the on-street parking fronting the school at these times. School pupils were typically accompanied by parents back to the parked cars, and to the local residential areas.



## West Melton Commercial Plan Change

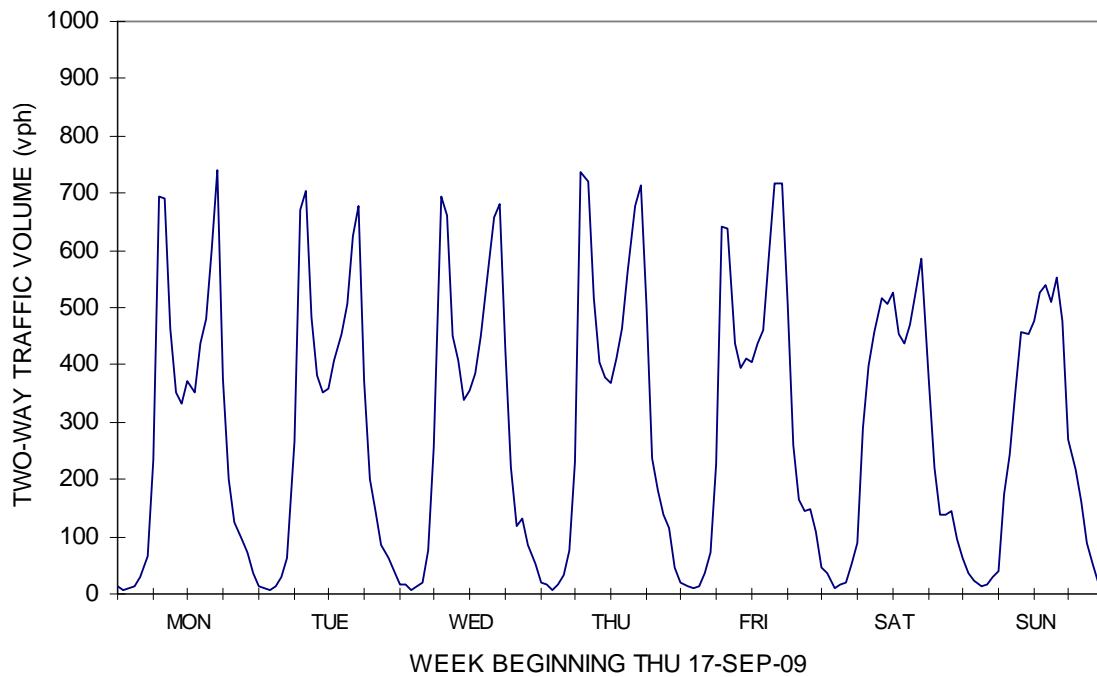
### Daily Traffic Volumes

Traffic Design Group

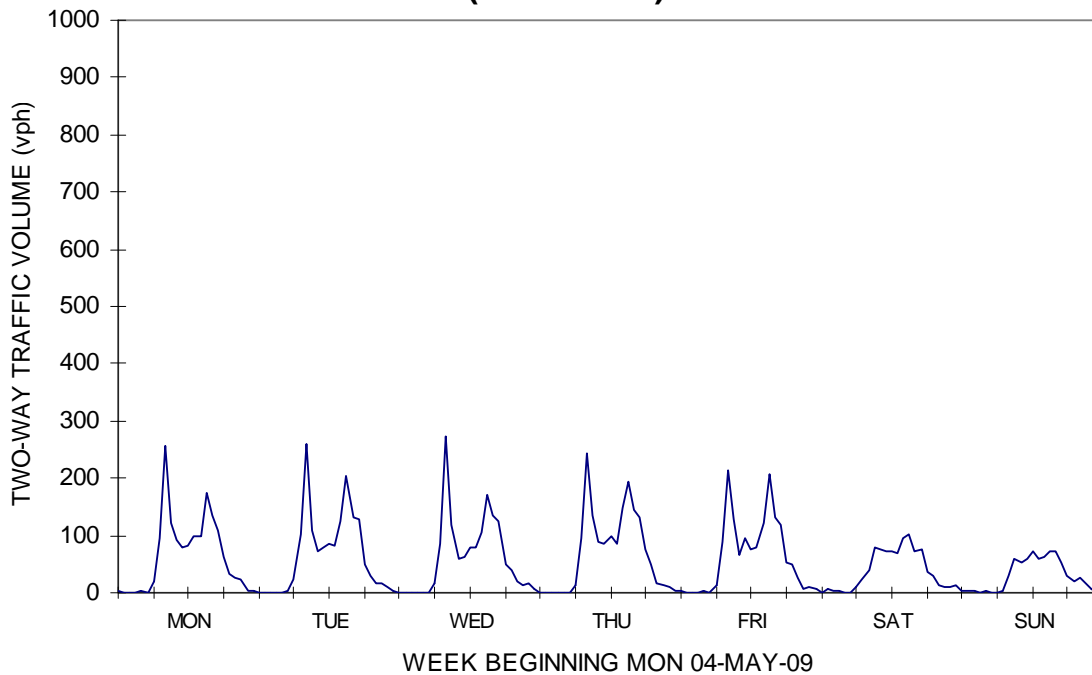
3

SCALE: NTS

## SH73 EAST OF DAWSONS ROAD (TWO-WAY)

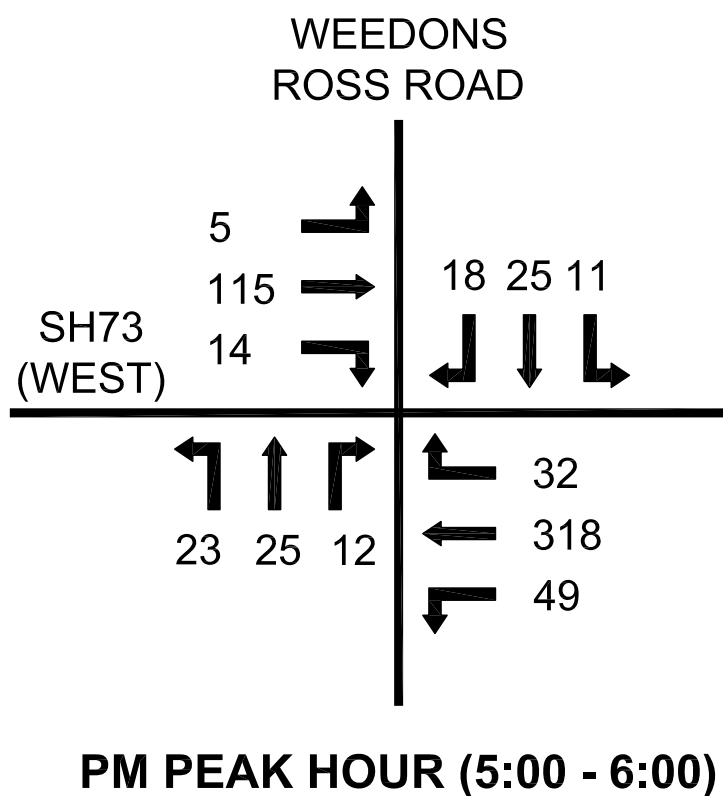
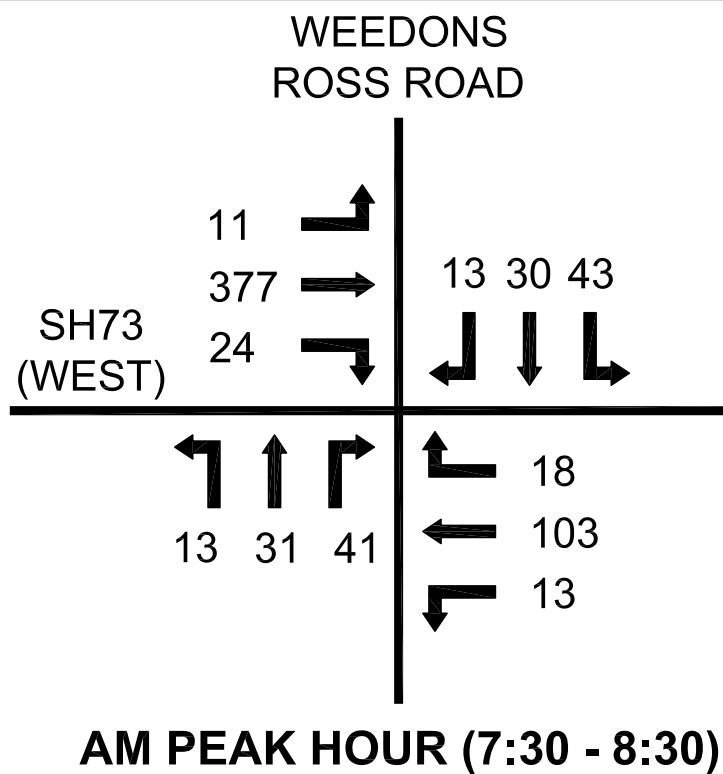


## WEEDONS ROSS RD SOUTH OF WESTVIEW CR (TWO-WAY)



Monday, November 22, 2010





**Key:**  
**XX Vehicles per Hour**

Monday, November 22, 2010

## 4. Road Safety

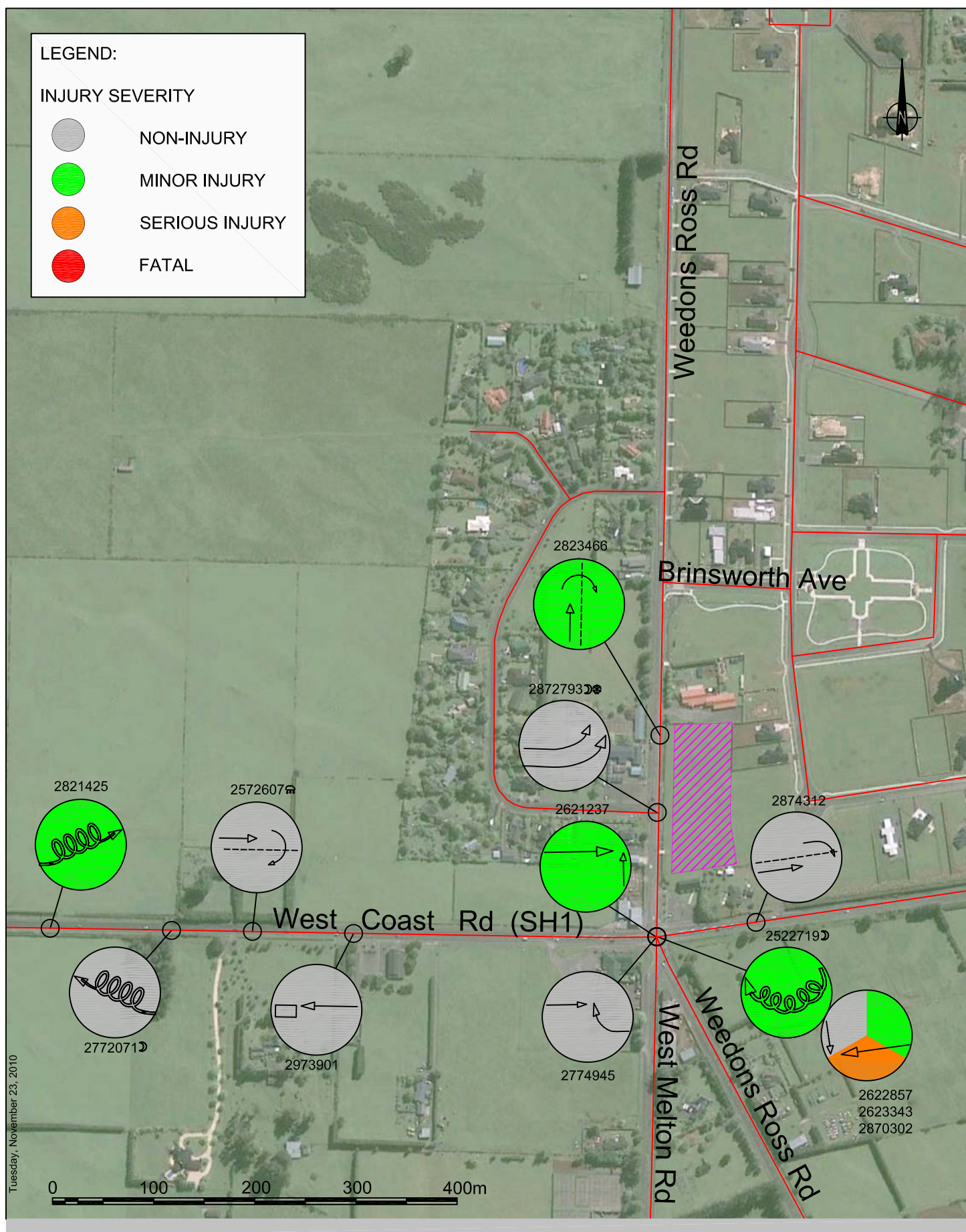
The NZTA Crash Analysis System (CAS) has been used to identify all reported crashes in the vicinity of the development site. The study covered both injury and non-injury crashes for the most recent, full five year period between 2005 and 2009. The area investigated covers all roads within the West Melton township.

**Figure 6** shows the location and type of the reported crashes that occurred during the search period. The crashes at intersections show a pattern of drivers failing to give way when required at a stop or give way sign, and the mid-block crashes show a pattern of loss-of-control and manoeuvring.

The West Coast Road / Weedons Ross Road intersection was the only intersection to have multiple injury accidents, of which there were four. Two of the crashes involved vehicles westbound hitting vehicles crossing from the north, one crash involved a vehicle eastbound hitting a car crossing from the south, and the other crash involved the driver of a vehicle losing control whilst turning (the result of fatigue). With adequate sight distance available, there are no significant engineering deficiencies attributable to these crashes and they instead appear to be primarily the result of driver error.

In the vicinity of the site frontage, there has been a non-injury crash at the Weedons Ross Road / Westview Crescent Road intersection late at night as a result of a driver attempting to stop another driver with their vehicle. A minor injury crash occurred 200m north of the SH73 / Weedons Ross Road intersection when a vehicle collided with a u-turning vehicle that had failed to give way.

Overall, this accident record does not suggest that there are any significant underlying safety deficiencies on the roads in the vicinity of the development area.



## West Melton Commercial Plan Change

### Road Safety Diagram (2005 - 2009)

Traffic Design Group

6

SCALE: 1:5000



## 5. Future Changes to Transport Network

### 5.1 West Melton

Within West Melton there is provision for further residential development as indicated by planning maps in the Selwyn District Plan. This includes the “Gainsborough” subdivision in the north-east quadrant which is currently being developed, the “South Block” to the south-east of SH73 / Weedons Ross Road which is zoned but yet to be developed, and the “Preston Downs” site to the north-west which has been approved as part of Plan Change 3 but is currently subject to Environment Court appeal. These areas also form the West Melton urban limit through to 2041 indicated by Proposed Change 1 to the Regional Policy Statement (also subject to Environment Court Appeal).

This growth is expected to have the following approximate residential yields (from the PC3 commissioner decision), including existing development:

Development	Zoning	Yield	Status
Westview Cres	Living 1	42	Existing
Gainsborough	Living 1 & Living 1B	204	Existing / Under Development
South Block	Living 2 & Living 2A	96	Zoned / No Development
Preston Downs*	Living WM	292	Plan Change 3 Under Appeal
<b>Total West Melton</b>		<b>634</b>	

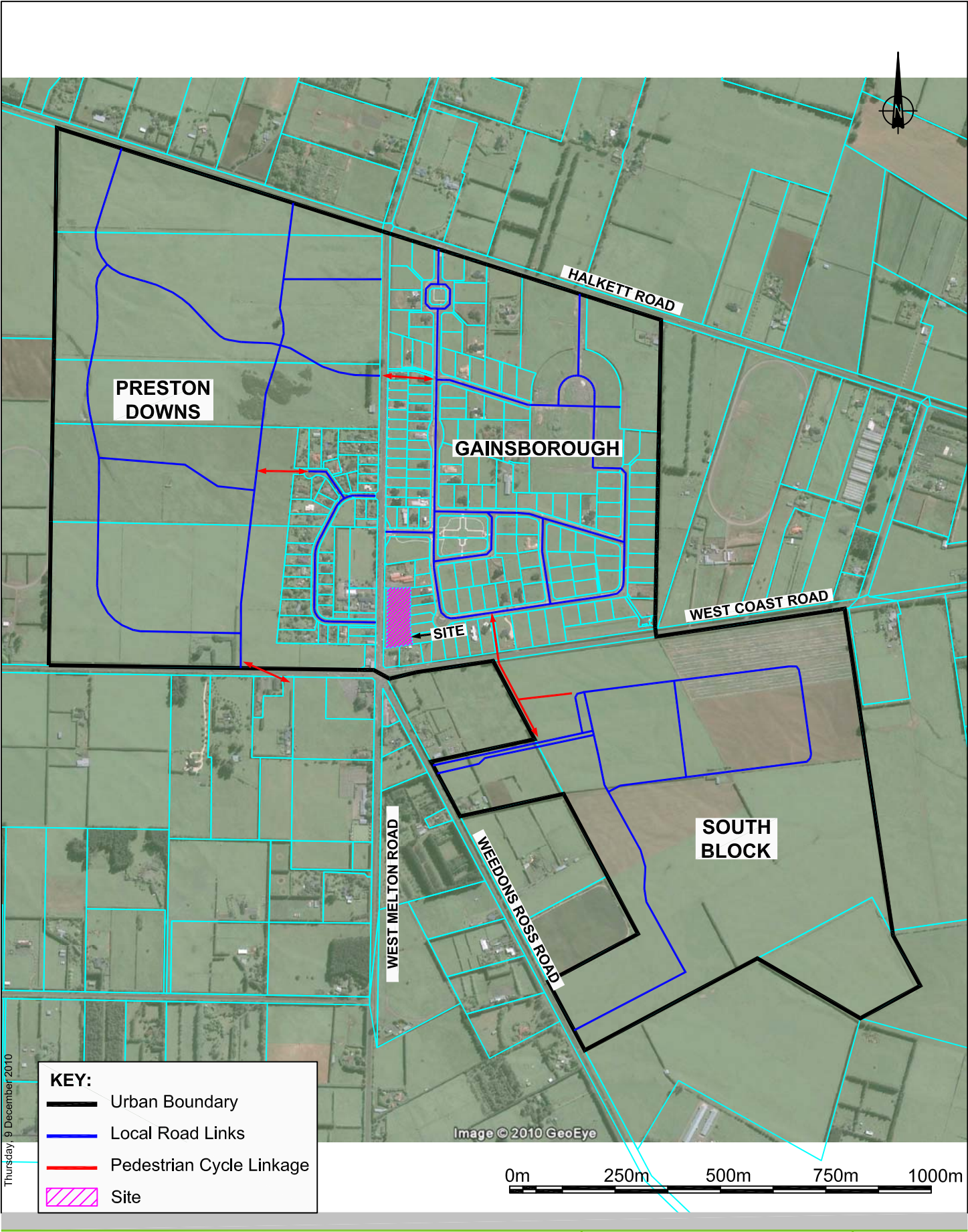
\* Underlying Zoning is Living 1, Living 1 Deferred, Living 2 Deferred, with yield of 226 lots approx

**Table 2: Future West Melton Residential Development**

It is clear that there will be considerable growth in residential development in West Melton. There are no business zones provided for in the District Plan. The growth has been planned with outline development plans (ODP's) provided for each of the current and proposed development areas, and the key transport links included in these have been summarised on **Figure 7**.

The Gainsborough ODP provides access to Weedons Ross Road opposite the school which has already been constructed (Brinsworth Avenue), as well as two connections to Halkett Road of which the western connection (Rotherham Drive) has been constructed. It also includes a pedestrian / cycle linkage to the South Block across SH73. It is understood that the link to the east of Weedons Ross Road will be an underpass. The South Block ODP includes road links to Weedons Ross Road both at the northern and southern extents of the site. The Preston Downs ODP includes road links to Weedons Ross Road, Halkett Road, and the option of a connection to West Coast Road. A pedestrian / cycle linkage is also provided from Preston Downs to Laird Place, and provisions are included for a pedestrian connection across SH73 near the proposed intersection.

All of the subdivision roading to be developed in West Melton is expected to carry a local road status. The proposed networks allow for a connected development, which will improve access for all modes of travel within West Melton.



## 5.2 Christchurch, Rolleston and Environs Transportation Study

The Christchurch, Rolleston and Environs Transportation Study (CRETS) investigated the need for additional transport infrastructure to the west of Christchurch, based on expectations of future landuse. It included West Melton, together with other townships to the west of Christchurch, and also focused on the southwest of Christchurch and the Christchurch International Airport.

Within the strategy developed in the study, there are no specific roading upgrades in the vicinity of West Melton that will lead to a change in travel patterns. However, the study expects growth on the roads which may partly be the result of changes to other corridors. The West Coast Road retains its status as a National Arterial, and it is proposed to define Weedons Ross Road between Old West Coast Road and State Highway 1 as a District Arterial. A District Arterial is defined as a road used by traffic to get to and around parts of the district. In this case it is intended to make a connection between other arterials.

Section 13 of the CRETS Final Report provides a summary for the Russley to Aylesbury Corridor. It identifies that NZTA are considering within their standard practice planning process the installation of three sets of passing lanes between Christchurch and West Melton, and the installation of right turning bays at selected intersections. The study recommends that the above works proposed as part of earlier studies is carried out, and no other works are suggested. It also identifies that the intersections along the route are not predicted to have capacity issues, and the expected traffic volumes of the route do not justify any works to manage the traffic volumes.

As part of the State Highway 1 corridor between Hornby and Rolleston, a four-lane median divided upgrade of the existing highway is proposed along part of its length, with a grade separated interchange at Weedons Ross Road. This interchange will enhance access to Rolleston and south western parts of Christchurch from the West Melton area.

The landuse adopted for the CRETS modelling work was based on Statistics NZ medium term growth forecasts for 2021. However, the study also included sensitivity tests that replicated the landuse expected in 2026 based on adoption of the Urban Development Strategy. The UDS landuse provides for a substantially greater rate of growth in households and employment than the base landuse projections used for CRETS, being more consistent with the landuse proposed as part of Proposed Plan Change 1 to the Regional Policy Statement. Whilst the UDS Sensitivity modelling shows that the CRETS projects proposed would need to be brought forward compared with the CRETS modelling, there is no further comment on the need for additional improvements along the West Coast Road corridor.

## 5.3 Canterbury Transport Regional Implementation Plan (2008-2038)

Environment Canterbury produced the Canterbury Transport Regional Implementation Plan (TRIP) which outlines and prioritises the transport provisions for the Canterbury Region over the next 30 years. It is intended to provide a coordinated approach to delivery of the Regional Land Transport Strategy. TRIP outlines packages of projects for each area within the region, and identifies the type and timing of transport projects. Of relevance to West Melton is Package 7, which addresses the Selwyn South/West Approach to Christchurch. Within Package 7 there are no major transport projects signalled for the vicinity of West Melton.



## 5.4 National Land Transport Programme

The National Land Transport Programme 2009-2012 sets the programme of investment in land transport within New Zealand. It allows for the provisions of the Canterbury Regional Land Transport Programme 2009-2012 and prioritises these on a national basis. Within the vicinity of West Melton, there are no major projects specifically identified for funding within the programme.

## 5.5 Long Term Council Community Plan

The Selwyn District Council Long Term Council Community Plan includes a specific transportation project for West Melton, which is bus shelters in the 2009/10 budget. Provision is also made for implementing the Selwyn District Walking and Cycling Strategy Action Plan, which includes a cycle route connecting Rolleston to West Melton via West Melton Road, and then continuing on to the Waimakariri River. The plan included in the Action Plan shows the cycle link passing along Weedons Ross Road past the site, although it is identified in the 10 year + period for implementation.

## 6. Proposed Plan Change

The Plan Change proposes to rezone the 8,330m<sup>2</sup> Living 1 site on the eastern side of Weedons Ross Road from Living 1 to Business 1 zoning. West Melton currently lacks any business zoned land, and with the proposed growth outlined earlier it is expected that there will be demand for neighbourhood scale commercial activities that will reduce the reliance for travel to surrounding townships and to Christchurch City. As indicated by **Figure 7**, the site is located centrally in relation to the proposed residential growth areas, which will reduce the need to travel within the township by motor vehicle and enhance the use of sustainable modes of transport.

Given the relatively small size of the site, and limited access options no Outline Development Plan is proposed. However, it is expected that the site under a Business 1 zoning will facilitate the development of a local area commercial centre that will provide appropriately zoned land for core services to be provided for the West Melton township. This would potentially include the likes of a convenience store, small scale retail outlets, café and typical neighbourhood services (eg hairdressers, offices). Indicative concept plans suggest that the site could ultimately accommodate approximately 2,050m<sup>2</sup> gross floor area (GFA). It is expected that there will be two stages of development as the market grows, and the Business 1 zone provides for the potential to revert to residential development.

Access to the Plan change site will be via Weedons Ross Road, and will be subject to easements or purchase of land across the reserve strip that currently accommodates the water channel. It is anticipated that two access points would be provided, being at the southern end of the site as part of initial stage of development, and at the northern end of the site as part of later.

The current access to the site is approximately 3m wide, appropriate for the residential zoning. The access to a commercial land-use will need to be sufficiently wide to accommodate two way vehicle movements, the occasional use by larger service vehicles, and enable provision for pedestrians. Based on analysis of a concept plan, it is expected that a 9m width for the access will enable these functions to be accommodated requiring widening of the existing access or provision of new access. This is wider than the minimum provisions in Tables E13.4 and E13.8 of the District Plan. To enable vehicles to manoeuvre efficiently, it is expected that the driveway width at the kerb / edge of seal will need to be greater than the 7.0m maximum width for a vehicle crossing given in Table E13.8. If the second stage reverted to residential land-use, a typical residential access width would be appropriate, being 3.5 to 6.0m wide. The precise access width provisions will be defined at the time of subdivision / building consent when the site layout has been determined. At that time the access will also be subject to satisfying the other standard District Plan transportation rules relating to access, such as sight distance and separation.

Site development will be subject to meeting the District Plan parking provision and layout requirements, which seek to ensure acceptable levels of off-street parking are provided to satisfy demands generated by the activities that establish.

## 7. Site Accessibility

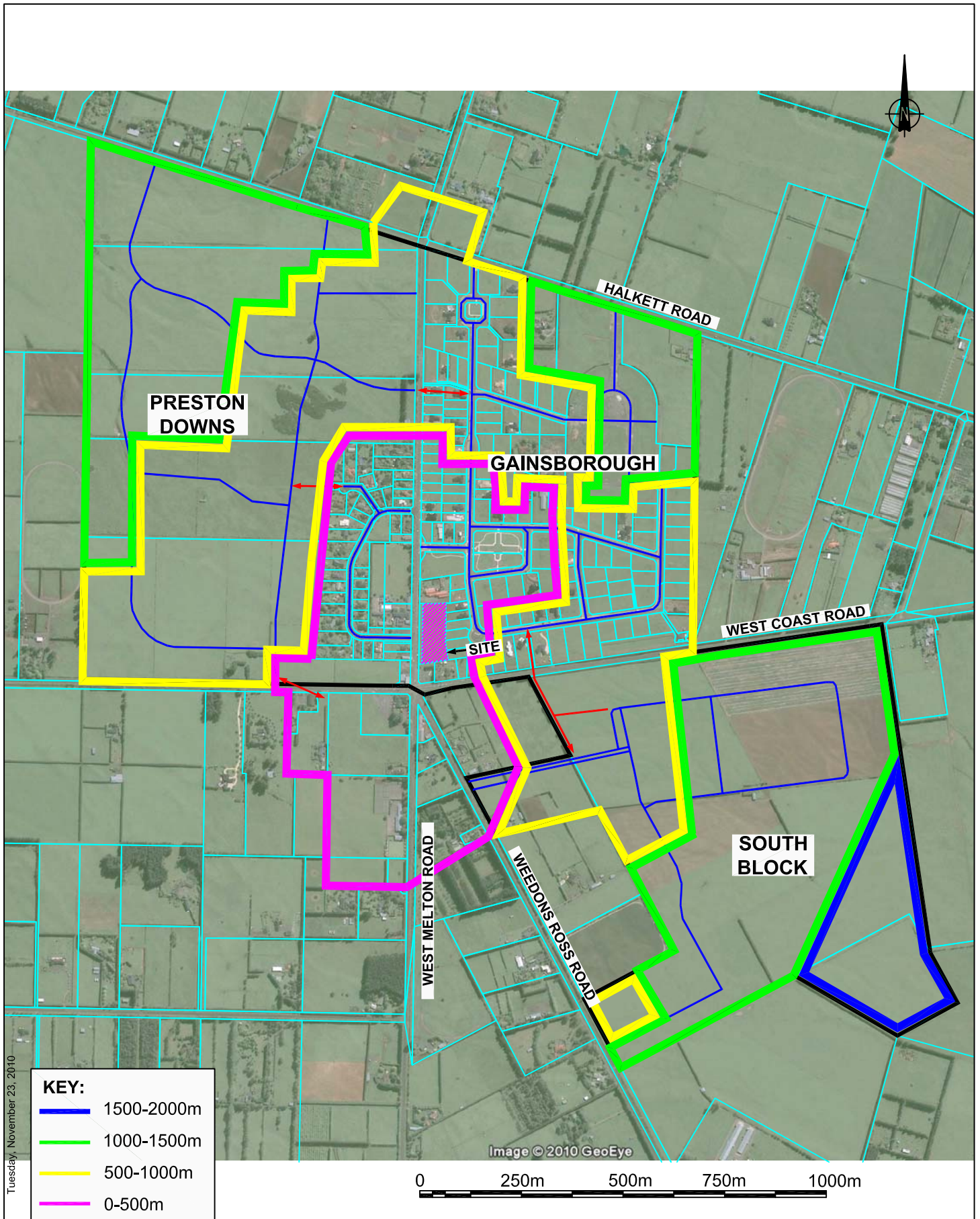
To identify the ability to use walking as a transport mode for access to the site, an analysis of the walking contours has been undertaken. The contours are at 500m, 1,000m, and 1,500m bands which would be indicative of approximately 6 minute, 12 minute and 18 minute walk times respectively.

**Figure 8** shows the contours for the urban area and the surrounding locations that are serviced by footpaths. As can be seen, the entire West Melton urban area is within a walking distance of 2,000m, and a high proportion of the residential areas are within 1,000m. The community activities are also within 1,000m.

Similarly, cycling accessibility will be similar in terms of the distance contour, and at an average cycling speed of 15km/h, the whole of the township would be within 8 minutes cycle of the site.

This indicates that the site is well located to service the existing and proposed West Melton urban area by walking and cycling, and will enable encouragement of travel within the township by these modes instead of by private vehicle.

The current public transport route is between 100m and 250m from the southern and northern parts of the site respectively. This is well within the typical desirable distance to a bus route, and will provide opportunities for the use of public transport, particularly if frequencies are improved in the future. If the bus route is altered in the future to better service the growth areas, it is likely that it would divert down Weedons Ross Road to achieve a greater catchment within the township. This would offer opportunities to include a central bus stop near the site.



## West Melton Commercial Plan Change

### Walking Contours

Traffic Design Group

8

SCALE: 1:12500



## 8. Regional and District Planning Provisions

### 8.1 Regional Policy Statement

Proposed Change 1 (PC1) to the Regional Policy Statement (RPS), Chapter 12A, addresses the development of the Greater Christchurch area for the years 2007-2041 with specific emphasis on the period to 2026. Chapter 12A 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. PC1 has been subject to submissions and a decision by a commissioner panel, and is now subject of a wide range of appeals in the Environment Court.

Objective 1 seeks to achieve greater levels of consolidation of existing urban areas. Whilst West Melton is not specifically mentioned in the Objective, the proposal to provide local commercial facilities in the centre of the township will assist consolidation by providing facilities that will not require expansion of the defined urban boundary. Further, the location enables a high level of accessibility for walking and cycling. The site is in a prime location for commercial development given it is undeveloped and in a central location within the Urban Limit.

Objective 5 seeks to provide key activity centres commercial activities at specific locations within Greater Christchurch. West Melton does not include a Key Activity Centre, and as such the proposed small scale commercial development that the Plan Change will facilitate will not necessitate the level of transport infrastructure provision that a Key Activity Centre may warrant. Further, it is already well serviced by transport infrastructure, and no further specific transport network improvements are required to facilitate the level of development proposed.

Objective 7 is important from a transport perspective in that it seeks to achieve integration between landuse and transport. As already noted, the central location of the site will enable the site to be accessible from residential development in the township by a range of modes of transport that do not rely on the private motor vehicle. The majority of residential development is focused north of West Coast Road ensuring that a high proportion transport movements to and from the Plan Change site by walking and cycling do not need to cross SH73. The provision of local commercial facilities offer the opportunity to reduce travel on the wider strategic and local transport networks that will otherwise be required to access similar commercial services.

As the current living zone does not facilitate commercial development, and there are no zoned commercial sites in West Melton, it is considered that the rezoning will positively contribute from a transportation perspective to better achieving the PC1 objectives than would otherwise be achieved with retention of the current zoning.

### 8.2 Canterbury Regional Land Transport Strategy

The Canterbury Regional Land Transport Strategy (RLTS) 2008-2018 describes a series of key result areas for achieving the vision of “the best possible quality of life”.

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.

The RLTS sets out eight goals for the land transport system that support the vision.

- (i) provides equitable access for all sectors of the community
- (ii) supports a thriving economy
- (iii) promotes a social environment that is safe and supportive
- (iv) is consistent with a health, pleasant and pollution-free environment
- (v) is safe to use
- (vi) involves community participation in land transport decision-making
- (vii) is part of an integrated planning framework
- (viii) is innovative and responsive to change

Of particular relevance to the Plan change is Goal 7, which seeks to integrate transport and land-use planning. The Plan Change achieves a better outcome for the West Melton township by providing day-to-day commercial facilities within walking and cycling distance of the township, and reducing the need for private motor vehicle travel to access similar facilities in surrounding townships and Christchurch City, both for the township and the surrounding rural catchment area.

This is further reinforced with Policies 1.1 to 1.4 which seek to support greater use of walking, cycling, public transport and access for people with special transport needs through the appropriate locating of development. As identified earlier, the development proposal is well located centrally within the township to encourage these modes of transport.

Policy 4.1 specifically promotes the location of housing, jobs, shopping, leisure, education and community facilities and services to support sustainable transport choices and reduce the need to travel, especially by private motor vehicle. The supporting planning method 4.1.2 goes on to promote day-to-day facilities in local centres, so they are accessible by walking and cycling and public passenger transport. The proposed Plan Change will clearly better support this policy than the existing living zoning.

Other relevant policies address the need to maintain an efficient and safe transport network, and as described later, it is considered that the network will continue to operate with a good level of service in this regard.

### 8.3 Selwyn District Council Walking and Cycling Strategy

The location of the proposed Plan Change site is within the West Melton township, providing integrated access to the existing transport network. The site location provides good opportunities for and will enable encouragement of walk or cycle trips within the township rather than using the car for short trips. Severance to some of the community facilities caused by SH73 will be minimised through the planned provision of specific crossing facilities on SH73 between the South Block and Gainsborough, and between Preston Downs and the community facilities to the south. The site is also located on one of the district cycle routes indicated in the Action Plan, and as such will provide a potential focal stopping and resting point for trips along the route.

In summary, it is considered that the proposed Business 1 zone will provide a greater contribution to achieving the Goals and Objectives of the Walking and Cycling Strategy than the existing Living 1 zoning of the site.

## 8.4 District Plan Policies

Within the Township Volume of the Selwyn District Plan, there are transport related development policies for townships in the district as well as policies specific to West Melton that are relevant to the proposed Business 1 Plan Change.

Policy B2.1.2 and B2.1.9 seek to manage the effects of activities on the safe and efficient operation of the District's road network. The reduced reliance on the wider area network for vehicle trips to and from West Melton and the shorter distance required for vehicle trips will result in improved outcomes in relation to safety and efficiency compared with the current living zoning. At a local level, there will be a greater concentration of traffic movement and walking and cycling activity compared with the living zone. However, as described later in this report the local road network will be able to continue to operate safely and efficiently.

Policy B2.1.10 seeks to promote land use patterns that will reduce the demand for transport. As already outlined previously, the establishment of day-to-day commercial facilities will reduce the need for travel to other surrounding townships. It will also encourage people to walk or cycle within and between townships as identified by Policy B2.1.11. As there are no current provisions for these types of facilities in West Melton, the rezoning will better achieve these policies from a transportation perspective than the retention of the existing living zone.

Policy B4.3.89 identifies that the primary focus for growth should be north of SH73, and south of Halkett Road. The policy is intended to provide a consolidated form for the future growth of the township, and the potential effects on safety and efficiency of the highway are discussed in the explanation of the policy. The Plan Change will provide a positive contribution to the policy from a transportation perspective, with the central location promoting consolidation, providing a high level of accessibility for a range of transport modes, and maintaining the safety and efficiency of the transport network.

## 8.5 District Plan Rules

The Plan Change does not intend to alter the transport related rule requirements of the Selwyn District Plan. The site is in a location and of a scale that the existing provisions will be appropriate for development of the transport aspects of the site.

The site dimensions of approximately 150m long by 55m deep are such that there is flexibility to achieve the parking and access provisions of the District Plan with the expected development of approximately 2,050m<sup>2</sup> GFA. The District Plan includes a parking rate for commercial development that is applicable to this site which is highly accessible for a range of non-vehicular modes of transport. The site dimensions will enable efficient parking layouts to be developed in accordance with the District Plan requirements so that parking areas are readily usable and enable containment of parking on-site and minimise any overflow onto surrounding streets. Loading areas will also be able to be provided on site. Access can be developed to satisfy the District Plan requirements in terms of separation from intersections, and achieving sight distances.

## 9. Trip Generation and Distribution

### 9.1 Expected Trip Generation

The trip generation characteristics of various neighbourhood shopping centres have been included in the Trips Database Bureau. The database includes no data for a similar commercial centre in a small township, so the trip generating characteristics of small commercial centres in suburban Christchurch have been analysed to enable an estimate of the trip generation from the site to be determined. The data is from centres predominantly on the western side of the City which were surveyed by the University of Canterbury. Based on analysis of the survey data, the average traffic generation rate for a development of this scale and type was calculated to be approximately 15.5 vehicle movements per 100m<sup>2</sup> GFA per hour (vph/100m<sup>2</sup>), generated in the late afternoon. This is likely to be higher than the proposed commercial centre at West Melton as a large part of the catchment is located within walking and cycling distance. Adopting the rate from the Trips Database Bureau data as a conservatively high estimate, the peak hourly trip generating potential of the proposed 2,050m<sup>2</sup> retail development is therefore expected to result in some 318 vehicle movements during the peak hour.

### 9.2 Expected Trip Distribution

#### 9.2.1 Changes to Trip Patterns Due to Residential Growth

In determining the expected traffic patterns for the site, consideration of the future traffic patterns that will result from the increase in residential traffic from growth in West Melton is necessary. Forecast trip patterns were included as part of the transport assessment work for the Plan Change processes for each of the West Melton residential growth areas. Having considered existing patterns and future changes to employment opportunities in Rolleston, it was expected that some 20% of all trips from residential development will be to/from the south (Rolleston and Lincoln), with 70% to the east towards Christchurch, and the remainder within West Melton and the surrounding local area. Applying these traffic growth patterns to full residential development of the zoned land (including Preston Downs), estimates can be made for the future traffic volumes on roads surrounding the Plan Change site. In addition, through movements on SH73 are likely to increase due to growth in the wider area, and this has been accounted for by applying the historical growth of 3.5%p.a. for the next ten years. The resultant changes at the SH73 / Weedons Ross Road intersection are shown in **Figure 9**.

#### 9.2.2 Trip Distribution with Proposed Retail Development

It is expected that some residents within West Melton and its environs who currently are employed and make business and shopping related trips within the greater Christchurch area, would change to make these trips within West Melton if the business zone existed. As such, consideration has been made as to whether some of the trips associated with the proposed development will be associated with those that would have already been using the transport network as part of either a trip to another commercial centre, or as part of another trip purpose (eg the journey to / from work). Three trip generation types have been considered, which are typical of commercial developments:

- **Primary** : New trips onto the transport network;
- **Pass-by**: Trips that were passing the site on Weedons Ross Road, and are attracted to the site as an intermediate stop;
- **Diverted**: Trips already on the nearby transport network, that divert to the development as an intermediate stop.



KEY		xx = vehicles per hour
xx	Existing	
xx	General Growth	
xx	Preston Downs	
xx	Gainsborough	
xx	South Block	
xx	Future without Plan Change	

Weedons Ross Road (north)

		78
		54
62		
112		

R	T	L
20	38	20
0	2	0
2	7	8
0	4	1
18	25	11

Weedons Ross Road (north)

SH73 (west)						SH73 (east)					
L	9	4	0	0	5						
T	176	0	0	21	40	115					
R	23	0	2	7	14						

Weedons Ross Road (south)

L	T	R
23	25	12
17	9	0
0	17	0
1	1	12
41	52	24

There is limited New Zealand data for the amount of pass-by and diverted trips into a commercial development, so the expected proportion of pass-by and diverted trips to the development were obtained from Austroads "Guide to Traffic Management Part 12 – Traffic Impacts of the Development". The guide indicates shopping centre developments of less than 3000m<sup>2</sup> have the following trip making proportions, with the resultant traffic generation also shown.

Trip Type	Proportion	Traffic Generation (vph)
Primary	50%	159
Pass-by	18%	57
Diverted	32%	102
<b>Total</b>	<b>100%</b>	<b>318</b>

**Table 3: Estimated Trip Proportions – PM Peak Hour**

The distribution associated with the primary trips has been calculated by considering the number of households that will be within the primary catchment area, as indicated by **Figure 10** – for the purpose of this analysis this is generally halfway between the site and other existing commercial areas at Rolleston and Darfield, and the proposed commercial centre at Yaldhurst (in the Living G zone). The estimated distribution is as follows:

- 25% will be from the southern Weedons Ross Road approach to the SH73 intersection,
- 10% will be from the east via SH73
- 55% will be from the north and West Melton via Weedons Ross Road
- 10% will be from the west via SH73

Pass-by trip directionality is based on the relative directional volumes on Weedons Ross Road past the site. The diverted trips allow for motorists to divert from SH73, Weedons Ross Road to the south, and Halkett Road. Allowance has been the diverted trips to change routing in the wider area also, for example those that are attracted from the westbound direction on Halkett Road are expected to instead approach the site via SH73 and Weedons Ross Road, before continuing on their journey to Halkett Road.

Having considered the diverted, pass-by and new trip distribution and the existing connections to the surrounding local and strategic road network, the expected development traffic distribution has been estimated, and is shown in **Figure 11**.

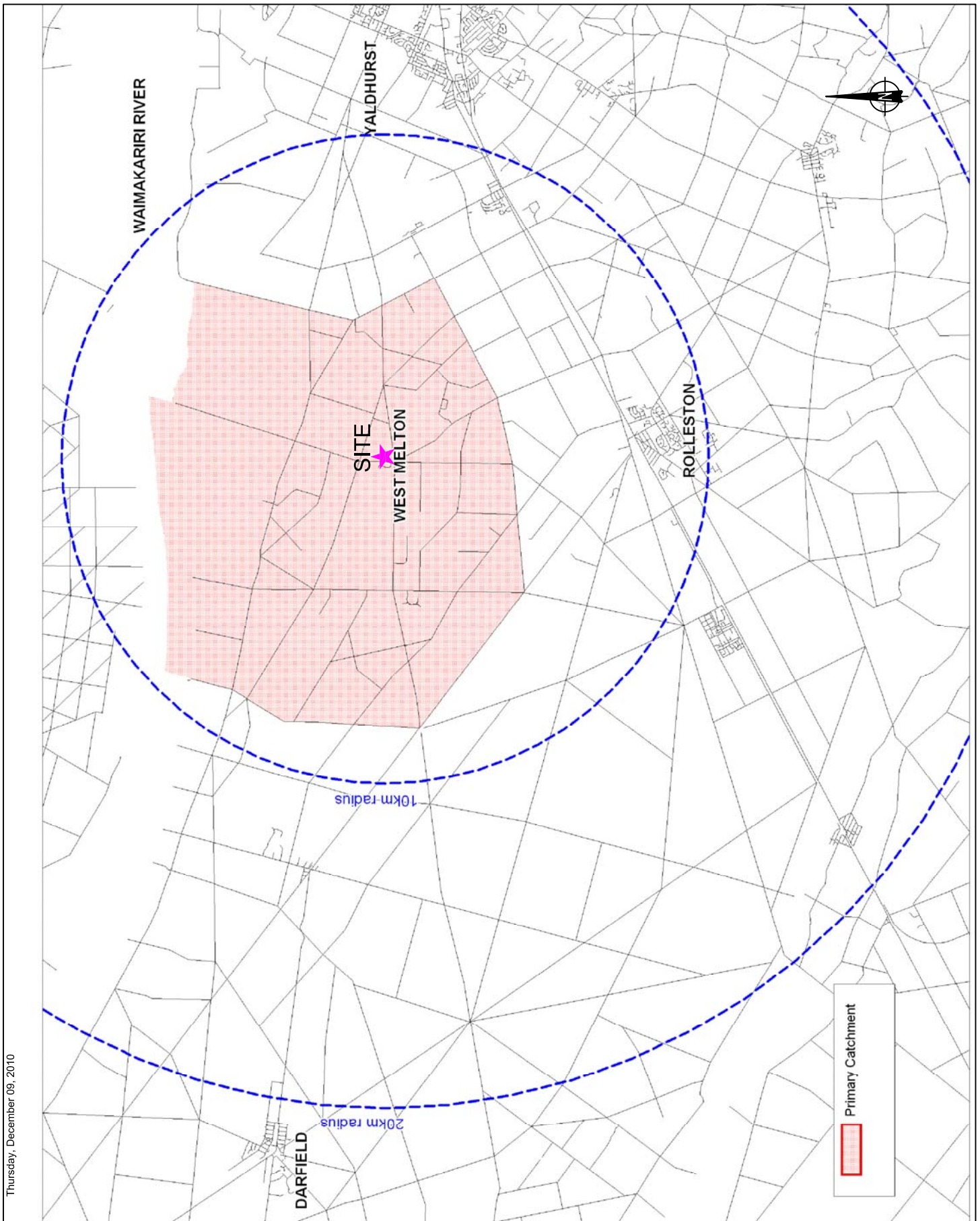
### 9.3 Other Modes of Transport

It is expected that the development will generate some pedestrian and cyclist activity due to the high level of accessibility to the surrounding West Melton residential areas. In order to estimate the number of trips by these modes of transport, consideration has been made to the data from the New Zealand Travel Survey. By considering the surveyed travel modes, and relating these back to the calculated traffic generation, the following estimates have been made for travel by other modes (as they relate to summarised national data, the proportions are indicative of the order of magnitude only):

<b>Trip Type</b>	<b>Proportion</b>	<b>Person Trips</b>
Walk	22%	132
Vehicle Driver	53%	<b>318</b>
Vehicle Passenger	23%	138
Bicycle	1%	6
Bus	1%	6
<b>Total</b>	<b>100%</b>	<b>600</b>

**Table 4: Modal Trip Generation – PM Peak Hour**

As can be seen, based on the national data and following pro-rata of the vehicle driver trips, approximately 130 walking trips could be expected in the peak hour, and 6 cycle trips. Given the good cycle accessibility at West Melton it is possible that a higher portion of the vehicle trips would be by cycle than estimated above.



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## West Melton Commercial Plan Change

### Primary Catchment Area

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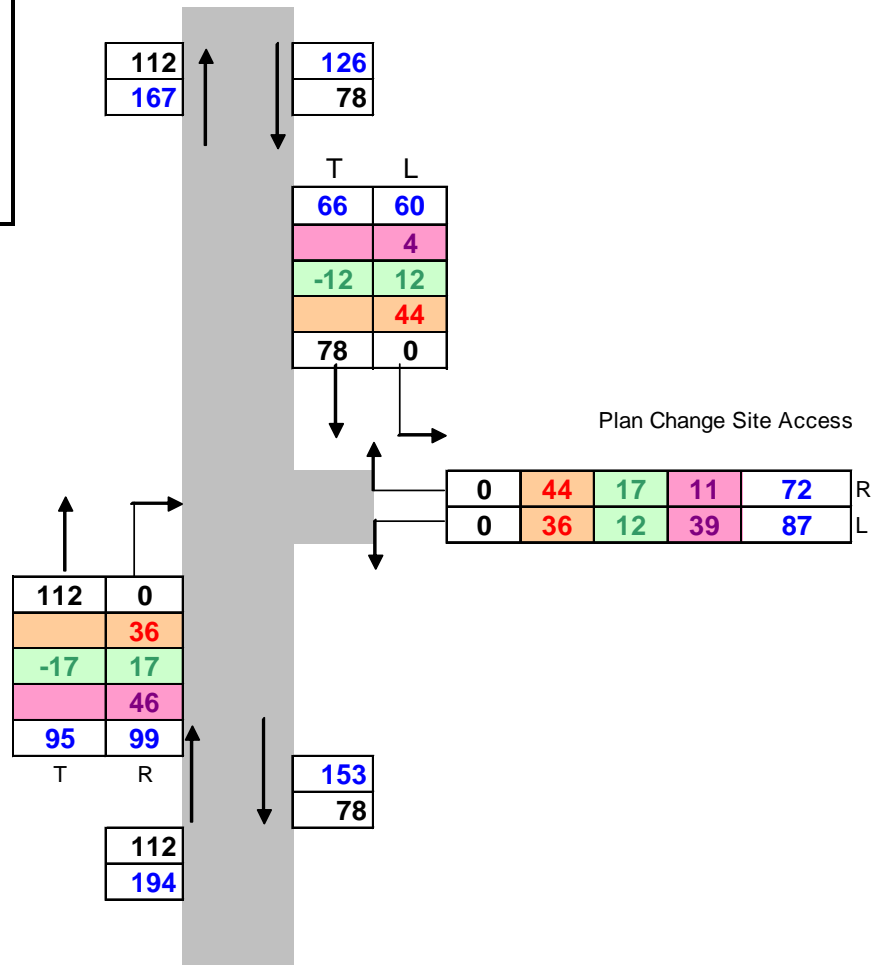
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**KEY**      xx = vehicles per hour

xx	Future Base
xx	Primary trips
xx	Pass-by trips
xx	Diverted
xx	Future with Plan Change

## Weedons Ross Road (north)



## Weedons Ross Road (north)



## Weedons Ross Road (south)

41	52	24
	20	
0	0	0
-3	5	-2
38	77	22
L	T	R

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West Melton Commercial Plan Change

Future PM Peak Traffic Patterns With Plan Change

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SCALE: —

## 10. Effects on the Transport Network

### 10.1 Positive Effects

The proposed Plan Change will result in reduced travel on the wider transport network, as staff and visitors based in the West Melton catchment area will not need to travel to surrounding townships and Christchurch City for day-to-day commercial services and employment. As an indication of the potential order of magnitude of the travel savings, a scenario in which it is assumed that the “primary” trips would have required travel to other centres has been assessed. By applying an average of 10km reduced travel for each trip, this is equivalent to a potential saving of approximately 1,590veh-km within the PM peak hour alone. Such a reduction can provide a positive contribution to improving travel efficiency, safety, and emissions output when compared with retention of the existing living zoning for the site. The opportunity for a higher proportion of trips from the West Melton area to be made by walking and cycling will also positively contribute to improved travel efficiency, safety and emissions output.

### 10.2 Network Performance

The level of traffic generation is expected to be of a level consistent with the expectations for the surrounding transport network based on the proposed CRETTS road hierarchy classifications. Many of the traffic movements generated by the development will already be on the network as part of other vehicle trips. The performance of the local transport network with the peak traffic movements associated with the proposed development has been tested by utilising the SIDRA Intersection software. The analysis has been undertaken for the PM peak hour period occurring between 5pm and 6pm.

#### 10.2.1 SH73 / Weedons Ross Road

The results of the SIDRA analysis of SH73 / Weedons Ross Road during the weekday PM peak hour are shown in Table 5 below, for the future scenarios both with and without the Plan Change.

Approach	Volume (vph)	Average Delay (s/veh)	95%ile Queue (veh)	Level of Service
<b>Without Plan Change</b>				
Weedons Ross Road north	78	9.0	1.0	C
Weedons Ross Road south	117	9.8	1.7	C
<b>With Plan Change</b>				
Weedons Ross Road north	153	13.8	2.3	C
Weedons Ross Road south	137	12.1	2.9	C

**Table 5: SH73 / Weedons Ross Road PM (5pm-6pm) with development – Intersection Performance**

As can be seen, the increased traffic movements can be readily accommodated at the intersection with only small changes in average delay. The intersection will continue to operate with an acceptable LOS C both with and without the Plan Change.

### 10.2.2 Weedons Ross Road / Development

The development access has been assessed under a worst case scenario that a single access point is provided. The SIDRA analysis of the Weedons Ross Road / Development Access for the weekday PM peak hour shows that the access will be able to operate at LOS A with average stop line delays of only one second per vehicle, indicating significant spare traffic carrying capacity.

### 10.3 Buses, Cyclist and Pedestrians

As indicated by the mode split estimates earlier, the development is unlikely to lead to a marked increase in the number of people using the local bus services. As such, whilst the development may improve the utilisation of existing services, any additional passenger demand will be able to be readily absorbed within the existing service capacity.

The site is located on a future region wide cycle route, and the surrounding residential developments have been and will be designed to be cycle compatible. On this basis, it is expected that additional cycle demand will be safely and efficiently accommodated on the network.

There is currently no footpath or walkway along the eastern side of Weedons Ross Road adjacent to the site. The development of a commercial centre in this location will increase the need for an extension of the footpath facilities between Brinsworth Avenue and SH73. The road reserve of 20m and the adjacent 8m wide reserve strip offer the opportunity to provide a footpath along the western side of Weedons Ross Road. The access into the site will require pedestrian footpath provision to cross the water channel, and this can be provided as part of the detailed site design.

The pedestrian demand would also increase the amount of pedestrian traffic crossing Weedons Ross Road. With the planned upgrading in function of Weedons Ross Road to a district arterial, it will be desirable at that time to investigate the need for and location of pedestrian facilities. Given the increased demand for walking from the development of Gainsborough and the South Block, such investigations would be part of the District Council's responsibility as road controlling authority.

### 10.4 Parking

The site will be required to satisfy District Plan parking requirements for provision of parking on-site. This will ensure that the demand for on-street parking will be minimised. The site's proximity to the West Melton Primary School is likely to result in pressure for the on-site parking to be used for school drop-off and pick-up. Whilst such use of a private car park will be subject to the on-site management protocols, and be dependent of spare parking being available, this short term complementary use has the potential to offer a safer environment for these drop-off and pick-up activities which currently largely take place on the roadside parking.

## 11. Conclusion

This report has assessed the potential transportation impacts of the proposed Plan Change for rezoning of Living 1 land to Business 1 in West Melton. It is anticipated that the Business 1 zone would facilitate the provision of a day-to-day commercial centre of approximately 2,050m<sup>2</sup> within West Melton.

The site is well located in a central position within the planned West Melton urban area, and this will contribute to urban consolidation enabling greater amounts of walking and cycling locally. The reduced reliance on other commercial centres distant to West Melton for day-to-day commercial services has the potential to significantly reduce travel on the wider transport network. Analysis of the ability of the local network to accommodate the additional traffic generation associated with the development demonstrates that it can be readily accommodated on the wider transport network within acceptable levels of performance.

The additional walking trips generated by the Plan Change development will further increase the need for an extension of the footpath along the frontage and connecting to SH73 and Brinsworth Avenue. Such provisions would typically be considered as part of the road controlling authority's ongoing development of the transport infrastructure within West Melton to accommodate the planned growth.

In conclusion, it is considered that transport benefits will result from rezoning the site to Business 1, and that the Plan Change will better achieve the relevant planning objectives and policies from a transportation perspective.

Traffic Design Group  
December 2010