

# West Keira Retail Development

## Section 75w Project Modification 4 Traffic & Transport Report



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Prepared for

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14 March 2012

60219101

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## Quality Information

Document West Keira Retail Development




Ref 60219101

Date 14 March 2012

Prepared by Daniel Lee

Reviewed by Alex Roberts

### Revision History

Revision	Revision Date	Details	Authorised	
			Name/Position	Signature
A	24-Jan-2012	Draft for Client Review	Sara Rollason Associate Director	
B	8-Mar-2012	For Issue	Sara Rollason Associate Director	
C	14-Mar-2012	For Issue	Sara Rollason Associate Director	

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## 1.0 Introduction

AECOM has been appointed by Hansen and Yuncken to prepare a Traffic Report to address the traffic and transport impacts relating to the proposed modifications to the consent for Wollongong Central redevelopment.

The Wollongong Central redevelopment comprises two sites – West Keira and Wollongong Central (with the latter formerly referred to as “Crown Central”). The approved scheme involves the erection on the West Keira site of a new six-level retail centre including a single-level basement car park, three levels of retail use, two levels of above-ground parking, and the interconnection of this new centre via a tunnel and a bridge under/over Keira Street to Wollongong Central.

Approval of the Project was granted on 28 April 2008 by the then Minister for Planning to the concept plan and project application for the Wollongong Central redevelopment, as follows:-

- Concept Plan for Wollongong Central redevelopment (MP 06\_0335); and
- Project Application for Wollongong Central redevelopment (MP06\_0209).

Several modifications have followed with the latest Modification 3, receiving approval in December 2011.

This report supports the fourth modification application (“Modification No. 4”), seeking approval to refine the detailed design of the development. Various amendments are proposed for the West Keira building which aims to improve the accessibility of the development and enhance the appearance of the building.

In brief, the proposed modifications relate to:-

- direct access to the basement car park from Market Street via a ramp and tunnel under 71 Market Street;
- realignment of the basement car park ramp;
- expansion of the northern wall to align with Richardson Lane;
- change to retail floor space;
- separation of car park and delivery access paths; and
- modifications to the on-street parking arrangements along Market Street.

The proposed modification seeks to separate the access paths of delivery vehicles and basement car park vehicles by separating the car park and delivery dock accesses. The car park access is proposed to be accessed via a ramp at 71 Market Street and a tunnel under Richardson Lane.

The main purpose of this report is to review and identify the likely traffic impacts associated with the proposed changes to the approved development. Where traffic impacts are identified, appropriate mitigation measures will be recommended.

## 2.0 Proposed Modifications

The following project modifications are proposed in relation to the approved Wollongong Central Redevelopment that may instigate potential traffic impacts:

- Changes to floor space at the retail centre proposed on the West Keira site as shown in **Table 2.1**;
- Revised car parking spaces in relation to the floor space areas;
- Proposed changes to the access to the basement level car park;
- Proposed changes to the access and internal layout of the loading dock; and
- Proposed changes to the approved traffic arrangements along Market Street.

In addition, the following amendments to existing traffic management conditions B18 are proposed:

- Removal of the condition to provide a roundabout at the Richardson Street / Richardson Lane intersection; and
- Removal of the condition to install traffic calming measures at the Crown Lane / Regent Street / Rawson Street intersection.

**Table 2.1: Modifications to Gross Floor Areas (GFA)**

	Gross Floor Area – GFA (m <sup>2</sup> )	Gross Leasable Floor Area – GLFA (m <sup>2</sup> )
Modification No. 3	24,479	18,629
Modification No. 4	25,823	20,347
Difference	+1,344	+1,718

The impacts of the above changes will be discussed in detail in the following chapter of the report.

## 3.0 Impact Assessment

### 3.1 Impacts on Car Parking

#### 3.1.1 Parking Spaces

The proposed increase of floor space area within the West Keira development will increase the requirements for off-street car parking spaces. The Wollongong DCP 2009 identifies the following car parking rates in the City Centre:

- Retail or business premises of 1 space per 30m<sup>2</sup> GFA at the ground floor and 1 space per 50m<sup>2</sup> GFA above the ground level.

**Table 3.1** compares the DCP parking requirements to the current parking provision proposed by the development.

**Table 3.1: Comparison of parking requirements (West Keira)**

	Calculation Method	Parking Requirements	Parking Provision	Deficit(-)/ Surplus(+)
Modification No. 3 using 2009 DCP Rates	1 space / 30m <sup>2</sup> at ground floor of GFA 1 space / 50m <sup>2</sup> at lower and upper ground floors of GFA	576	668	+92
Modification No. 4 using 2009 DCP Rates	1 space / 30m <sup>2</sup> at ground floor of GFA 1 space / 50m <sup>2</sup> at lower and upper ground floors of GFA	615	635	+20

The proposed parking provision of 635 spaces at West Keira will satisfy Council's DCP parking requirements using the 2009 DCP parking rates.

### 3.1.2 Basement Car Park Access

The basement car park ramp is proposed to be re-located from the western end of Richardson Lane to a new access point located at 71 Market Street. This removes the requirement for vehicles to travel along Richardson Street and Richardson Lane to access the basement car park. As a result, the potential conflict between vehicles accessing the basement car park and the existing properties along Richardson Lane is removed improving safety and the driving environment. In addition, a vehicle access point at 71 Market Street would contain the exit queues within the development and not impede the vehicle accessibility of adjacent intersections. This represents an enhanced solution for adjacent properties and a safer option for the development as it removes the potential for conflict between vehicles accessing the car park and vehicles accessing the loading dock.

The proposed alterations to the access to the basement car park are shown in **Figure 3.1**. The previous proposed layout is shown in **Figure 3.2** for reference.

Figure 3.1: Modification Number 4 Access to Basement Car Park

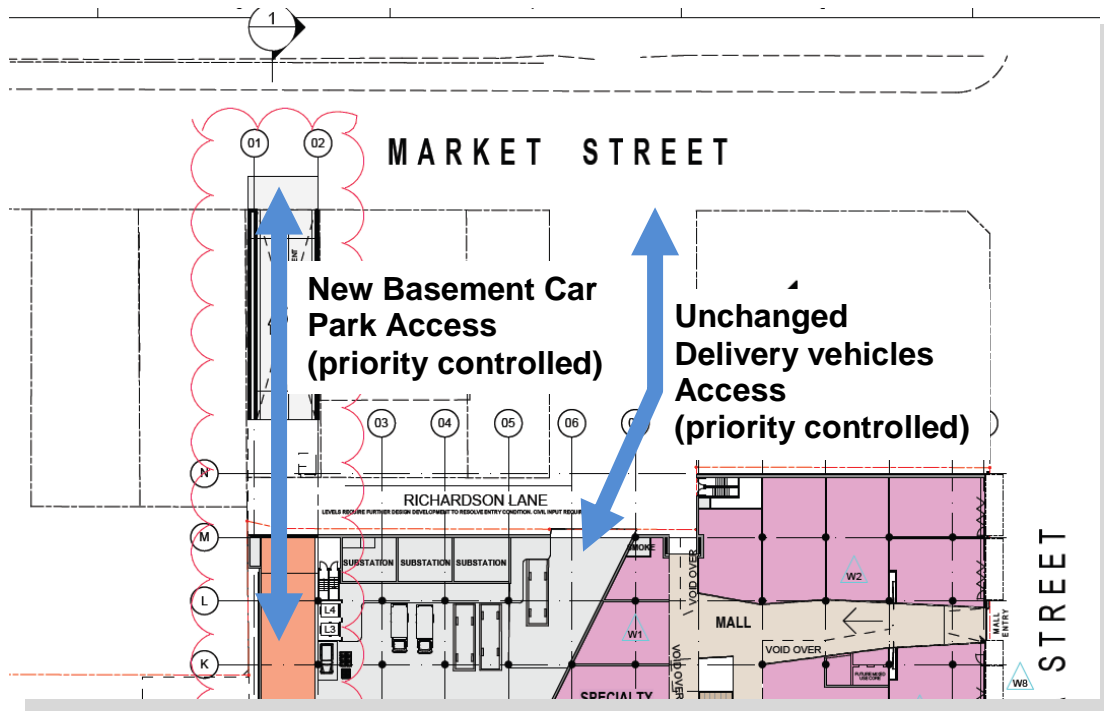
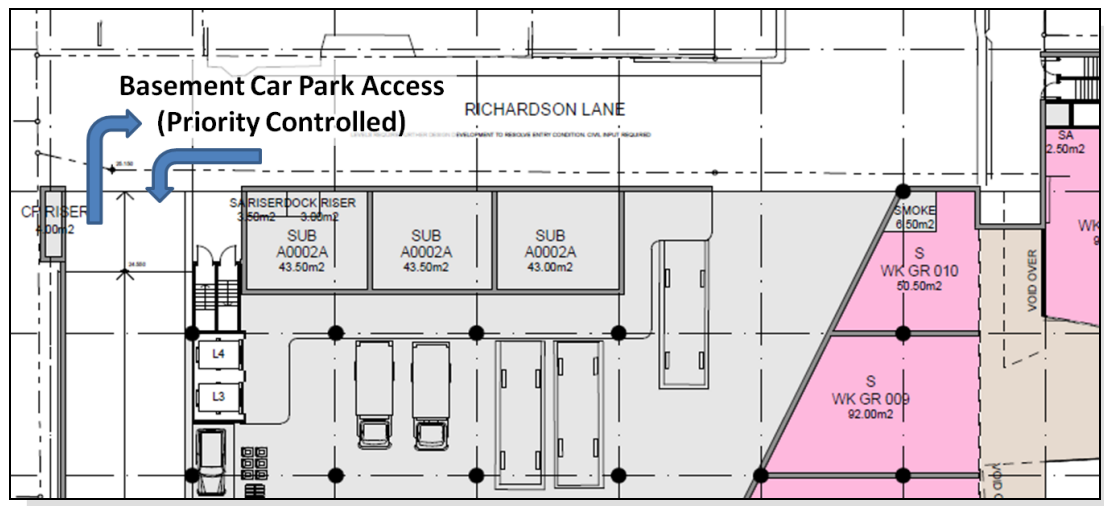


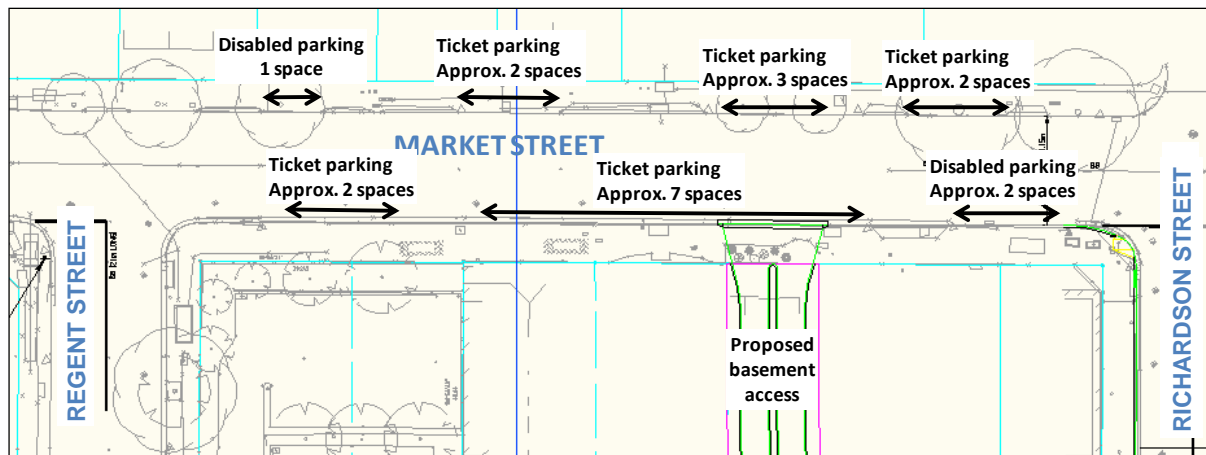
Figure 3.2: Previously proposed access to basement car park





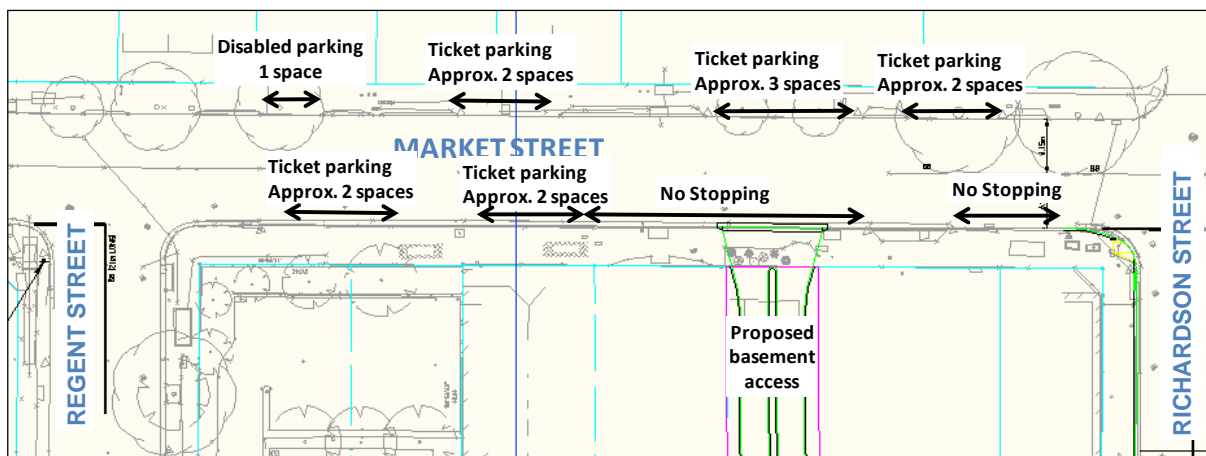
According to the Australian Standards 2890.1, a vehicle exiting onto a 50km/hr signposted road, such as Market Street, requires a minimum sight distance of 45 metres to oncoming traffic, in both directions. To ensure that this sight distance is maintained, the parking provisions adjacent to the proposed driveway will need to be rezoned to prohibit parking. At present, there are approximately 7 ticket parking spaces and one disabled parking space along the northern side of Market Street, between Regent Street and Keira Street. Along the southern side, there are approximately 9 ticket parking spaces and two disabled parking spaces as shown in **Figure 3.3**.

Figure 3.3: Existing on-street parking controls



To satisfy the minimum sight distance requirements, as well as safe vehicle access adjacent to the driveway, the existing on-street parking spaces are proposed to be removed as shown in **Figure 3.4**.

Figure 3.4: Proposed on-street parking controls



In accommodating the minimum sight distances, 7 on-street parking spaces are proposed to be removed from Market Street. However, the net result, when considered together with the off-street parking provisions of the development, will increase the overall parking availability of the area, as previously identified in **Table 3.1**.

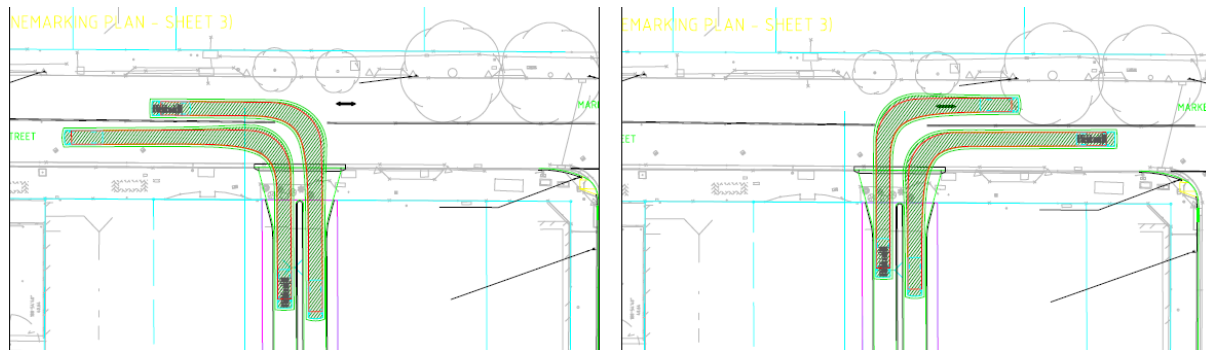
It is noted that the previous approved design identified a right hand turn bay along Market Street for vehicles turning into Richardson Street. This was to facilitate the combined movements of the heavy delivery vehicles and basement car park vehicles, as well as existing development vehicles all turning into Richardson Street from one location. The proposed car park access at 71 Market Street separates out these movements and the impact on the intersection of Market Street and Richardson Street is reduced. Therefore, the right turn bay is no longer proposed.

Assessment of the proposed car park access without a separate turn bay indicates the access operates with minimal delays or impact on traffic travelling along Market Street. The analysis has been undertaken using SIDRA and the results presented in **Section 3.1.4**.

### 3.1.3 Market Street Car Park Accessibility

The proposed access layout and the corresponding swept path of a 99<sup>th</sup> percentile vehicle is shown in **Figure 3.5**.

**Figure 3.5: 71 Market Street design vehicle swept path**



As **Figure 3.5** shows, the proposed access arrangements at 71 Market Street is sufficient in satisfying the clearances required to accommodate a 99<sup>th</sup> percentile vehicle to turn in and out of the driveway.

### 3.1.4 Market Street Car Park Access Performance

The proposed relocation of the car park access would transfer the previously identified traffic demands at Richardson Street (Modification 3) to 71 Market Street. As identified in the previous assessments, the forecast traffic generation of the development would not have a negative impact on the operation of Market Street. This is demonstrated in the SIDRA for the current proposed access at 71 Market Street, as shown in **Table 3.2**.

**Table 3.2: Access performance summary**

Movement Performance - Vehicles											
Mov ID	Turn	Demand Flow veh/h	HV Deg. Satn %	Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: Access											
1	L	32	0.0	0.427	25.8	LOS B	1.6	11.3	0.81	1.04	14.2
3	R	63	0.0	0.427	25.9	LOS B	1.6	11.3	0.81	1.01	14.0
Approach		95	0.0	0.427	25.9	LOS B	1.6	11.3	0.81	1.02	14.1
East: Market Street East											
4	L	94	0.0	0.051	6.4	LOS A	0.0	0.0	0.00	0.61	37.8
5	T	449	0.3	0.231	0.0	LOS A	0.0	0.0	0.00	0.00	50.0
Approach		543	0.2	0.231	1.1	NA	0.0	0.0	0.00	0.11	47.3
West: Market Street West											
11	T	628	0.2	0.398	6.7	LOS A	7.1	49.5	0.86	0.00	33.7
12	R	49	0.0	0.398	13.4	LOS A	7.1	49.5	0.86	1.10	32.6
Approach		677	0.1	0.398	7.2	NA	7.1	49.5	0.86	0.08	33.7
All Vehicles		1315	0.2	0.427	6.0	NA	7.1	49.5	0.50	0.16	36.2

The results show that minimal delays are forecast for Market Street and that delays experienced by vehicles exiting the development would be approximately 26 seconds. It should also be noted that the results summarised in **Table 3.2** are based upon not only the forecast traffic generation associated with Modification 4, but also includes traffic generated by Stage 2 of the development (i.e. once construction of the residential and commercial towers is completed). This represents a worst case scenario for traffic volumes on Market Street and further demonstrates the proposed access will operate efficiently in the future.

### 3.2 Impact on Pedestrians

The proposed new vehicle access at Market Street would require a cross-over of the existing footpath at the southern side of Market Street. As with any new driveways, introduction of a new cross-over may increase the potential conflict between pedestrians and vehicles.

According to the Australian Standards 2890.1, the minimum recommended driveway width for the proposed development is 11.0m. However, given that the development is located within the city centre with active pedestrian movements along Market Street, as well as existing driveways located adjacent to the proposed driveway, installing an 11.0m wide driveway may impact on pedestrian safety along Market Street.

To reduce the walking distance of pedestrians across the driveway and to maintain similar widths as per the adjacent developments, the new driveway across Market Street is proposed to be 9m wide including a 1m separation kerb between the entry and exit paths. Beyond the boundary, the driveway access road will be at the same level as the footpath allowing motorists exiting onto the road to be level with pedestrians and maintain visibility of pedestrians.

The existing vegetation at 71 Market Street is proposed to be cleared as part of the works to allow sufficient visibility of pedestrian and vehicle traffic along Market Street for vehicles exiting from the basement car park. In addition, advance warning signs will be installed within the driveway access road to warn exiting motorists of pedestrians on Market Street.

### 3.3 Impacts on Traffic Generation

The proposed increase in floor areas at West Keira will increase the number of vehicular trips generated by the proposed development. Using the adopted trip generation rate in the 2007 Transport Assessment, the number of trips generated by the latest modification is shown in **Table 3.3**.

**Table 3.3: Comparison of trip generation (West Keira)**

	Adopted retail trip rate	Gross Leasable Floor Area – GLFA (m <sup>2</sup> )	Trip Generation
<i>2007 Transport Assessment</i>	<i>3.9 trips / 100m<sup>2</sup> of GLFA</i>	<i>21,713</i>	<i>847</i>
Modification No. 3	3.9 trips / 100m <sup>2</sup> of GLFA	18,629	727
Modification No. 4	3.9 trips / 100m <sup>2</sup> of GLFA	20,347	794
Differences	-	+1,718	+67 (9%)

The comparison indicates that the proposed development at West Keira will generate 67 additional trips than the Modification No. 3 forecast trips; however this is lower than the original proposal assessed by the *2007 Transport Assessment*. As a result, it is expected that the traffic impacts of the retail development would be reduced compared to the approved scheme of 2008.

### **3.4 Amendments to Traffic Management Conditions B18**

#### **3.4.1 Richardson Street / Richardson Lane Roundabout**

Prior to the approval of Modification 3, the design proposed a roundabout at the intersection of Richardson Lane and Richard Street to control the four way movement generated by the loading dock, basement car park, Richardson Street and Richardson Lane. Given that the basement car park and loading dock traffic demands will no longer converge at the intersection of Richardson Street and Richardson Lane, the current design proposes to remove the roundabout at this location.

Under the current proposal, the only development vehicles that would access the length of Richardson Street will be delivery vehicles servicing the loading dock as well as vehicles accessing the existing off-street parking spaces along Richardson Lane. As proposed in the previous Modification 3 design, the operation of the loading dock access as the priority controlled leg of a T-intersection with Richardson Street and Richardson Lane provides a greater degree of priority to the public road users, and represents an improved design as it reduces the potential conflicting traffic movements at the intersection of Richardson Street and Richardson Lane.

It is noted that in response to Modification 3, Council recommended that a turnaround facility be provided at this location for vehicles that enter Richardson Street but do not wish to enter the car park or loading dock. However, under the current proposal, only a marginal increase in traffic is forecast for Richardson Street, furthermore additional 'No Through Road' signposting is proposed at the entrance to Richardson Street to provide advance notification to motorists. Therefore, it is not likely motorists would enter Richardson Street unintentionally. For those that do enter Richardson Street, the width of the road as well as the existing driveways and low traffic volumes along Richardson Street and Richardson Lane allows informal opportunities to turn around safely using existing driveways if necessary.

#### **3.4.2 Pedestrian Facilities at Crown Lane / Regent Street / Rawson Street**

It is noted that prior to Modification 3, kerb ramps and a refuge island were proposed at the intersection of Crown Lane/Regent Street/Rawson Street intersection. At the time of the original planning application and Transport Impact Assessment in 2007, it was the intent of Wollongong City Council (WCC) to implement a 10km/hr shared zone along Rawson Street and Waters Place as part of the planned development of an Aged Care facility and an increase in pedestrian traffic within the area. As part of the scheme, traffic channelisation measures were proposed at the intersection of Crown Lane/Regent Street/Rawson Street to serve as entry treatments to this shared zone. However, it is understood that the aged care facility and the shared zone is no longer under consideration by WCC and no works have been undertaken in the area to implement the shared zone. Therefore, the removal of this condition is sought as part of this Section 75w modification since the intended purpose of the kerb ramp and the pedestrian refuge as an entry to a shared zone is no longer valid. Furthermore, given that existing pedestrian facilities at this location are limited, and no works have been undertaken by WCC to implement additional pedestrian facilities within the area, the installation of such treatments would not facilitate any pedestrian desire lines.

## 4.0 Conclusion

Proposed modifications to the approved development and their impacts to the surrounding traffic / transport networks are summarised below.

**Table 4.1: Proposed modifications and impacts**

Proposed modifications	Potential impacts (in addition to the current approved scheme)
Increase in floor areas	Increase in potential trips, however lower than the original 2007 assessment.
Increase in car parking requirements	No adverse impacts to the operation of the centre. Current parking provision of 635 spaces at West Keira exceeds Council's parking DCP requirements.
Modifications to access of basement car park	<ul style="list-style-type: none"> <li>No adverse impact on the operation of the basement car park at West Keira</li> <li>Improved separation of servicing and shopping vehicles improves safety and accessibility</li> <li>Reduced traffic conflict along Richardson Street and Richardson Lane improves neighbours access compared to Modification 3</li> </ul>
Proposed amendment of existing condition B18	Potential impacts (in addition to the current approved scheme)
Removal of the roundabout at Richardson Street and Richardson Lane (B18 dot point 1)	No adverse impacts to the operations of the loading dock at West Keira. Service vehicles will have improved visibility of opposing traffic on Richardson Lane and overall reduction in traffic volumes forecast for Richardson Street.
No requirement for pedestrian facilities at of Crown Lane/Regent Street/Rawson Street (B18 dot point 5)	No impact on existing pedestrian desire lines since there are limited existing pedestrian facilities and no planned shared zone at the intersection.

This report outlines how the proposed project modification will affect the traffic and transport impacts identified in the 2007 Traffic Impact Assessment (TIA) and the assessments undertaken as part of Modification 3. The proposed alternative access via 71 Market Street reduces potential conflicts between development delivery vehicles and development trips accessing the basement car park and minimises the impact on existing properties accessed via Richardson Lane.

Overall, a reduction in retail floor space, when compared to the original 2007 TIA will result in improved operation of the road network and the marginal increase in retail floor space, when compared to Modification 3, will not have a negative impact on the surrounding road network.