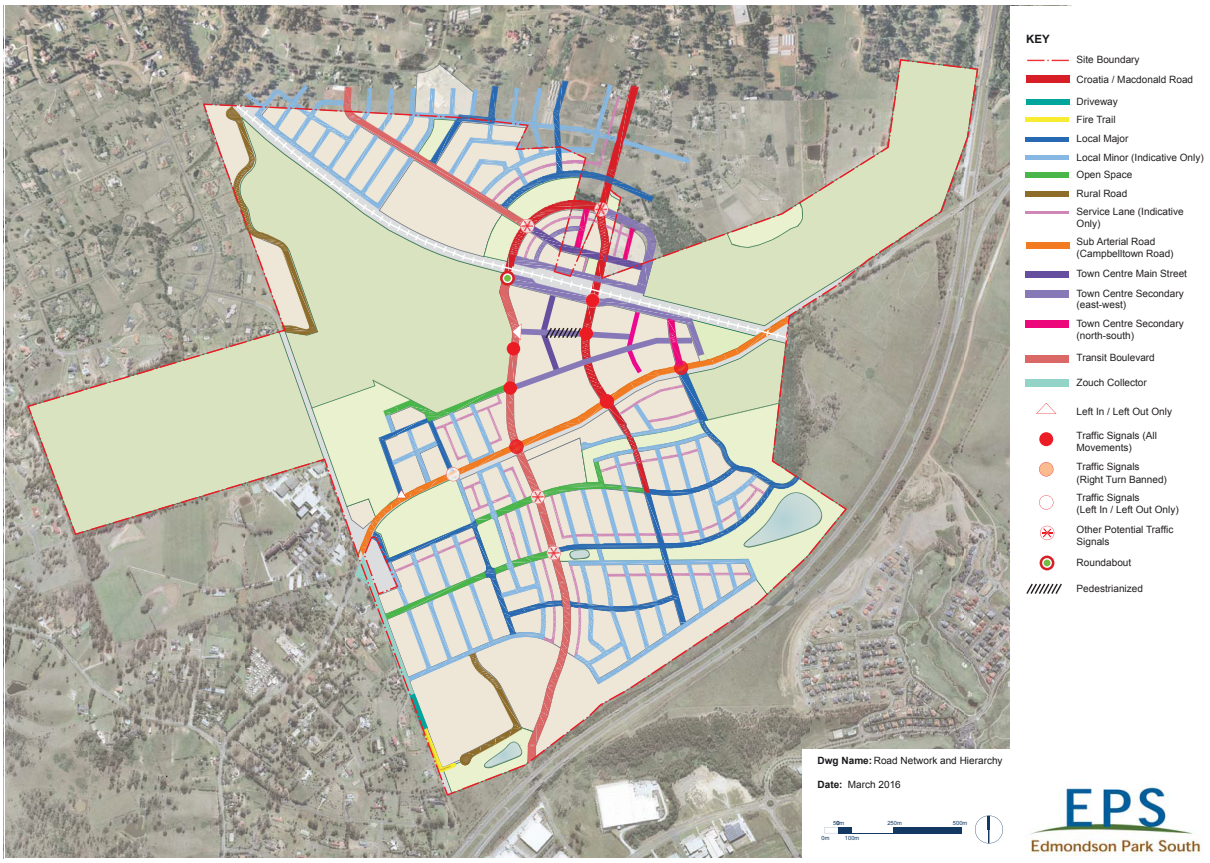


Figure 5: Proposed Concept Plan Road Network

3.2 Modifications to Concept Plan Road Network

As demonstrated in Figure 5, the proposed Concept Plan involves modifications to the layout of the road network within the EPFTC only. The remaining areas of EPS are unchanged from the previously approved Concept Plan. In this regard, the following changes to the EPFTC road network are proposed under this S75W Modification:

- Relocation of "Main Street" to within what is now the Town Centre Core to better reflect future traffic volumes anticipated to use the previously adopted Town Centre Main Street (now Soldiers Parade). This effectively changes the road hierarchy of Soldiers Parade from a main street to a collector road with an increased speed limit of 40km/h (from 25km/hr as a Main Street).
- The addition of other internal road connections, including the Greenway, Eat Street (pedestrians and cyclists only), Urban Street and associated intersections.
- New traffic signals to facilitate pedestrian movements across Soldiers Parade between the Town Centre Core and the proposed community park to the east.

- New traffic signals at the intersection of the Greenway and Bernera Road intersection.
- Removal of the easternmost left-in/left-out intersection to Campbelltown Road.
- The narrowing of Henderson Road from two lanes to one lane in both the eastbound and westbound direction resulting in the change of lane configurations for intersections along this road to reflect the constructed Edmondson Park interchange.

  (It should be noted that this change is to reflect what has been constructed by TfNSW and not infrastructure changes required or proposed by the revised EPFTC)
- Introduction of traffic signals at Bernera Road to facilitate access to the residential and retail car park within the town centre.
- The signalisation of Bernera Road / Soldiers Parade to allow all movements.
- Removal of No Right Turn restrictions at the intersection of Campbelltown Road / Soldiers Parade to now permit all movements (consistent with the RMS approved REF for the upgrades of Campbelltown Road.

It is expected that the detailed design of intersections and internal road network within residential sub-precincts will be assessed in further detail during subsequent Development Applications for the subdivision of land and associated infrastructure works.

3.3 Town Centre Core Access Arrangements

The currently proposed Town Centre Core vehicular access to the retail and residential basement parking and loading dock accesses as shown in the Illustrative Design Scheme are shown in **Figure 6**. This has potential implications to the operation of the road network, which has been included in the updated traffic modelling discussed in Section 5.

It is noted that the design of the access points to the basement car parks from the local road network will be subject to separate detailed assessment as part of subsequent Development Application (DA) submissions.

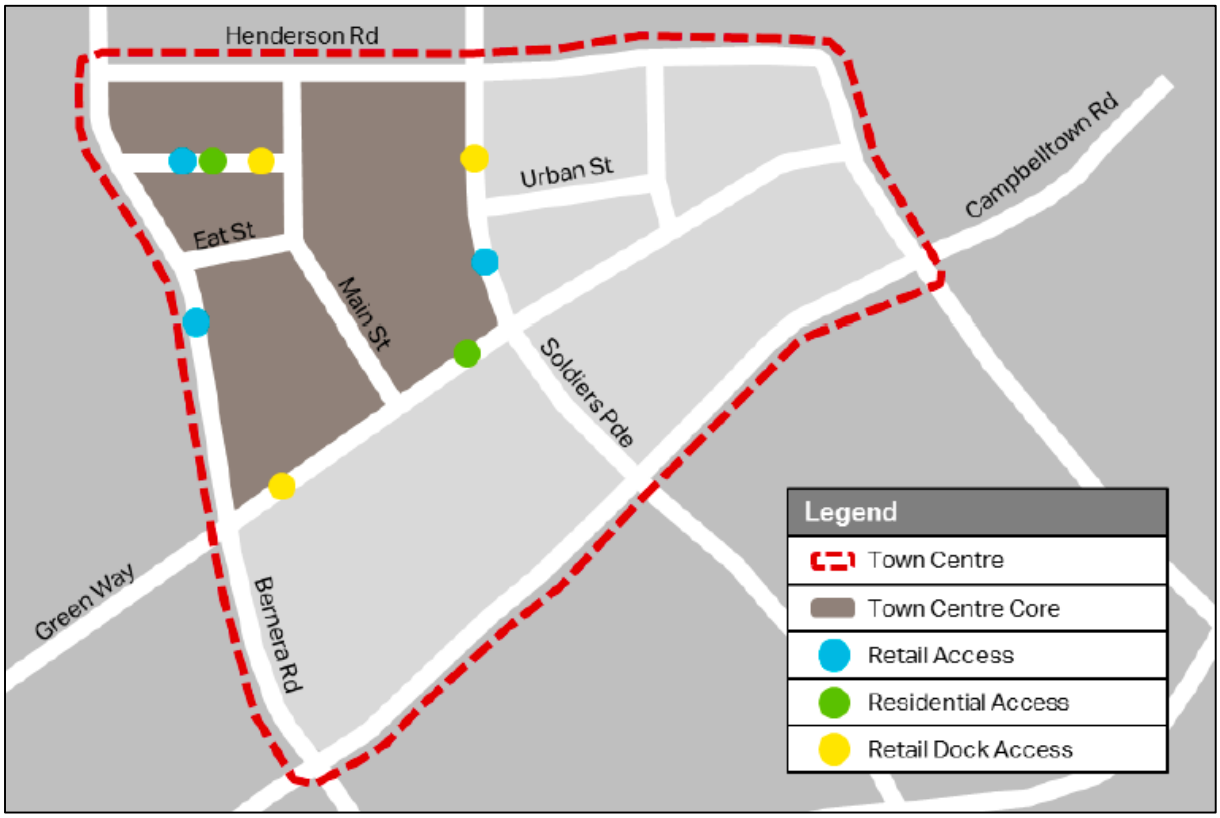


Figure 6: Revised Frasers Town Centre Core Access Arrangements

Source: AECOM, 2016

4 Parking Provisions

4.1 Approved Concept Plan Requirements

The approved Concept Plan does not detail car parking rates for the various land uses. The revised Statement of Commitments that accompany the S75W application include:

Item 23 - The provision of parking in the town centre will be co-ordinated and where possible shared across multiple land uses that do not have similar peak parking demands to demonstrate creation of a more walkable, liveable centre, which is not car dominated and ensure balanced access across all modes.

Item 24 - Parking provision will encourage short stay trips, with some limited long stay parking for commuters around the rail station and on the fringe of the town centre. Any on-street parking will be limited to short term, disabled and taxi parking.

It is proposed to introduce maximum parking rates for development within the Town Centre as part of this S75W Modification, which are discussed in further detail below.

4.2 Comparison with Other Council Controls

The Liverpool Council Edmondson Park South Development Control Plan 2012 does not include specific car parking rates for development within the Town Centre. Instead, the DCP refers to the following other local planning controls:

- Liverpool Development Control Plan 2008 (Liverpool LGA only); and
- Campbelltown (Sustainable) City Development Control Plan (Campbelltown LGA only)

A comparison between the relevant parking rates for the various land uses contained within the Town Centre are outlined in **Table 2**, noting that these rates are generally regarded as “minimum” requirements under each respective development control plan.

Table 2: Parking Controls within South West Sydney

Land Use	Campbelltown (Sustainable City) Development Control Plan 2014[1]	Liverpool Development Control Plan 2008[2]
Residential Land Uses		
Residential Flat Buildings		
Studio and 1 Bedroom	1.25 space per dwelling	1 space per dwelling
2 Bedroom	1.25 space per dwelling	1.5 spaces per dwelling
3 Bedroom	2.25 space per dwelling	2 spaces per dwelling
Visitors	1 per 10 dwellings	1 per 4 dwellings, or part thereof
Attached Housing		
1 Bedroom	1 space per dwelling	1 space per dwelling
2 Bedroom	1 space per dwelling	1.5 spaces per dwelling
3-4 Bedroom	1 space per dwelling	2 spaces per dwelling
Visitors	1 per 2 dwellings	1 per 4 dwellings, or part thereof
Non Residential Land Uses		
Retail	1 space per 25m^2 for ground level 1 space per 35m^2 for upper levels	Business Zones: < 12,000m^2 LFA: 1 space per 20m^2 12,000 - 30,000m^2: 1 space per 25m^2 > 30,000m^2 LFA: 1 space per 30m^2
Food and Drink Premises / Restaurant	1 space per 25m^2 for ground level 1 space per 35m^2 for upper levels	1 space per 20m^2 LFA
Medical	1 space per 25m^2 for ground level 1 space per 35m^2 for upper levels	1 space per 25^2 LFA
Office	1 space per 25m^2 for ground level 1 space per 35m^2 for upper levels	1 space per 35m^2 LFA
Cinema (Entertainment Facility)	1 space per 25m^2 GFA for indoor facility	Greater of: 1 space per 10m^2 LFA, or 1 space per 6 seats
Gym	1 space per 25m^2 GFA for indoor facility	1 space per 22m^2 LFA
Child Care	1 space per 4 children	1 space per 35m^2 LFA

[1] Section 5.4.4, Section 3.9.2, Table 6.4.1 of the Campbelltown (Sustainable) Development Control Plan 2014

[2] Table 13 of the Liverpool Development Control Plan 2008 – Part 1

4.3 Proposed "Maximum" Parking Rates

The proposed parking rates have been developed having regard for Liverpool Council's key objectives in relation to car parking including:

- To ensure adequate car parking spaces and service facilities are conveniently located on site to satisfy the reasonable demand created by the development
- To ensure the provision of the appropriate car parking depending on location; and
- To ensure that car parking does not interfere unreasonably with the amenity of the neighbourhood.

A key element of these objectives is to cater for the 'reasonable demand' associated with new developments. In this regard, the Concept Plan seeks to restrain parking demands where possible, consistent with State Planning Policy. Having regard for this, the modified Concept Plan proposes to introduce maximum parking rates, as presented in **Table 3**.

Table 3: Proposed Concept Plan Parking Rates

Land Use	Maximum Parking Rate
Residential Flat Buildings	
Studio and 1 Bedroom Dwellings	1 space per dwelling
2 Bedroom Dwellings	1.2 space per dwelling
3 Bedroom Dwellings	2 spaces per dwelling
Visitors	1 space per 10 dwellings
Multi-dwelling and Attached Housing	
1-2 Bedroom Dwellings	1 space per dwelling
3-4 Bedroom Dwellings	2 spaces per dwelling
Visitors	Provided on-street within the Mews
Other Uses	
Major Retail (Supermarket, DDS, etc.)	4.1 spaces per 100m^2 GLFA
All other retail, commercial, medical, cinema and entertainment uses	4.1 spaces per 100m^2 GLFA
Child Care	1 space per 10 children and 1 space per 2 staff members
Gym	3 spaces per 100m^2 GLFA

Note: Any use not prescribed above is to be provided in accordance with the RMS Guide to Traffic Generating Developments

The maximum permissible car parking rates for residents have been set to reflect car ownership levels within south-western Sydney and to prevent undesirable overflow of resident demands onto surrounding street. The rates will however still encourage reduced car ownership levels through the restriction of excessive car parking provisions and hence meet the overall objectives of Transit Oriented Developments (TOD's) and Council's objectives.

Residential visitor car parking rates are also restrained to acknowledge some potential sharing of parking spaces with other uses for which peak times may not coincide. Furthermore, a visitor parking rate of 1 space per 10 units is consistent with Liverpool Council's rate for residential development within the Liverpool City Centre.

The retail and non-residential parking rates proposed generally reflect the provisions recommended under the RMS *Guide to Traffic Generating Developments* (2002). In this regard, compliance with this guideline is recommended as it will ensure that the non-residential land uses are accommodated off-street with minimal impact on the amenity within the future residential precincts. The adoption of the maximum rates however reflects the site's location with respect to public transport and the restriction on the provision of parking in excess of future demands.

The proposed car parking rates are therefore considered appropriate for adoption as the maximum permissible parking rates for the Town Centre and acknowledges the intent of Transit Oriented Developments. Any variation to the above maximum rates will be required to be supported by a traffic study.

4.4 Bicycle Parking

In addition to the above, minimum bicycle parking rates are also proposed as part of the Modified Concept Plan noting that the Liverpool DCP does not require bicycle parking for developments outside of the City Centre. The objective of the bicycle parking rates is to assist in the achievement of the 5% modal split to bicycles for trips less than 10km within the Greater Sydney region, as outlined in the TMAP.

To achieve this, the provision of minimum bicycle parking rates will ensure there is sufficient space available for future residents, staff and visitors to store their bicycles in a convenient location. In this regard, **Table 4** provides a summary of the proposed bicycle parking rates sought for the Frasers Town Centre.

Table 4: Proposed Bicycle Parking Rates

Land Use	Bicycle Parking Rate (Minimum)	Notes
Residential Flat Buildings	1 space per dwelling	Can be provided within a storage cage allocated to that residential dwelling or within a shared facility.
Multi-dwelling and Attached Housing	No specific requirement	Assumes adequate space is provided in the dwelling, storage or parking area.
Non-residential Uses (Staff and Visitors)	1 space per 500m^2 of GFA	

The above rates are to be provided as a minimum requirement for future development within the Town Centre South. Provision of additional bicycle parking for non-residential uses may be desirable.

5 Traffic Assessment

5.1 Background and Scope

As mentioned in Section 2.3, AECOM previously prepared a TMAP for Edmondson Park South in 2010 which formed part of the original Concept Plan submission. A spreadsheet model was used to analyse the trip generation, trip distribution and traffic assignment characteristics of associated land uses within Edmondson Park South. SIDRA modelling was then used to assess the impacts and determine the layout of key intersections within EPS. Subsequently, micro-simulation (VISSIM) modelling was undertaken by AECOM, on behalf of UrbanGrowth NSW, to refine the infrastructure requirements and layout of intersections within the EPFTC and Edmondson Park Station interchange. This modelling was undertaken in consultation with Liverpool Council, Transport for NSW (**TfNSW**) and Roads and Maritime Services (**RMS**).

Having regard for the above, AECOM have been commissioned by Frasers Property Australia to undertake revised micro-simulation traffic modelling to reflect the revised master plan for the EPFTC and to satisfy Condition 1.6 (Part C) of the Concept Plan approval. This modelling has been undertaken to support the proposed modifications to the Concept Plan and justify the increased residential density now sought in close proximity to Edmondson Park Station.

A copy of the AECOM Modelling Report is included in **Appendix B**, with a summary of the findings provided below.

5.2 Traffic Generation & Future Traffic Impacts

5.2.1 Trip Generation

The future traffic generation associated with the proposed Edmondson Park South development yield is summarised in **Table** which provides a comparison of the 2010 and 2016 trip generation assumptions for the EPFTC.

Table 5 demonstrates that the trips generated by the revised development yields are higher than adopted under the original Concept Plan. The revised traffic model adopts these increased traffic volumes when assessing the future performance of the surrounding road network discussed below.

Table 5: Adopted Traffic Generation Assumptions

Land Use	2010		2016	
	AM Peak	PM Peak	AM Peak	PM Peak
Residential Use	2,006	2,006	2,176	2,176
Retail Use	375	885	700	1,288
Commercial Use	300	300	-	-
Medical Use	-	-	30	40
School Use	1,000	0	1,000	0
Total	3,681	3,191	3,906	3,504

5.2.2 Future Road Network Performance

The micro-simulation model has been revised for the 2026 (full development) AM and PM peak period scenarios. The mid block traffic volumes within the road network are summarised below and demonstrates the minimal change in actual volumes as a consequence of the Modification. The future midblock volumes and the corresponding locations are provided in **Table 6.**

Figure 7: Revised Town Centre Core Access Arrangements

Table 6: Comparison of Mid-Block Traffic Volumes

Location		Previous (2010) Assumptions		Revised (2016) Assumptions	
		AM Peak	PM Peak	AM Peak	PM Peak
1. Bernera Road (south of Henderson Road)	Northbound	920	430	660	360
	Southbound	380	800	480	1010
2. Bernera Road (north of Campbelltown Road)	Northbound	880	540	790	570
	Southbound	430	730	510	860
3. Soldiers Parade (south of Henderson Road)	Northbound	170	180	300	180
	Southbound	280	330	10	180
4. Soldiers Parade (north of Campbelltown Road)	Northbound	250	300	130	360
	Southbound	240	380	300	70
5. Town Centre East (north of Campbelltown Road)	Northbound	180	240	120	230
	Southbound	200	60	210	30

It is demonstrated in Table 6 that the actual increases in traffic volumes are minimal in actual terms and indeed are within the appropriate limits for collector road functions as outlined in the RMS Guide. Indeed the proposed change to the operation and function of Soldiers Parade results in a reduction in traffic volumes on Bernera Road.

The future operation of the key intersections are presented in **Table 7**. Intersection numbering is as per the original Concept Plan traffic report for ease of reference.

Table 7: AECOM 2026 Modelling Scenarios

Intersection	Period	Average Delay (sec)	Level of Service (LoS)
Campbelltown Road / Bernera Road (Intersection 1)	AM Peak	42.0	C
	PM Peak	44.7	D
Campbelltown Rd / Soldiers Parade (Intersection 5)	AM Peak	26.1	B
	PM Peak	29.2	C
Campbelltown Rd / East Town Centre Street (Intersection 6)	AM Peak	24.4	B
	PM Peak	26.1	B
Bernera Road / Primary School South (Intersection 4)	AM Peak	7.4	A
	PM Peak	11.6	A
Bernera Road / Soldiers Parade (Intersection 7)	AM Peak	17.4	B
	PM Peak	14.8	B
Bernera Road / High School North (Intersection 8)	AM Peak	30.8	C
	PM Peak	17.7	B
Bernera Road / Henderson Road	AM Peak	24.9	B
	PM Peak	23.5	B
Soldiers Parade / Henderson Road	AM Peak	38.0	C
	PM Peak	35.4	C

It can be seen from above that all intersections will continue to perform with acceptable Levels of Service and delays during all peak periods. In this regard, the proposed modifications to the indicative development yield and road network are supportable.

Reference should be made to the AECOM report, included in Appendix B, for further details in relation to the traffic impacts of the development at specific intersections.

5.3 Implications of Road Network Changes

As a consequence of the proposed modification to the land use and road network functions, the following impacts on the road network has been identified: .

- Campbelltown Road is the major east-west connector bypassing the EPFTC. No significant change is anticipated to the overall function of Campbelltown Road from the network changes identified. There may be relatively higher demand to use the intersection of Campbelltown Road / Soldiers Parade due to the signalisation of Bernera Road / Soldiers Parade to allow for all movements.
- Bernera Road is the major north-south connector bypassing the EPFTC. The introduction of car park accesses on Bernera Road may increase traffic on this route.
- Greenway will form the major east-west route in the EPFTC. The introduction of this route will decrease traffic demand along alternative routes such as Henderson Road and provides access to the EPFTC retail core and residential areas. The road also provides connection to the town centre roads Main Street.
- Soldiers Parade will form the major north-south route in the EPFTC. The signalisation of the intersection of Bernera Road / Soldiers Parade to allow for all movements and the addition of retail, residential and dock accesses will likely increase traffic demand on the road as a result.
- Henderson Road provides an east-west connection at the north of the EPFTC, with access to the Edmondson Park Train Station and kiss and ride zones. The narrowing of the road from two lanes to one lane in each direction (as per constructed by TfNSW) will likely encourage less traffic to use the road as a through route into the residential and retail areas of the town centre.
- The easternmost left-in/left-out intersection to Campbelltown Road envisaged under the original Concept Plan is no longer proposed to prevent unnecessary vehicular traffic from using local residential streets to travel northeast along Campbelltown Road. Removal of this intersection will marginally increase traffic volumes at the intersection of Campbelltown Road / Eastern Town Centre, however the revised modelling indicates that this can readily be accommodated. Pedestrian and cycle connectivity will still be maintained in the vicinity of previous intersection between the Regional Park.

It is evident that whilst the proposal will result in additional trips as a consequence of the modification, these impacts are moderate and have no material impact on the operation of key intersections or road capacities. Accordingly, the modification is considered supportable on traffic planning grounds.

6 Conclusions

In summary:

- The revised Concept Plan has been prepared to reflect changes in response to a competitive process undertaken by UrbanGrowth NSW. From a traffic perspective, key changes include further refinement of the local road network in addition to changes to the indicative development yield proposed for the Town Centre.
- As part of the changes, introduction of site specific "maximum" parking rates are sought to provide direction for subsequent Development Applications. These are set as "maximum" rates with the intent to achieve the objectives of the original Concept Plan which sought to restrain parking demands within the Edmondson Park South Town Centre.

Land Use	Maximum Parking Rate
Residential Flat Buildings	
Studio and 1 Bedroom Dwellings	1 space per dwelling
2 Bedroom Dwellings	1.2 space per dwelling
3 Bedroom Dwellings	2 spaces per dwelling
Visitors	1 space per 10 dwellings
Multi-dwelling and Attached Housing	
1 Bedroom Dwellings	1 space per dwelling
2 Bedroom Dwelling	1.2 space per dwelling
3-4 Bedroom Dwellings	2 spaces per dwelling
Visitors	Provided on-street within the Mews
Other Uses	
Major Retail (Supermarket, DDS, etc.)	4.1 spaces per 100m^2 GLFA
All other retail, commercial, medical, cinema and entertainment uses	4.1 spaces per 100m^2 GLFA
Child Care	1 space per 10 children and 1 space per 2 staff members
Gym	3 spaces per 100m^2 GLFA

Note: Any use not prescribed above is to be provided in accordance with the RMS *Guide to Traffic Generating Developments*

- Similarly, minimum bicycle parking rate are now sought for the Frasers Town Centre to ensure sufficient space is made for the provision of appropriate bicycle parking facilities.

Land Use	Bicycle Parking Rate (Minimum)	Notes
Residential Flat Buildings	1 space per dwelling	Can be provided within a storage cage allocated to that residential dwelling or within a shared facility.
Multi-dwelling and Attached Housing	No specific requirement	Assumes adequate space is provided in the dwelling, storage or parking area.
Non-residential Uses (Staff and Visitors)	1 space per 500m^2 of GFA	

- A number of changes are proposed to the road network planned within the Frasers Town Centre. These changes include modifications to the intersection arrangements with Campbelltown Road in addition to further refinement of the internal road network serving the Town Centre.
- AECOM have prepared updated micro-simulation (AIMSUN) modelling to reflect these changes and also incorporates the increase in traffic generation arising from the proposed changes to the indicative development yield. The modelling indicated that this increased traffic generation can readily be accommodated by the proposed road network, with all intersections operating with a Level of Service D or better during peak periods. The majority of key intersections modelled will operate at Level of Service A or B.
- A comparison between Level of Service for the approved and modified scheme for relevant intersections is included in the AECOM modelling report in Appendix B.
- Any proposed changes to the signalised intersection arrangements with Campbelltown Road will ultimately require RMS approval. Notwithstanding, this is a matter for detailed design and further consultation with RMS can be undertaken following approval of the proposed modifications to the overall Concept Plan. The revised modelling indicates that the changes will still provide a satisfactory intersection Level of Service at all intersections and therefore supportable.

In summary, the proposed changes to the Concept Plan are considered supportable from a traffic and parking perspective.

A response to the relevant Traffic and transport requirements of the approved Concept Plan is provided in **Table 8** below.

Table 8: Concept Plan Traffic and Transport Requirements Commentary

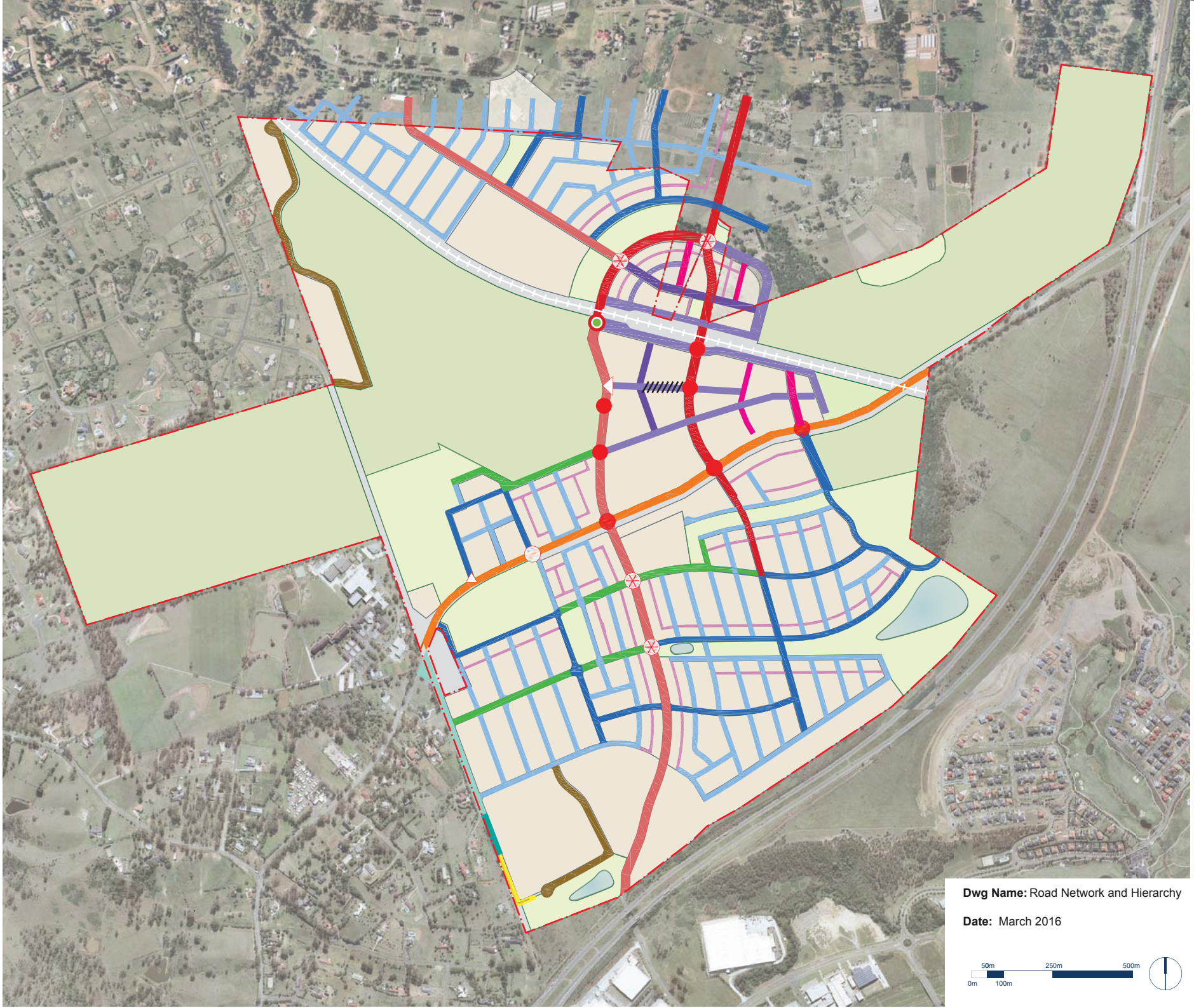
Item No.	Approved Concept Plan Condition	Response
Part B		
1.3	The final design of Campbelltown Road, including any reduced road width (less than 38.8m) and kerbside parking, is to be determined through the detailed design being carried out by RTA in consultation with the Department and in accordance with the requirements of Part B, condition 1.6. The final design should fully explore opportunities to provide at grade pedestrian access across Campbelltown Road in the vicinity of the Mont St Quentin Oval and the Ingleburn Military Heritage Precinct.	Detailed design of Campbelltown Road is currently being prepared by RMS. Current intersection concept plans identify at-grade signalised pedestrian crossings on all approaches. The section of Campbelltown Road in the vicinity of the Mont St Quentin Oval and Ingleburn Military Heritage Precinct are unaffected by this S75W Modification.
1.4	Prior to undertaking works on Campbelltown Road the applicant must enter into a Works Authorisation Deed with RTA for the proposed works. All works on Campbelltown Road are to be designed and constructed to RTA requirements. All intersection approaches on Campbelltown Road are to provide a single 100m long right turn storage bay and must operate with double overlap diamond phasing. Campbelltown Road is infrastructure to be funded through the Growth Centres special infrastructure contribution area (SIC) levy. The proponent must pay the required SIC levy or alternatively may enter into an agreement for the provision of material public benefit in lieu of payment of the SIC levy, or any component thereof, for the construction and dedication of road widening along Campbelltown Road.	Detailed design of Campbelltown Road is currently being undertaken by RMS. The proposed S75W includes a number of proposed changes to traffic lanes on approach to key intersections with Campbelltown Road from that currently being considered by RMS. Detailed design of Campbelltown Road has not yet been completed and, hence, the above will need to be incorporated into the design, prior finalisation. It is expected that approval of this S75W modification would be subject to concurrent from RMS in relation to these changes. Notwithstanding, it is evident from the AECOM Modelling Report that the proposed changes to the intersections with Campbelltown Road are supportable in terms of future road network performance.
Part C		
1.4	Any future application which proposes additional intersections with Campbelltown Road is to be supported by a traffic analysis and is to have the concurrence of the RTA.	Additional intersections to Campbelltown Road are not proposed. Indeed, the proposed modifications to the Concept Plan seek to reduce the number of intersections with Campbelltown Road by removing the easternmost left-in, left-out intersection.
1.5	Any future application is to address the need for the relocation of Macdonald Road, with timing to be supported by a detailed traffic assessment to RTA's satisfaction.	No changes to the previously adopted relocation of Macdonald Road is proposed as part of the subject S75W modifications.
1.6	Any future application for the Edmondson Park town centre must be supported by a detailed traffic and transport study, including a micro-simulation model. This should identify appropriate bus priority measures along the proposed Main Street, and ensure integration with the transport interchange, through consultation with the Department of Transport.	An updated micro-simulation (VISSIM) model has been prepared by AECOM and a copy of the associated modelling report is included as an appendix to this report. This model can be submitted to RMS / DoP should this be required. Having regard for the above and provided any future application is generally consistent with this revised Concept Plan, this Condition is no longer required.

Item No.	Approved Concept Plan Condition	Response
1.7	Any future application for development within 25m of the South West Rail Link must identify and mitigate impacts of the South West Rail Link, in consultation with Department of Transport.	No change to this Condition is required as part of the S75W modifications. Presumably this is a matter to be addressed as part of any subsequent Development Application submission(s).
1.8	The subsequent subdivision application within each Council area must include an offer to enter into a voluntary planning agreement for payment of local infrastructure contributions, with the details of the contributions, and the nature of any land dedications or works in kind to be negotiated with the relevant Council.	Noted.

It is therefore concluded that the modifications to the Edmondson Park Concept Plan is supportable on traffic planning grounds.

Appendix A

Proposed Concept Plan



KEY

- Site Boundary
- Croatia / Macdonald Road
- Driveway
- Fire Trail
- Local Major
- Local Minor (Indicative Only)
- Open Space
- Rural Road
- Service Lane (Indicative Only)
- Sub Arterial Road (Campbelltown Road)
- Town Centre Main Street
- Town Centre Secondary (east-west)
- Town Centre Secondary (north-south)
- Transit Boulevard
- Zouch Collector
- Left In / Left Out Only
- Traffic Signals (All Movements)
- Traffic Signals (Right Turn Banned)
- Traffic Signals (Left In / Left Out Only)
- Other Potential Traffic Signals
- Roundabout
- Pedestrianized

Dwg Name: Road Network and Hierarchy

Date: March 2016

0m 50m 100m 250m 500m

EPS
Edmondson Park South

Appendix B

AECOM Modelling Report

AECOM

Frasers Property Australia Residential
Edmondson Park Pty Limited
17-Mar-2016

Edmondson Park Frasers Town Centre

Section 75W Traffic Modelling Report

Revision C – 17-Mar-2016
Prepared for – Frasers Property Australia Residential Edmondson Park Pty Limited – ABN: 107 356 650

Edmondson Park Frasers Town Centre

Section 75W Traffic Modelling Report

Client: Frasers Property Australia Residential Edmondson Park Pty Limited

ABN: 107 356 650

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17-Mar-2016

Job No.: 60445762

AECOM in Australia and New Zealand is certified to the latest version of ISO9001, ISO14001, AS/NZS4801 and OHSAS18001.

Quality Information

Document Edmondson Park Frasers Town Centre

Ref 60445762

Date 17-Mar-2016

Prepared by Yanni Huang

Reviewed by Andy Yung

Revision History

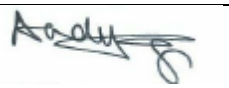
Revision	Revision Date	Details	Authorised	
			Name/Position	Signature
A	24-Feb-2016	Draft Report	Andy Yung	
B	26-Feb-2016	Revised Draft Report	Andy Yung	
C	17-Mar-2016	Final Report	Andy Yung Associate Director, Transport Advisory	

Table of Contents

1.0 Introduction

1.1 Background

AECOM has been commissioned by Frasers Property to undertake additional traffic modelling to support the development of the revised master plan for the Edmondson Park Frasers Town Centre (EPFTC) and to justify the proposed land use and road network changes since the approved Part 3A Concept Plan Application. The traffic modelling report will form part of the Traffic and Transport Assessment prepared by Ason Group, in support of a Section 75W application for proposed changes for the Edmondson Park Frasers Town Centre (EPFTC).

AECOM had previously prepared a Transport Management and Accessibility Plan (TMAP) for the Edmondson Park South Precinct on behalf of UrbanGrowth NSW in September 2010, as part of the Part 3A Concept Plan Application. The EPFTC was considered and assessed as part of the Edmondson Park South Precinct. A bespoke spreadsheet model was set up to analyse the trip generation and trip distribution of traffic associated with the Precinct. Localised traffic models (SIDRA) were used to assess and determine the requirements of the layout of the critical intersections including those on Campbelltown Road. The Part 3A Concept Plan Application and the TMAP was approved by the Depart of Planning and Infrastructure in August 2011.

Since the approval of the TMAP, UrbanGrowth NSW had engaged AECOM to further consider the requirements and layout of intersections within the EPFTC precinct surrounding the Town Centre and station interchange. Additional traffic modelling was conducted as part of the process using a microsimulation tool (i.e. VISSIM) in consultation with Liverpool City Council, Transport for NSW and Roads and Maritime Services, to determine key intersection layout in the vicinity of the EPFTC and Edmondson Park Station located to the north of Campbelltown Road.

The VISSIM model was developed based on traffic forecasts estimated by the TMAP with some minor changes to network assumptions. The future year traffic volumes adopted for this assessment were based on the TMAP as well as the VISSIM model. The extent of the VISSIM model is shown in **Figure 1-1**.

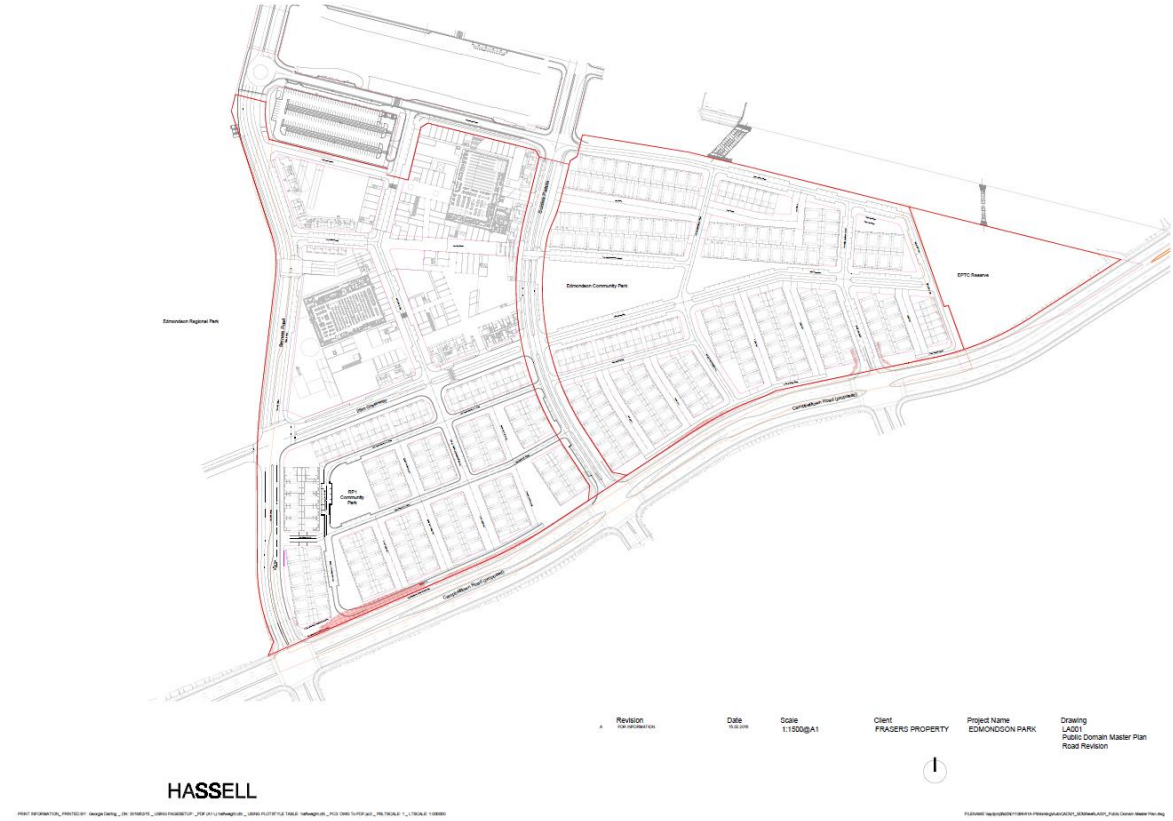
Figure 1-1 EPFTC VISSIM model extent

Source: AECOM, 2013

1.2 Purpose and scope

In 2015, Frasers Property purchased the EPFTC from UrbanGrowth NSW – the area of EPFTC is shown by the red boundary of **Figure 1-2**, principally between Campbelltown Road and the South West Rail Link. Emerging new land use assumptions and revised town centre layout and associated car park access locations have been further developed by Frasers Property as part of the development of a revised EPFTC Master Plan. Therefore, further traffic modelling is anticipated in order to support the revised Master Plan submission of the EPFTC. AECOM has subsequently updated the previously developed VISSIM traffic model to confirm the revised land uses and road network changes are justified.

Figure 1-2 EPFTC Study Area



Source: Hassell, 2016

The purpose of this report is to document the proposed land use and street network change assumptions in the VISSIM model as well as the modelling outputs to confirm the road network proposed in the revised EPFTC Master Plan will support the revised land uses.

2.0 Land use assumptions

2.1 Original TMAP and previous VISSIM modelling

Edmondson Park South comprises an area of approximately 413 hectares and forms part of the larger Edmondson Park Release Area precinct within the South West Growth Centre. It is located to the north-west of the M5 Motorway and lies approximately 40 km to the south west of Sydney CBD. Approximately 260 hectares of the site is located within the Liverpool LGA and approximately 153 hectares is located within the Campbelltown LGA.

The Edmondson Park South Part 3A TMAP provided an assessment of the traffic impact and transport accessibility issues related to the proposed Edmondson Park South development. Within the original TMAP were land use assumptions which informed the traffic modelling process. The main land use assumptions made were:

- 3,317 dwellings in the wider precinct of Edmondson Park South and the town centre, with 253 dwellings in the town centre core and 169 dwellings in the wider town centre (only 422 residential dwellings were considered in the EPFTC area currently owned by Frasers Property);
- 33,750 m^2 GLFA of retail, business and commercial floor space; and
- 500 students at the proposed primary school located in the wider town centre.

The assignment of these trips can be categorised into internal trips within the Edmondson Park South road network and the external trips to and from 'external zones' outside of the road network, broadly to the north, south, east and west of the precinct. Internal distribution was informed through assumed land use within Edmondson Park South, while external distribution was based on future employment forecasts, using LGAs with major employment centres in south western and western Sydney.

2.2 Revised EPFTC Master Plan

The revised EPFTC Master Plan was received by AECOM on 24 February 2016. The revised plans incorporate the following land use assumptions:

- 992 dwellings in the EPFTC core (north-western quadrant) and 892 dwellings in the wider EPFTC area;
- 35,000 m^2 GLFA of retail; and
- 8,000 m^2 GLFA of medical use.

All other land use within the precinct remained the same as in the original TMAP. A detailed comparison of the previous and revised land use assumptions for the EPFTC is presented in **Table 1**.

Table 1 Comparison of previous and revised EPFTC land use assumptions

Land Use	Previous (2010) Assumptions	Revised (2015) Assumptions
Residential Use	422 dwellings*	1,884 dwellings
Retail Use	18,750 GLFA	35,000 GLFA
Commercial Use	15,000 GLFA	-
Medical Use	-	8,000 GLFA
School Use	500 students	500 students

Source: AECOM, 2016

*- It should be noted that a minimum of 912 residential dwellings were approved in the Town Centre Core. The 422 dwellings quoted here were originally modelled in the TMAP.

To maintain the overall balance of residential dwelling within the approved limit of Edmondson Park South project, the increase of residential dwellings within the EPFTC is offset by proportional reducing the residential dwellings in areas surrounding the EPFTC.

2.3 Implications of land use changes

As a result of the differences discussed in the previous section, the trip generation and distribution for Edmondson Park South have changed. The implications for each of these are detailed in the following sections.

2.3.1 Trip Generation

Table 2 shows the implication of the land use changes on the overall trip generation for Edmondson Park South. It should be noted that all trip rates that were adopted and approved in the TMAP were retained except:

- Retail rates were reduced– 4.6 trips / 100m² GLFA (for Thursday PM peak hour), according to the RMS Trip generation guide due to the increase in retail areas.
- Medical trip generation rates were determined based on:
  - Referencing nearby private hospitals, a bed/GLFA ratio was calculated to be 0.009. This yields approximately 75 beds for the 8,000 GLFA of medical use;
  - Medical (AM peak) – using RMS Traffic Generation Guideline for private hospitals -12.41 + 0.57*Beds trips; and
  - Medical (PM peak) – using RMS Traffic Generation Guideline for private hospitals -11.96 + 0.69*Beds trips.

Table 2 Comparison of previous and revised Edmondson Park South trip generation

Land Use	Previous (2010) Assumptions		Revised (2015) Assumptions	
	AM Peak	PM Peak	AM Peak	PM Peak
Residential Use	2,006	2,006	2,176	2,176
Retail Use	375	885	700	1,288
Commercial Use	300	300	-	-
Medical Use	-	-	30	40
School Use	1,000	0	1,000	0
All Land Use	**3,681**	**3,191**	**3,906**	**3,504**

Source: AECOM, 2016

The trips generated by the development are slightly higher in the revised Master Plan, with 225 more trips in the morning peak and 313 more trips in the evening peak. This increase is largely caused by the increase in retail land use, and to a smaller extent the increase in residential use, though slightly offset by the decrease in commercial land use.

2.3.2 Trip Distribution

In light of more detailed forecast retail catchment of the EPFTC prepared by Frasers Property, the distribution of the retail, commercial and medical trips of the town centre to / from the external network was updated to reflect where retail customers are most likely to be generated. A comparison of the previously adopted and revised 2026 distribution is shown in **Table 3**.

Table 3 Comparison of previous and revised EPFTC external retail, commercial & medical distribution assumptions

External Road Network Direction	Previous (2010) Assumptions	Revised (2015) Assumptions
North	27%	67%
East	59%	5%
South	9%	7%
West	5%	21%

Source: AECOM, 2016

The trip distribution for all other land uses in the internal and external network remained the same as the original TMAP.