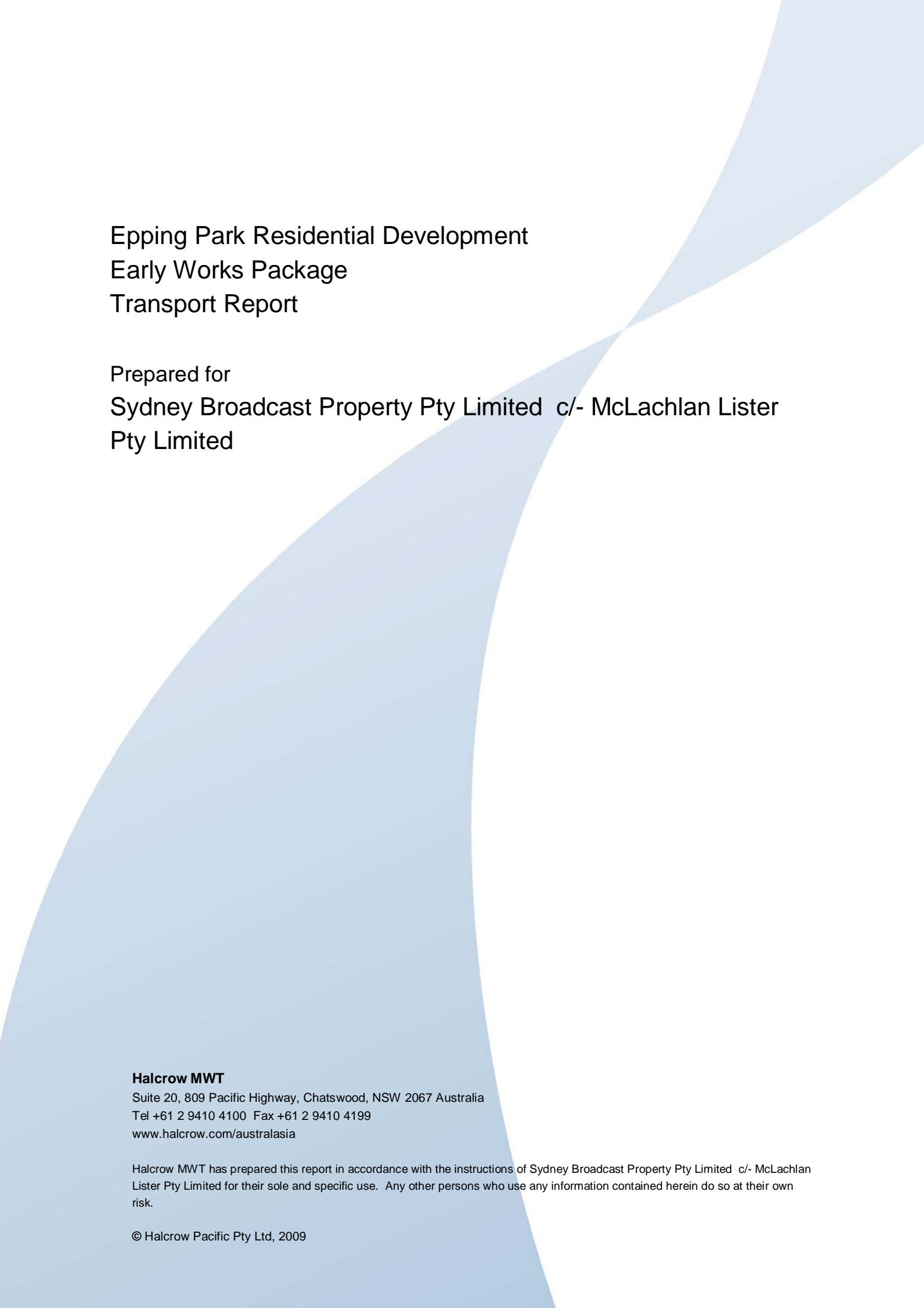


Epping Park Residential Development
Early Works Package
Transport Report

24 April 2009

Prepared for
Sydney Broadcast Property Pty Limited
c/- McLachlan Lister Pty Limited



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1 Introduction

This Transport Report has been prepared to present the findings of an Environmental Assessment (transport) for the proposed Part 3A Project Application for the Early Works Package associated with the Epping Park development on the Seven Network studios site at 61 Mobbs Lane, Epping.

The Epping Park residential development project involves the construction of:

- up to 650 residential dwellings;
- landscaped open space; and
- internal and external associated services and infrastructure such as roads, footpaths, resident facilities and a child care centre.

The Early Works Package includes the following works as envisaged by the approved concept plan:

- demolition of existing structures;
- construction of the final landform;
- internal and external road works;
- reticulation of services;
- landscaping of public and private open space;
- child care centre;
- private resident facilities; and
- subdivision.

Halcrow MWT has been requested to provide transport reporting for the Early Works Package of the Epping Park development.

This report provides a response to the Director General Requirements (DGR) for the Early Works Package (MP 08_0258) which requires the Environmental Assessment to provide a Transport and Accessibility Impact Study that considers transport and accessibility, traffic generation, any required road / intersection upgrades, access,

loading dock(s), car parking arrangements, pedestrian and bicycle linkages associated with the proposed works as per Concept Plan MP 05_0086.

This report will also examine the construction and operational impacts of this component of works. As the operational stages of the Early Works Package, namely the operation of the child care centre, may occur simultaneously with the proposed Stage 1 Residential development, the potential cumulative impacts of the two stages have been assessed in this report.

2 Background and Proposed Early Works Package

2.1 *Background*

The transport aspects of the proposed Epping Park residential development (formerly referred to as The Parklands) have been assessed as part of the Concept Plan approval process.

The transport assessment has been reported in the following documents:

- Transport Report Parklands, prepared by Masson Wilson Twiney Pty Ltd (November 2005);
- Letter of Assessment regarding a proposed reduction in dwellings, prepared by Masson Wilson Twiney Pty Ltd (9 May 2006); and
- Parklands Residential Estate Concept Plan Modification Reporting, prepared by Masson Wilson Twiney Pty Ltd (April 2008).

(Note: Masson Wilson Twiney has recently joined Halcrow and is now trading as Halcrow MWT)

Each of these reports considered the transport implications of the overall or ultimate development of the site. This included the identification of road infrastructure improvements, both external and internal, to accommodate future development of the site.

The transport investigations considered known future developments within the immediate vicinity which have the potential to change existing traffic and transport conditions. This included the residential development of the former Brickworks site on the opposite side of Mobbs Lane.

The initial transport report (2005) considered the traffic and transport implications and associated road improvement works required to accommodate approximately 900 residential units on the Epping Park site.

The report prepared by Masson Wilson Twiney in April 2008 addressed the requirements of Modification Condition B4 of the Concept Plan approval for the site. The Concept Plan approval reduced the number of residential units permissible on the site to 650 units. A reduction in residential yields (900 units to 650 units) would be associated with a reduced traffic generation potential of the site. Thus as part of the Modification Condition B4 assessment and report, recommendations relating to traffic and transport improvement works to accommodate the proposed Epping Park development were reconsidered in light of a reduced traffic generation potential of the site.

The Modification Condition B4 transport report recommended that the following road improvements were required as part of the development proposal to accommodate demands of 650 residential units and provide broader transport benefits to the existing networks and local communities that use them:

- Extension of the road pavement (where widening required on northern side of road) for the length of Mobbs Lane contiguous with the site frontage;
- New kerb and gutter as required on northern side of Mobbs Lane fronting site;
- Construction of parking bays and road pavement extension on northern side of Mobbs Lane between the eastern site access and the intersection of Mobbs Lane with Edenlee Street;
- Construction of shared footpath and bicycle lane along the site's frontage in Mobbs Lane and extending to the Midson Road intersection;
- Construction of an indented bus stop and associated facilities in Mobbs Lane on site's frontage;
- Installation of new traffic signals at the intersection of Marsden Road and Mobbs Lane, including the provision of a new protected right turn bay on Marsden Road;
- Reconfiguration of the existing Midson Road / Mobbs Lane intersection including provision of additional signalised pedestrian crossing;
- Western site access intersection to be constructed with dedicated turning lanes; and
- Eastern site access intersection to be constructed with a westbound passing lane along Mobbs Lane.

Based on the intersection analysis, it was concluded that traffic signals were required at the Marsden Road / Mobbs Lane intersection to provide additional capacity and improved operation for:

- Background traffic flows (ie. non Epping Park residential development traffic); and
- Epping Park residential development potential traffic generation.

The installation of traffic signals at the Marsden Road / Mobbs Lane and a right turn bay into Mobbs Lane for cars travelling north on Marsden Road will address existing safety and capacity conditions, as well as provide additional capacity to accommodate the proposed Epping Park residential development.

It is noted that these proposed external road and transport network improvements form part of the Early Works Package.

Future applications will address the remaining proposed residential development and associated works on the site.

2.2 Overview of Early Works Package

The Early Works Package includes:

- demolition of existing structures;
- construction of the final landform;
- internal and external road works;
- reticulation of services;
- landscaping of public open space;
- child care centre and resident facilities with associated landscaping; and
- subdivision.

The Early Works Package proposes to construct a modified internal road layout compared to Concept Plan MP 05_0086. The implications of the changes to the internal road layout are examined in Chapter 3.

3 Traffic Implications of Early Works Package

This chapter will examine the cumulative traffic implications of the operation of the proposed Early Works Package and Stage 1 Residential development.

3.1 *Traffic Generation*

In accordance with the Director General Requirements, the traffic generation of the Early Works Package has been estimated and the implications assessed.

With regard to potential external road network traffic impacts, the operational stages of the Early Works Package will include traffic generated by the child care centre. Resident facilities to be constructed as part of the Early Works Package will generate internal movements whether by foot or bicycle.

The RTA guidelines¹ provide a guide to the likely traffic generation rates for child care centres.

The RTA Guidelines suggests that child care centres (including Long Day Care) have the following traffic generation rates and characteristics during the AM and PM peak periods:

- 0.8 trips / child / hour in the AM arrival period between 7.00am – 9.00am;
- 0.7 trips / child / hour in the PM pick up period between 4.00pm – 6.00pm;
- Mode split by car – 94%

The estimated traffic generation associated with the proposed child care centre (59 children) has been calculated based on the RTA and surveyed traffic generation rates.

The traffic generation of the proposed child care centre is estimated to be approximately 47 and 41 trips per hour in peak AM and PM periods respectively.

¹ Roads and Traffic Authority of New South Wales (2002) *Guide to Traffic Generating Developments*.

These trips would be relatively evenly split between vehicles driving to the site (entering) and vehicles leaving (exiting) the site.

It is noted that the proposed child care centre may be operational at the same time as the Stage 1 Residential development (230 dwellings).

It is estimated that the Stage 1 residential development will generate approximately 110 vehicle trips per peak hour period.

Thus upon completion and occupation of Stage 1 Residential and the Early Works Package development proposals, the Epping Park site is estimated to generate approximately 157 and 151 vehicles per AM and PM peak hours respectively.

This potential site traffic generation is compared with the pre-development and ultimate development traffic generation characteristics in Table 3.1.

Table 3.1 - Comparison of Pre & Post Development Site Traffic Generation

Development Scenario	Peak Hour Site Traffic Generation	
	AM Peak Hour (veh/hr)	PM Peak Hour (veh/hr)
Seven Network Operation (Pre-development) ¹	159	123
Stage 1 Residential + Early Works Package (Child Care Centre)	157	151
Modified Concept Plan (650 residential units) ²	398	392

Sources: 1. Surveyed flows (2007) as reported in Modification Reporting, MWT (April 2008)
2. Modification Reporting, MWT (April 2008)

Table 3.1 indicates that the estimated traffic generation of Early Works Package and Stage 1 Residential development and will be significantly less than the traffic generation associated with the approved Concept Plan development (ie. 650 residential units).

Furthermore, the proposed Early Works Package involves the ceasing of operations at and demolition of the Seven Network building.

Table 3.1 indicates that the proposed Stage 1 Residential and Early Works Package development will generate similar peak period traffic flows to those generated in the predevelopment conditions, namely with Seven Network operating on the site.

As such with regard to traffic generation to and from the site it is considered that the proposed Stage 1 Residential development (and child care centre) would maintain similar pre development traffic conditions on the road network surrounding the site.

Therefore it is considered that there would be no significant net increase in traffic impacts associated with the Early Works Package (and Stage 1 Residential development) compared with pre development conditions.

The timing for implementation of external road network intersection improvement works is discussed in Section 3.4 of this report.

3.2 Public Transport Accessibility

The Epping Park development is within an extended but achievable walking distance of the Eastwood and Epping Railway stations and bus interchanges, which provides regional and Sydney wide public transport connections.

New rail services to Chatswood and the current links from Epping Station will provide excellent opportunities for travel by rail to the rest of the Metropolitan area.

The site is passed by a bus route linking Parramatta and Eastwood and within walking distance of other bus routes and Epping and Eastwood railway stations.

The demand for bus services near the site is likely to increase with the additional population within the development site and the adjacent redevelopment of the Brickworks site.

Discussions were held with officers of STA as part of the Concept Plan development and included the potential opportunity to divert bus services along Mobbs Lane.

To accommodate the potential for diverted bus services a number of design modifications have been developed in consultation with STA and incorporated into the Mobbs Lane concept design.

These modifications include:

- Widening intersection approaches and kerb alignments to accommodate bus turning path requirements;
- Bus stop locations and bus bay provisions; and
- Deletion of roundabout alternate treatment for Mobbs Lane / Site Access / Brickworks redevelopment access intersection.

It is noted that the following measures are proposed as part of this application to encourage increased public transport usage:

- provision of convenient pedestrian connections to bus stops on Mobbs Lane (as described above)
- provision of bus shelter (located east of the intersection at bus bay)
- provision of information to residents on available services
- provision of pedestrian and cycle connections to the area network.

The Early Works Package development is consistent with the public transport provisions and development measures proposed as part of the approved Concept Plan.

Furthermore, the Early Works Package includes the construction of public transport facilities (namely the bus stop). This will allow access to public transport from the initial stages of development on the Epping Park site.

Also the inclusion of a child care centre on the site as part of the overall development proposal has the potential to attract a significant number of children from within the development itself. This has the potential to reduce the proportion of vehicle trips made to and from the child care centre in favour of internal non private vehicle modes, namely walking.

3.3 *Modified Internal Road Network Layout*

The proposed Early Works Package includes some minor modifications to the internal road network layout as approved in the Concept Plan (MP 05_0086). The modifications to the internal road network are illustrated in the plan prepared by PTW Architects provided at Appendix A.

The approved Concept Plan MP 05_0086 had an internal road network that included a spine road that traversed the site and connected the upper (or eastern) and lower (or western) sections of the site near the western access point to the site off Mobbs Lane. As shown in Appendix A, a further connection between the upper and lower sections was provided in the vicinity of the existing helipad.

Following more detailed site investigations and design development, including a review of the levels across the site and on Mobbs Lane, it was found that the longitudinal grade along the proposed spine road would be too steep and particularly unsuitable for large vehicles such as fire and waste removal trucks.

Accordingly, a modified road layout has been proposed to link the eastern and western portions of the site. The modified internal roadway will provide a connection through the site for waste removal trucks and fire trucks, as well as access for all residents on the site.

In terms of functionality and interaction with the external road network, the alternate road layout will:

- Continue to provide two site access intersections along Mobbs Lane at the locations proposed in the approved Concept Plan;
- Maintain the same site generation traffic distributions as proposed and assessed as part of the Concept Plan transport assessments; and
- Maintain vehicle access throughout the site for service and other vehicles.

As such the proposed internal road network modifications will not change the proposed interaction between the final on site and off site traffic conditions as documented and assessed in the Concept Plan and Modification B4 Transport Report. Thus the recommendations of the Concept Plan transport assessment remain valid.

Halcrow MWT has undertaken a review of the proposed internal road network layout and design with regard to road gradients, road widths and cross sections. The review has concluded that the proposed internal road network as designed by Worley Parsons has been designed to meet appropriate standards and accommodates the geometric and operational requirements of vehicles likely to utilise these roads.

The internal road network has maintained the primary loop road system as proposed in the approved Concept Plan. However, a number of improvements have incorporated into the design including:

- Provision of dedicated turning area (cul-de-sac) at end of western road, designed to accommodate emergency and waste removal vehicles;
- Simplified road layout with less intersections and bends;
- Removal of internal road intersection in close proximity to the Western Access / Mobbs Lane intersection. This will provide increased internal storage capacity and reduce to the potential for internal queuing to impact on Mobbs Lane traffic flows; and
- Turn radii of several bends eased to better accommodate emergency and waste removal vehicles.

In summary it is considered that the proposed modified internal road layout represents an improved outcome for the development compared with the approved Concept Plan.

3.4 External Road Works

3.4.1 Description of External Road Works

As noted previously, the recommendations in the Modification B4 Transport Report included the construction along the Mobbs Lane frontage of the site of:

- kerb and gutter;
- shared pedestrian and bicycle footpaths;
- formalised parking bays (between Edenlee Street and eastern site access); and
- an indented bus stop.

In addition, the western site access intersection would be constructed with dedicated turning lanes while the eastern site access intersection to be constructed with a westbound passing lane along Mobbs Lane.

3.4.2 *Timing of Improvement Works*

With regard to timing of the above Mobbs Lane road works it is proposed that:

- The works east of the proposed western site entrance (opposite the Brickworks site) are to be fully constructed prior to the release of the Final Occupation Certificate for the first stage of residential development (ie. Stage 1 Residential); and
- All remaining works (including the western site access intersection) are to be fully constructed prior to the release of the Final Occupation Certificate for the final stage of residential development.

As noted previously, the recommendations also found that an upgraded intersection with traffic signals at Marsden Road and Mobbs Lane would improve the operation of the intersection with a better level of service even with the additional traffic from the subject site added to the existing traffic at the intersection.

Similarly, the operation and safety Midson Road and Mobbs Lane intersection will benefit from the provision of pedestrian crossings on all four approaches and revised signal timing with and without the proposed Epping Park development.

Discussions have been undertaken between the applicant and the RTA regarding the timing of the proposed traffic signal works.

Correspondence from the RTA dated 10th July 2007 advised amongst other things that they requested traffic signals for the intersection of Marsden Road with Mobbs Lane need to be fully constructed and operational before any Occupation Certificate of the development is released.

Halcrow MWT believes that this condition is unreasonable because the size of the development means that it will (as proposed) be completed in stages. It would be reasonable for the early stages to be developed prior to the completion of the signal installation as long as the resulting traffic generation did not exceed that from the current Seven Network use of the site. This is because it is normal for a new

development to assume responsibility for any incremental traffic that it might produce. It is common practice that a new development should not be responsible for remedying any pre-existing road network deficiency.

This view has been documented and provided to the RTA in correspondence dated 4 October 2007 (see Appendix B).

As described in Section 3.1 of this report, it is estimated that the cumulative development of the Stage 1 Residential (230 dwellings) and Early Works Package (Child Care Centre) will generate similar levels of traffic as the previous use of the site, namely the Seven Network operations.

It is proposed that the trigger to undertake the external intersection improvements should be when traffic levels of the Epping Park development reach the same levels of traffic generation of the previous use of the site.

As shown in Table 3.1 the Seven Network use generated peak hour flows of 159 vehicles per hour and 123 vehicles per hour in the AM and PM peak hour respectively.

Conservatively, the trigger for improvement works has been based on the PM Peak period. That is the signalisation of the Mobbs Lane / Marsden Road intersection and the Mobbs Lane / Marden Road intersection improvements shall be undertaken once Epping Park development reaches an estimated traffic generation of 123 vehicles per hour in the PM peak period.

Based on the unit mix proposed in the Stage 1 Residential development the average traffic generation per dwelling is estimated to be 0.48 trips / hour / dwelling. This rate has been used to estimate the trigger for intersection improvements. It is noted that this average generation rate is slightly different to the average rate used in the MWT correspondence to the RTA (Appendix B). The rate used in the MWT correspondence was an average rate for the overall Epping Park Concept Plan development rather than the Stage 1 Residential development. The use of Stage 1 Residential development unit mix represents a more accurate representation of the development at the time of the trigger for intersection improvements.

A summary of the trigger point dwelling yields is provided in Table 3.2.

Table 3.2 - Trigger Points for Intersection Improvements

Development Scenario	PM Peak Hour Traffic Generation	
	Traffic Generation Rate (veh/dwelling/hr)	PM Peak Hour (veh/hr)
Seven Network Operation (Pre-development) ¹	-	123
With Child Care Centre		
Child Care Centre (59 places)	0.7	41
Residential Dwellings (171 dwellings)	0.48	82
		123
Without Child Care Centre		
Residential Dwellings (256 dwellings)	0.48	123

Based on the results presented in Table 3.2 it is recommended that the following development could take place and be occupied before the previous PM Peak hour traffic generation of the site would be exceeded:

- With Child Care: 171 dwellings; or
- Without Child Care: 256 dwellings.

It is therefore recommended that instead of a requirement that the traffic signals be installed before any occupation of the site take place, the requirement be changed to apply prior to the issue of the Occupation Certificate for the 172nd or 257th residential dwelling depending upon the construction of the proposed Child Care Centre.

3.5 Pedestrian and Cycle Linkages

A landscape plan has been prepared by Aspect Studios showing the proposed pedestrian and bicycle linkages throughout the site. These linkages include both off road and on road linkages consistent with the principles and objectives of the Concept Plan.

Pedestrian permeability throughout the site has been maintained with connections between buildings and the eastern and western sections of the site.

Bicycle and pedestrian connections to Mobbs Lane are proposed at the two vehicle access points and three additional pedestrian accesses to the west of the western vehicle access. These connections will link to the proposed shared bicycle and pedestrian path on the northern side of Mobbs Lane and connect to a proposed refuge island east of the intersection. The child care centre will have a dedicated pedestrian path from Mobbs Lane to the centre as well as linking to the wider pedestrian network within the site via a path along the western boundary which will also link to Mobbs Lane.

There will be a further formalised pedestrian access point to the site west of the eastern access point at the proposed 'Town Square' publicly accessible open space. This access is proposed opposite the pedestrian refuge on Mobbs Lane to provide a link through and from the site across Mobbs Lane to the bus stops on either side of Mobbs Lane. Internal permeability for pedestrians will be provided across the site (between the TAFE) and Mobbs Lane by a series of interconnecting paths and open spaces.

The proposed pedestrian refuge on Mobbs Lane is an outcome of the Brickworks redevelopment and is shown on their approved civil layouts.

Council has a published bicycle plan which does not include Mobbs Lane; however the proposed linkages along Mobbs Lane will provide an additional connection to the existing on road path on Midson Road. Therefore, the shared bicycle / pedestrian path is defined as a local access path.

The path has been designed as a 3.0m wide shared path adjacent the site which exceeds the Austroads requirements. At Council's request the path narrows to 2.5m near the intersection of Midson Road to maintain a green buffer to the roadway. In accordance

with Austroads standard, the width is suitable for a local access / commuter bicycle / pedestrian path and is considered appropriate.

3.6 *On Road Car Parking*

A total of 69 visitor car parking spaces are proposed to be provided on the internal roads within development. The layout of these on road visitor spaces has been designed in accordance with the Australian Road rules with consideration to the longitudinal grades along roadways. All other visitor car parking required to meet the RTA guidelines will be provided within the basements of future buildings.

3.7 *Child Care Centre Parking and Access Arrangements*

A child care centre for approximately 59 children is proposed in the south west corner of the site fronting Mobbs Lane.

The child care centre is proposed to have a separate entry and separate exit vehicle access west of the proposed Epping Park residential entry / exit points (see Appendix A).

The proposed child care development includes the provision of:

- 15 designated and line marked on site car parking spaces (includes 1 disabled parking space;
- Bicycle parking rails for 12 bikes; and
- Two new vehicle driveways on Mobbs Lane and one way circulating internal roadway to allow entry and exit to the site in a forward direction. Vehicle access would also be provided to the play area for emergency and maintenance vehicles.

Pedestrian access to and from the site to Mobbs Lane will be provided via a separate access path to the vehicle access. There will also be additional separate pedestrian access to and from the centre to the rest of the development's pathway network.

3.7.1 Parking Provisions

The RTA guidelines for Child Care Centres specify a minimum on site parking provision at the rate of 1 space for every 4 children attending the centre.

Under this rate the proposed child care centre which will accommodate up to 59 children would require the provision of 15 on site car parking spaces.

The development proposal includes the provision of 15 designated and line marked on site spaces. Thus the development proposal complies with the parking space provisions specified by the RTA guidelines.

3.7.2 Vehicle Access and Internal Circulation

Vehicular access for the proposed child care centre car parking area is proposed to be from Mobbs Lane.

The car park will provide a one way internal circulation road to be created through the site. The provision of one way internal circulation road (or drive through) with separated entry and exit driveways accommodate an efficient internal vehicle circulation pattern which minimises vehicle and pedestrian conflicts within the car park. There is also a 'holding space' of 6.2 metres at the top of the entrance ramp to allow cars to wait, without blocking the entrance to the car park from Mobbs Lane, whilst other cars park or reverse. This is consistent with the objectives specified in the RTA guidelines.

The available sight distances at the proposed driveway at Mobbs Lane comply with the minimum sight distance requirements of AS2890.1 (greater than 65 metres in both directions) for the observed speeds of 60km/h.

Therefore the proposed access arrangements to the parking area are considered satisfactory for the proposed child care centre development.

3.7.3 Car Parking Space Layout

The proposed car parking layout has been reviewed with regard to AS2890.1-2004.

The development proposal indicates a typical parking space width of 2.6 metres and length of 5.4 metres which is suitable under AS2890.1-2004. Two narrower spaces (2.4

metres) are allocated as staff parking spaces. The proposed disabled parking space has an increased width (3.2 metres) to accommodate disabled access as specified by AS2890.1-2004.

Formal footpaths have been provided at the rear of the car parking spaces directly to the child care centre main entrance, while a separate pedestrian access from Mobbs Lane has also been provided. A further pedestrian access is proposed from the west of the child care centre directly onto the site network of paths.

3.7.4 Driveway Design

The floor level of the proposed child care centre is designed to be set above specified flood levels for the detention pond located immediately to the west and north. This has resulted in the floor level of the child care centre being set approximately 4.45 metres above the kerb line on Mobbs Lane where the entry access intersection is proposed.

To accommodate this unavoidable level change the proposed entry driveway profile as shown in Early Works Project Application plans has been adopted. The profile allows for an initial 4 metre section at the entrance to the driveway graded at 1:40 before increasing to 1:5 for 6.3 metres between the rear edge of the proposed shared pedestrian/cycleway and the site boundary. The grade then reduces to 1:8 for a 4 metre section before levelling out to 1:10 for a 6.2m section allowing a vehicle to stand within the driveway at a near level grade when potentially waiting for a vehicle to park.

Whilst the driveway profile does not strictly comply with Australian Standard it is considered to meet the intent of the standard and furthermore be suitable for the location as safety measures have been applied to mitigate any potential safety issues. These measures include:

- compliant grades in areas of potential queuing;
- one way circulation through the car park;
- location of parking spaces with direct access to pedestrian entries / exit to the centre (ie. no need to cross circulating traffic when walking between the car and the centre);
- flat grades at the footpath crossings; and

- provision of satisfactory sight distances and appropriate sight lines for vehicles and pedestrians.

It is noted that appropriate landscaping will be provided along the footpath to provide a physical and visual separation of pedestrian and vehicle access areas. This will further minimise potential conflicts within the care parking area.

3.7.5 Service Vehicles

Deliveries, waste removal and service vehicles accessing the site will be minimal and typically occur outside operating hours. These vehicles would utilise the proposed on site parking area which would generally have sufficient capacity outside of peak drop off / pick up periods.

4 Construction Traffic Implications

The purpose of this chapter is to provide an overview of the likely construction traffic impacts associated with the Early Works Package and proposed mitigation measures.

Detailed assessment of construction traffic impacts and management measures will be undertaken once the detailed construction methodology is developed. This detailed assessment will form part of a detailed Construction Site Management Plan (CSMP) for the works. This will be undertaken prior to construction certification in consultation with the construction contractors and the relevant approval authority. Any CSMP will need to consider staging and timing implications relevant to works at that particular time.

4.1 *Overview of Construction Activities*

This section describes the likely truck volumes and routes, and potential public road closures / impacts from the following works required as part of the Early Works Package.

The Early Works construction activities will include:

- demolition of existing structures;
- construction of the final landform;
- construction of internal and external roads and intersection upgrades;
- reticulation of services;
- landscaping of the public domain;
- construction of the private resident facilities and associated landscaping; and
- construction of the child care centre.

Standard RTA Traffic Control Plans (as required) are recommended in accordance with RTA Guidelines². This details the locations of signs, bollards, safety barriers, etc. in

²Traffic Control at Worksites, NSW Roads and Traffic Authority, 2003

accordance with the RTA's Manual ("Traffic Control at Worksites, Version 3, September 2003").

Additional details will be provided by the contractor to Parramatta City Council and the RTA Traffic Management Centre prior to any traffic control for each stage of work affecting Mobbs Lane.

4.2 *Estimated Truck Volumes, Routes and Their Impact*

Construction traffic volumes have been estimated on past experience with projects of this nature. It is estimated that the Early Works Package would generate around 5 - 10 truck trips per hour for the majority of the works based on estimated quantities and work.

A peak flow of up to 30 truck trips per hour would be generated for a short period during works requiring the delivery of major materials such as concrete, asphalt or removal of demolition materials. This truck traffic would be in addition to general construction traffic estimates of around 30 vehicles per day or around 5 trips per hour.

During the construction works the Seven Network operations will have vacated the site and as such 159 and 123 vehicles per hour in the AM and PM peak respectively will be removed from Mobbs Lane. In this respect, the volumes of truck traffic would be relatively low (and lower than the current Seven Network operations) and would not have any significant impact on existing traffic conditions.

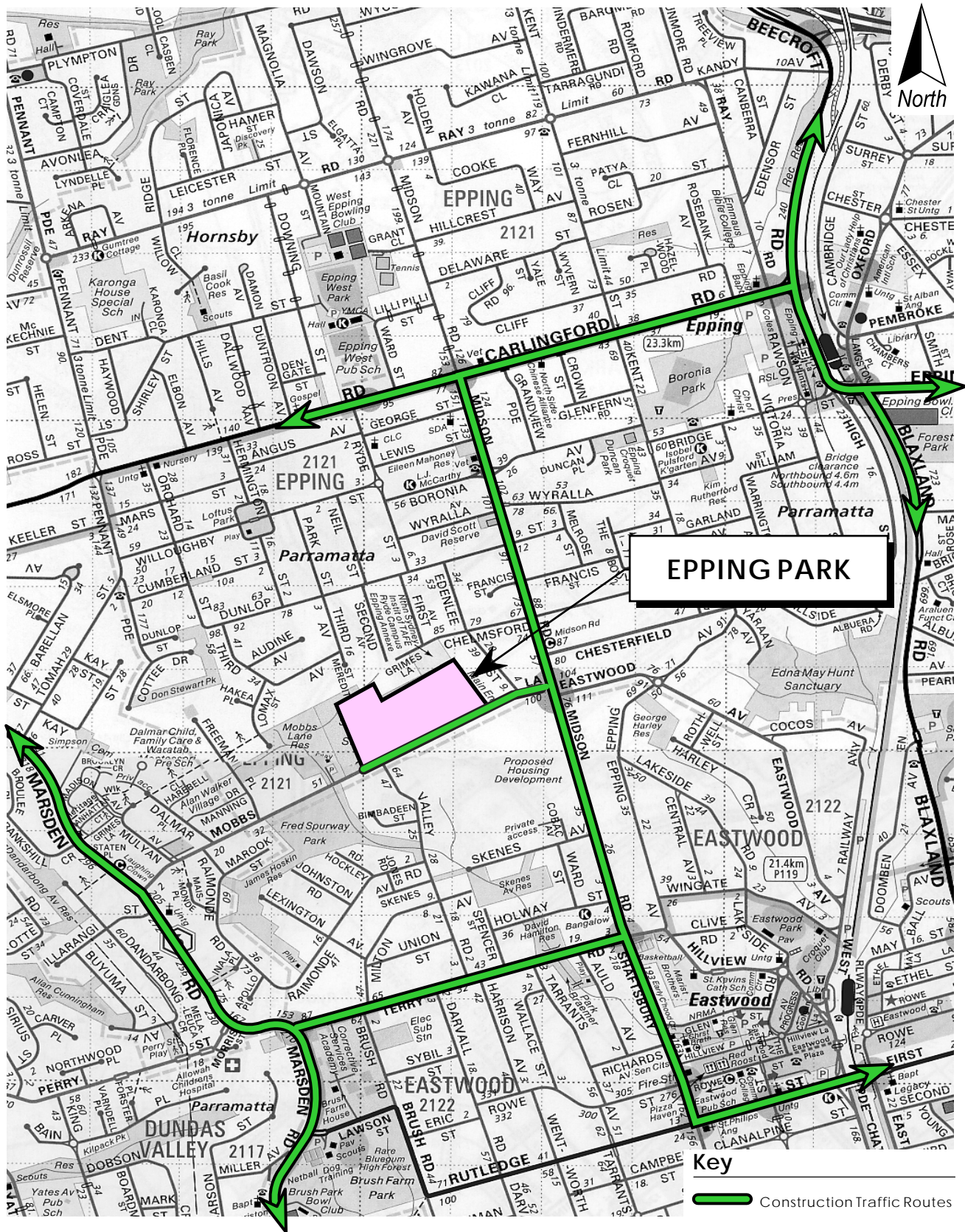
The extent to which any road and footpath closures will affect traffic flow along Mobbs Lane will need to be considered as part of the detailed Construction Traffic Management Plan. Some specific controls which could be implemented along Mobbs Lane to minimise the impact are described below.

During the construction period, truck access will occur from Mobbs Lane as this is the only road frontage available to the site.

It is noted that an existing 3 tonne load limit exists on Mobbs Lane. The regulations regarding load limits allow vehicles heavier than the restricted weight to use a load limit

PROPOSED CONSTRUCTION TRAFFIC ROUTES

EPHING PARK



- Construction of an indented bus stop and associated facilities in Mobbs Lane on site's frontage;
- Western site access intersection to be constructed with dedicated turning lanes; and
- Eastern site access intersection to be constructed with a westbound passing lane along Mobbs Lane.

Public road and footpath closures will be required along Mobbs Lane during the construction. The closure of lanes on Mobbs Lane during tie in works will be required to provide a work area and clearances between moving traffic and the work area. The asphalt tie in and footpath works may require the closure of one travel lane.

Appropriate traffic controls in accordance with RTA Traffic Control at Worksites, 2003 will be in place during demolition and construction to avoid congestion in Mobbs Lane and other surrounding traffic routes.

Special traffic control to minimise the impacts to Mobbs Lane traffic and pedestrians include:

- all work carried out in accordance with RTA Traffic Control at Worksites, 2003;
- major disruptions to trafficable lanes will occur overnight, i.e. more than one lane closed to traffic;
- work in Mobbs Lane should be reinstated overnight (all works short term only);
- pedestrian activity in and around construction access driveways will be managed through the use of certified traffic controllers during heavy truck use;
- minimise the need for delivery vehicles to reverse in to busy streets, where in the rare case a vehicle reverses onto Mobbs Lane, safety will be managed by RTA Certified Traffic Controllers;
- separate, where possible on site construction traffic from public traffic;
- use RTA Certified Traffic Controllers for on and off site traffic management;
- manage construction related traffic on public roads to minimise the impact on traffic efficiency of public traffic; and
- as part of the CSMP the contractor will detail the location of the site office and associated on site car parking for staff and visitors.

4.4 *Bus Stops / Routes and Emergency Vehicles*

During the works it is envisaged that normal bus operations and bus stops will remain and continue to operate for the majority of the works. However, in the interest of pedestrian and bus safety, the existing bus stop may be temporarily relocated during any works which involve closure of the footpath area. Details of any relocation should it be required would be discussed directly between the client, contractor and STA.

Emergency vehicles will be assisted by traffic controllers at the lane closures for access to the site during an emergency.

4.5 *Temporary Driveway*

Any proposed temporary driveways will be constructed in accordance with RTA requirements and approved separately by others.

5 Response to RTA, Council and Community Comments

5.1 *Roads and Traffic Authority*

In addition to the DGR, the RTA has provided a number of issues to be covered in this report. This section covers the traffic and parking related issues from a letter dated 12 January 2009 from the RTA. The RTA issue is paraphrased and shown in italics. Below each issue is a response to each issue.

1. *Daily and peak traffic movements likely to be generated by the proposed development including the impact on nearby intersections and the need for upgrading or road improvement works.*

Estimates of the traffic generation for the Early Works Package have been outlined in **Chapter 3** of this report.

2. *Evidence indicating that the requirements of the attached letter dated 16 April 2008 will be complied with as part of this application.*

The letter refers to the preparation of civil designs for the external road layout as well as provision of public road infrastructure. The civil design layouts for the external road works, including capacity improvement works at the Midson Road / Mobbs Lane and Marsden Road / Mobbs Lane intersections are included in the Project Application civil design plan prepared by Worley Parsons.

3. *Details of the proposed accesses and the parking provisions associated with the proposed development including compliance with the requirements of the relevant Australian Standard.*

Proposed accesses and parking arrangements / compliance for the Early Works Package have been outlined in **Chapter 3** of this report.

4. *Proposed number of car parking spaces and compliance with the appropriate code.*

Proposed accesses and parking arrangements / compliance for the Early Works Package have been outlined in **Chapter 3** of this report.

5. *Details of the service vehicle movements (including vehicle type and likely arrival and departure times).*

Service vehicle movements have been assessed in **Chapter 3** of this report.

6. *The RTA requires the EA report to assess the implications of the proposed development for non-car travel modes (including public transport use, walking and cycling) and the provision of facilities to increase the non car mode share for travel to and from the site. This will entail an assessment of the accessibility of the development site by public transport.*

This item has been assessed in **Chapter 3** of this report.

7. *The RTA will require in due course the provision of a traffic management plan for all construction activities detailing vehicle routes, number of trucks, hours of operation, access arrangements, traffic control measures and public pedestrian safety.*

An overview of the construction traffic management measures to be included in a CSMP for the Early Works Package has been provided in this report in **Chapter 4**.

The information is general in nature as a detailed CSMP will be developed by the construction contractor as required. The CSMP will be made available to the RTA. At that time, the contractor will need to amend any details herein should changes be required.

This matter has also been addressed in an Environmental & Construction Management Overview prepared by McLachlan Lister as part of the Stage 1 Residential and Early Works Package applications.

5.2 *Parramatta City Council*

Prior to the consideration of the initial and modified applications a number of meetings were held with Parramatta City Council officers. The outcomes of these meetings have been detailed in the Modification Condition B4 Traffic Report.

The meetings primarily centred on the suitability and location of the access intersections and improvement works on Mobbs Lane. The agreed layout of the access intersections were shown on the approved concept plan. This report does not change the layout of these intersections.

A letter dated 12 January 2009 indicates no additional information is required by Parramatta City Council at this time.

5.3 *Community Consultation*

Sydney Broadcast Property Pty Limited has recently undertaken a significant amount of community consultation in order to obtain community feedback regarding proposed Epping Park development.

Community consultation has included:

- Public meetings and information days
- Newsletter
- Website information

Elton Consulting has produced a report summarising these issues which will be included in the relevant section of the Environmental Assessment Report where the issues are addressed in more detail.

During the consultation process it was identified that the community perceived there was currently a lack of local traffic management in the area surrounding the site. We believe that the upgrading works, in particular the improvements to the Midson Road and Mobbs Lane intersection, will abate these local concerns.

6 Summary and Conclusions

This report has provided details on the transport impacts of the Early Works Package for Epping Park.

Modified Internal Road Layout and External Roads

It is concluded that the proposed internal road network modifications would not change the final on site and off site traffic conditions as documented and assessed in the approved Concept Plan. Thus the conclusions of the Concept Plan transport assessment remain valid.

The proposed modified internal road layout provides a number of operational benefits which will deliver an overall improved internal road network compared with the approved Concept Plan.

These recommendations include the construction along the frontage of the site for kerb and gutter, shared pedestrian and bicycle footpaths and an indented bus stop and parking bays. In addition, the western site access intersection would be constructed with dedicated turning lanes while the eastern site access intersection to be constructed with a westbound passing lane along Mobbs Lane.

Based on the cumulative assessment it is considered that traffic generation levels associated with the child care centre (Early Works) and Stage 1 Residential development will be similar to pre development levels when the Seven Network was operating on the site. As such the timing requirement for the proposed Mobbs Lane intersection improvements (at both Marsden Road and Midson Road) would be triggered when proposed traffic levels reach previous site use levels. This is estimated to be when 171 or 256 residential dwellings for the with and without child care centre development scenarios.

Halcrow MWT has undertaken a review of the proposed internal road network layout and design with regard to road gradients, road widths and cross sections. The review has concluded that the proposed internal road network as designed by Worley Parsons

has been designed to meet appropriate standards and accommodates the geometric and operational requirements of vehicles likely to utilise these roads.

Final Traffic Generation of Early Works

It is considered that the post construction period traffic generation of the Early Works Package, being the child care centre, will generate a small amount of morning and afternoon traffic volumes. The child care centre access intersections are considered adequate to cater for these flows.

It is noted that the proposed resident facilities are expected to generate internal trips, predominately as walking trips, rather than vehicle trips on the external road network.

The design of the proposed child care centre including the vehicle and pedestrian access, car parking provision and car parking layout is suitable for its use and meets RTA and Council DCP objectives.

Construction Impacts

During construction, typical hourly traffic volumes are estimated to range from 10 to 15 vehicle trips per hour throughout the project.

Previously the Seven Network operations generated 159 and 123 vehicles per hour in the AM and PM peak respectively and these volumes will be removed from Mobbs Lane. In this respect, the volumes of truck traffic would be relatively low and would not have any significant impact on traffic conditions.

During construction, special traffic controls to minimise the impacts to Mobbs Lane traffic and pedestrians will be used.

Conclusion

In summary the proposed Early Works Package is considered to be consistent with the traffic and transport aspects of the approved Concept Plan for the Epping Park site.

road where no other access is available. As such, heavy vehicle access to and from the development site is permissible via Mobbs Lane, both from the east and the west.

Notwithstanding the above, it is understood that heavy vehicles associated with the Seven Network operations on the site do not travel west of the site along Mobbs Lane to Marsden Road. Similarly construction traffic associated with the Brickworks site on the southern side of Mobbs Lane do not travel west along Mobbs Lane to Marsden Road.

It is proposed that the same construction traffic route utilised for the Brickworks site and the arrangements for the former Seven Network operations would be used for heavy construction traffic (ie. vehicles over 3 tonnes) associated with the development. These routes for heavy vehicles are shown in Figure 1.

The main access points for heavy vehicles during construction will be on Mobbs Lane. Sight distances at Mobbs Lane are excellent and in this respect the access will be adequate for construction access.

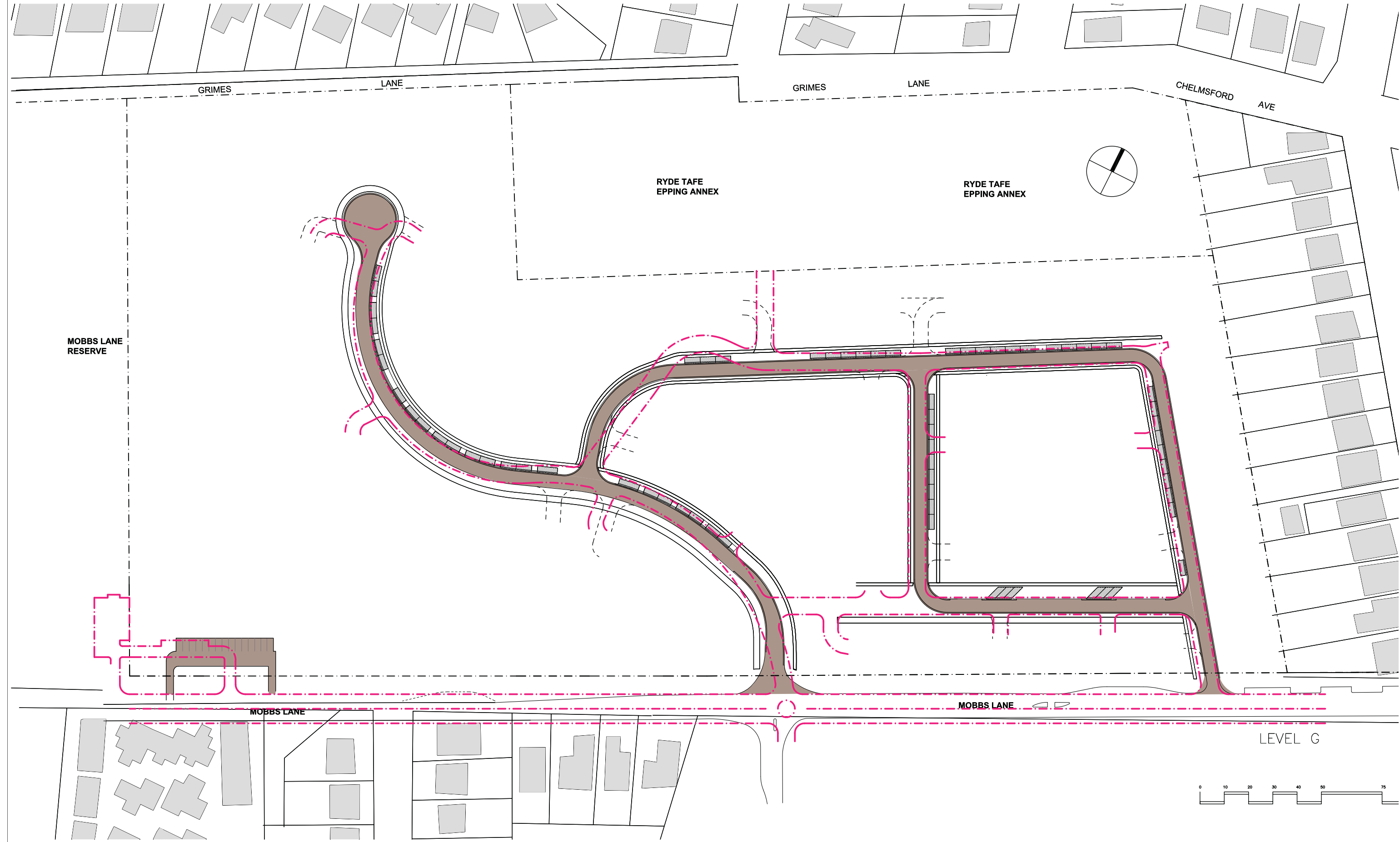
It is intended that adequate on site car parking facilities will be provided to accommodate construction worker parking and vehicle deliveries to and from the site. The detailed CSMP will detail the location of the site office and facilities including the location and number of staff car parking spaces.

4.3 Mobbs Lane Road Works

The works directly affecting Mobbs Lane involve:

- Extension of the road pavement (where widening required on northern side of road) for the length of Mobbs Lane contiguous with the site frontage;
- New kerb and gutter as required on northern side of Mobbs Lane fronting site;
- Construction of parking bays and road pavement extension on northern side of Mobbs Lane between the eastern site access and the intersection of Mobbs Lane with Edenlee Street;
- Construction of shared footpath and bicycle lane along the site's frontage in Mobbs Lane;

Appendix A Proposed Internal Road Network Modifications



MOBBS LANE RESERVE

RYDE TAFE EPPING ANNEX

RYDE TAFE EPPING ANNEX

GRIMES LANE

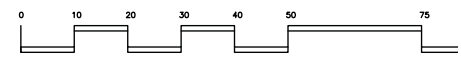
GRIMES LANE

CHELMSFORD AVE

MOBBS LANE

MOBBS LANE

LEVEL G



--- INTERNAL ROAD LAYOUT OF APPROVED CONCEPT PLAN

BUILDING FOOTPRINTS OF FUTURE STAGES INDICATIVE ONLY

Revision	Date	Revision	Key Plan	Consultants	Project Manager	Client	Architect	Drawing	Project								
<p>Do not scale from drawings. Verify all dimensions on site before commencing work. Copying or the reproduction of this drawing is strictly prohibited without the consent of Peedle Thorp & Walker P/L.</p>																	
<p>Landscape: Aspect Studios Civil: Worley Parsons Pty Ltd Structural: Enstruct Group Pty Ltd Services: Lincoln Scott Traffic: Hallow MWT Planner: JBA</p>				<p>Studio 61, Level 6, 61 Marlborough St, Surry Hills, NSW, 2010 Level 10, 141 Walker St, North Sydney, NSW, 2060 Level 4, 2 Glen St, Milsons Point, NSW, 2061 Level 1, 41 McLaren St, North Sydney, NSW, 2060 Suite 20, 809 Pacific Hwy, Chatswood, NSW, 2067 Level 7, 77 Berry street, North Sydney, NSW, 2060</p>		<p>Tel: 02 9690 7162 Tel: 02 9456 7222 Tel: 02 8904 1444 Tel: 02 8907 0900 Tel: 02 9410 4100 Tel: 02 9409 4940</p>		<p>McLachlan Lister Pty Ltd Level 1, Hickson Road The Rocks NSW 2000 T 612 9241 7326 F 612 9241 7329</p>		<p>Sydney Broadcast Property Pty Ltd Level 11, Suite 1101, 14 Martin Place Sydney NSW 2000 T 612 9225 7600 F 612 92624177</p>		<p>PTW Architects Level 17, 9 Castlereagh St Sydney NSW Australia 2000 T 612 9222 5877 F 612 9221 4139 www.ptw.com.au</p>		<p>PTW Title: Proposed and Approved Concept Plan Overlay - Internal Road Layout</p>		<p>PROJ NO: Epping Park SCALE: 61 Mobbs Lane, Epping DATE: 17.04.2009</p>	

Appendix B Timing of Mobbs Lane / Marsden Road Intersection Signalisation

MWT Correspondence to RTA (4/10/2007)



Mr Alistair Mein
McLachlan Lister Pty Limited
Level 1
1 Hickson Road
THE ROCKS NSW 2000

4th October 2007

Dear Alistair

Re: Proposed Staging of "The Parklands" (Channel Seven) Development

We refer to the letter from the RTA to you dated 10th July 2007 which advises amongst other things that the required traffic signals for the intersection of Marsden Road with Mobbs Lane need to be fully constructed and operational before the Occupation Certificate of the development is released.

We believe that this condition is unreasonable because the size of the development means that it is most likely to be completed in stages. It would be reasonable for the early stages to be developed prior to the completion of the signal installation as long as the resulting traffic generation did not exceed that of the Channel Seven use of the site. This is because it is normal for a new development to assume responsibility for any incremental traffic that it might produce. It is common practice that a new development should not be responsible for remedying any pre-existing road network deficiency.

In this regard, traffic surveys conducted for our original traffic report for the site found that the Channel Seven operation generated the following peak period traffic flows during periods of normal operation:

Am Peak Hour (8:00-9:00am)	159 vehicles/hr
Pm Peak Hour (5:15 – 6:15pm)	123 vehicles/hr

The traffic report noted that there were frequently events when the traffic generation was somewhat higher.

The proposed development comprises about 650 dwellings and a childcare centre. The estimated peak period traffic generation of these components is:

	Am Peak Hour (veh/hr)	Pm Peak Hour (veh/hr)
Residential	351	351
Childcare	47	41
TOTAL	398	392

Based on these figures the following level of development could take place before the previous Pm Peak Hour traffic generation of the site was exceeded:

Alternative 1 – Childcare + 152 dwellings

Alternative 2 – 228 dwellings alone

We thus suggest that instead of a requirement that the traffic signals be installed before any occupation of the site take place, the requirement be changed to apply prior to the earlier of say either:

- the occupation of the childcare centre plus 150 dwellings, or
- the occupation of 225 dwellings with no childcare centre

If the RTA still wished the traffic signals to be installed prior to these thresholds being reached then it would be reasonable for it to make a financial contribution towards the works. This should be equivalent to the cost of bringing them forward to a date earlier than would otherwise have been justified.

Yours Sincerely,



Bruce Masson
Director