Table of Contents

1 Introduction 4
2 Background and Existing Conditions 5
  2.1 Location and Land Use 5
  2.2 Road Network 6
    2.2.1 Flemington Road 6
    2.2.2 Little George Street 7
    2.2.3 TravelSmart Map 8
    2.2.4 Public Transport 8
3 Site Access and Traffic Management 9
4 Work Site Hazard Assessment – Construction Traffic 10
5 Staged Construction Process 11
6 Proposed Traffic Management 11
  6.1 General 12
  6.2 Demolition and Earthworks 12
    6.2.1 Little George Street 12
    6.2.1 Flemington Road 12
  6.3 Construction 13
    6.3.1 Little George Street 13
    6.3.2 Flemington Road 13
7 Major Site Access Routes 15

Appendices

Appendix A Traffic Management Plans
Appendix B Worksite Hazard Assessment

Tables

Table 2-1 Public Transport Provision 8

Figures

Figure 2-1 Site Location 5
Figure 2-2 Flemington Road service lane, looking northwest past the subject site 6
Figure 2-3 Little George Street, looking northwest towards the subject site 7
Figure 2-4 TravelSmart Map 8
Figure 7-1 Truck Access Routes and Height Clearance Warnings 15
1 Introduction

Cardno has been retained by Spec Property to prepare Traffic Management Plans (TMPs) for the demolition and earthworks stage and the construction stage of the proposed Helios Apartments at 91-95 Flemington Road, North Melbourne. Cardno has also been retained by HACER Group to prepare TMPs for a neighbouring construction project, Nord Apartments at 81-85 Flemington Road, North Melbourne. The TMPs for both sites have been coordinated to produce the most efficient solution.
2 Background and Existing Conditions

2.1 Location and Land Use

The subject site is located 91-95 Flemington Road, North Melbourne, as shown in Figure 2-1.

Figure 2-1 Site Location

The site is rectangular in shape with an approximate frontage of 14 metres to Flemington Road. Land use surrounding the site is mixed in nature, with various commercial and retail uses located in the immediate vicinity of the site. Land uses of note within the surrounding area include the Royal Women's Hospital and the University of Melbourne located to the east of the site.
2.2 Road Network

2.2.1 Flemington Road

Flemington Road is a primary arterial road running in a northwest-southeast orientation between Royal Parade in the southeast and Citylink in the northwest.

In the vicinity of the site, Flemington Road consists of a main carriageway that allows for one lane of traffic in each direction separated by two sets of tram tracks as well as a service lane on either side of the carriageway that allows two lanes of traffic, a bicycle lane and a kerbside parking lane in the corresponding direction. The Flemington Road service lane adjacent to the subject site is shown in Figure 2-2.

At the frontage of the subject site, a speed limit of 40km/h applies Monday-Friday 8:00am to 9:30am and 2:30pm to 4:00pm. A speed limit of 60km/h applies all other times.

Figure 2-2 Flemington Road service lane, looking northwest towards the subject site
2.2.2 Little George Street

Little George Street operates northwest-southeast from Villiers Street in the southeast and Harcourt Street in the northwest.

Little George Street provides a trafficable width of around 4.0 metres and provides access to the rear of adjacent properties, which front onto Flemington Road.

Little George Street, looking southeast towards the subject site, is shown in Figure 2-3.

Figure 2-3 Little George Street, looking southeast towards the subject site
2.2.3 **TravelSmart Map**
The site is located in close proximity to numerous sustainable transport modes, including tram, bus and train services as shown in the TravelSmart map at Figure 2-4.

**Figure 2-4 TravelSmart Map**

2.2.4 **Public Transport**
The subject site has excellent public transport accessibility, with the following services located within close proximity.

The full public transport provision is indicated in Table 2-1.

**Table 2-1 Public Transport Provision**

<table>
<thead>
<tr>
<th>Service</th>
<th>Route No’s</th>
<th>Route Description</th>
<th>Nearest Stop</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tram</td>
<td>19</td>
<td>North Coburg - City Elizabeth St</td>
<td>Cnr Flemington Road and Grattan Street</td>
</tr>
<tr>
<td></td>
<td>55</td>
<td>West Coburg - Domain Interchange</td>
<td></td>
</tr>
<tr>
<td></td>
<td>59</td>
<td>Airport West - City Elizabeth St</td>
<td></td>
</tr>
<tr>
<td>Bus</td>
<td>401</td>
<td>North Melbourne - University of Melbourne via Royal Melbourne Hospital</td>
<td>Grattan Street east of Flemington Road</td>
</tr>
<tr>
<td></td>
<td>402</td>
<td>Footscray - East Melbourne via North Melbourne</td>
<td></td>
</tr>
<tr>
<td></td>
<td>546</td>
<td>Heidelberg - Melbourne University - Queen Victoria Market via Clifton Hill and Carlton</td>
<td></td>
</tr>
</tbody>
</table>
3 Site Access and Traffic Management

The project construction will involve vehicle and pedestrian movements within and around the site. This will interface with existing vehicle and pedestrian activity within the surrounding precinct.

During the work, the objective for managing traffic will be to:

> Implement an effective management plan that achieves the planned construction activities in a safe and timely manner;
> Provide for public safety;
> Protect the environment; and
> Minimise the disruption to both vehicular and pedestrian traffic.
4 Work Site Hazard Assessment – Construction Traffic

A work site hazard assessment is the first step in developing a construction traffic management plan for a work site and is a requirement of the Road Management Act 2004 – Code of Practice. The purpose of the Risk Assessment is to identify the risk of events, the probability of the event occurring and the severity of the consequences if the risk was to lead to, or contribute to an incident. Based on those assessments the Risk Assessment process then identifies appropriate design elements and management procedures to eliminate or minimise the risk.

This Construction Traffic Management Plan outlines the design elements and management procedures that are to be put in place for vehicles accessing the site during the construction phase of the project.

The risk assessment process has been documented using the Road Management Act 2004 Worksite safety – Traffic Management site risk rating checklist and is attached as Appendix B.
5 Staged Construction Process

The number of personnel and vehicle deliveries during the staged construction process has been provided by Spec Property as follows.

The traffic management plans may be required to be modified to accommodate the construction stages as detailed below:

Early Works – To commence August, 2014, duration 1 month
> Construct site hoarding, crossovers and loading zones, make signage changes and install construction traffic management signage and line marking.
> During this phase there are likely to be approximately 10 personnel on site; 4 semi-trailers plus 5 other delivery vehicles per day.

Site Establishment - To commence August 2014 duration 1 month
> Install site amenities. Install overhead gantries.
> During this phase there are likely to be approximately 10 personnel on site; 4 semi-trailers per day plus 5 other delivery vehicles per day.

Demolition- To commence September 2014, duration 1 month.
> During this phase there are likely to be approximately 6 personnel on site; 1 semi-trailers, 3 truck and dog combinations (quarry trucks), plus 1 other delivery vehicles per day.

Ground support and Bulk Excavation - To commence October 2014, duration 3 months
> During this phase there are likely to be approximately 10 personnel on site; 1 semi-trailers, 7 truck and dog combinations (quarry trucks) plus 2 other delivery vehicles per day

Construct Structure to Ground Level - To commence February 2015, duration 3 months
> During this stage there are likely to be approximately 45 personnel on site; 2 semi-trailers per day; concrete pours 1 times per week with up to 10 concrete trucks per day plus 3 other delivery vehicles per day.

Tower Construction- To commence May 2015, duration 5 months
> During this stage there are likely to be approximately 70 personnel on site; 3 semi-trailers per day; concrete pours 1 times per week with up to 10 concrete trucks per day plus 3 other delivery vehicles per day.

Shellworks and Finishes Stage - To commence June 2015 duration 11 months
> During this stage there will be up to 150 personnel on site and up to 1 semi-trailers and 8 single-unit trucks per day up to 10m long plus 5 other delivery vehicles per day.

Commissioning and Handover - To commence March 2016, duration 2 months
> During this stage there will be up to 50 personnel on site and 1 other delivery vehicles per day.

Final commissioning and handover - To commence May 2016, duration 1 month
> Removal and reinstatement of existing conditions – trees, line marking, make good etc.
> Removal of hoarding.

The project duration is approximately 24 months.
6 Proposed Traffic Management

6.1 General
Traffic Management Plans (TMPs) have been developed for the earthworks and demolition, and construction stages. The TMPs are found attached as Appendix A.

The proposed hours of operation during these two phases are 7:00AM – 7:00PM Monday to Friday and 8:00AM – 3:00PM Saturday.

Detailed discussion of the proposed traffic management for each stage of construction is as follows.

6.2 Demolition and Earthworks

6.2.1 Little George Street
During the demolition and earthworks stage, construction activity is to be contained within the site. It is proposed that Little George Street be closed from Harcourt Street up to the eastern boundary of the Nord Apartments subject site. The western end of the laneway closure will be occupied by Helios Apartments construction site, and the eastern end will be occupied by Nord Apartments, as detailed in Cardno Drawing CG140222/T/03. The occupied section of the laneway is to be gated and car park access at the eastern end of Little George Street is to be maintained. The laneway is to be re-opened to traffic at the end of each shift and remain open to traffic outside working hours.

During the demolition and earthworks stage, material removal is proposed using tandem tippers, which have been model using an 8.8 metre twin-steer agitator truck to be conservative, as detailed in Cardno Drawing CG140222/T/03. Whether driving onto the site, or only into the laneway, a change of direction will be required at the Harcourt Street / Little George Street intersection. This manoeuvre is to occur under traffic control, as detailed in Cardno Drawing CG140222/T/03.

In order to accommodate vehicle ingress and egress a construction zone is proposed on Harcourt Street at the loss of one parking bay signed “4P meter 7:30am-6:30pm Mon-Fri, 7:30am-12:30pm Sat”, as detailed in Cardno Drawing CG140075/SK/01.

A traffic controller will supervise pedestrians, local traffic and construction vehicle movements into Little George St on Harcourt Street and manage the gate, as required.

A demountable fence 2.4m high is to be erected along the Little George Street frontage.

All construction works will be advised by standard traffic management signage as appropriate.

6.2.2 Flemington Road
During the times when pedestrian protection is required on Flemington Road an overhead protection gantry will be installed with a minimum footpath width of 1.5 metres along the site frontage to Flemington Road, as required. Timber hoarding 2.4 metres high is also to be installed along the site frontage, as detailed in CG140222/T/03.

Site amenities are to be set up in the adjoining property to the east. Access and operation of the debating club room and camera shop within this adjoining property are to be maintained.
6.3 Construction

6.3.1 Little George Street

Little George Street is to be occupied by the two construction sites as per the demolition and earthwork stages. The laneway is to be re-opened to traffic at the end of each shift and remain open to traffic outside working hours.

During the construction stage Little George Street will be used as a loading bay to cater for 19.0 metre semi-trailers. Little George Street will be shared by the two construction sites as it was in the demolition and earthwork stages with the boundary of the sites loading bays defined by a front and a rear gate, as detailed in CG140222/T/04.

Truck ingress into Little George Street will occur via a reverse manoeuvre from Harcourt Street. Truck egress out of Little George Street will occur in a forward direction via a right turn into Harcourt Street, as detailed on Cardno Drawing CG140222/T/04. The ingress reverse manoeuvre is to be conducted under traffic control supervision. Two traffic controllers (one each direction of traffic) are required to hold traffic as the reverse manoeuvre is performed.

In order to accommodate vehicle ingress and egress, nine parking bays on Harcourt Street have been replaced with:

- A construction zone at the loss of seven parking bays signed “4P meter 7:30am-6:30pm Mon-Fri, 7:30am-12:30pm Sat”.
- Two “No Parking 6:00am-6:30pm Mon-Sat” bays at the loss of two parking bays signed “1P 7:30am-6:30pm Mon-Fri”.

A timber hoarding 2.4m high is to be erected along the Little George Street frontage.

6.3.2 Flemington Road

6.3.2.1 Construction Zone

On Flemington Road, the two sites (Helios Apartments and Nord Apartments) each propose a concrete pump and a waste bin on the nature strip and concrete pour bays in the existing parking and bicycle lane on Flemington Road. The concrete pouring bays will be protected by omni-stop bollards and mesh fence. To accommodate the two concrete pour bays, a construction zone is proposed that accommodates the ingress and egress paths of twin-steer agitators, with a shared entry/exit between the two bays. To prevent parking in the construction zone, the pour bays are to be gated and chevrons marked on the ungated section of the construction zone.

6.3.2.2 Loss of Parking

The construction zone will be implemented at the loss of the following parking spaces:

- Five parking bays signed “2P meter 7:30am-6:30pm, Mon-Fri, 7:30am-12:30pm Sat”.
- A 20 metre long loading zone signed “Loading zone 30 Minute 7:30am-6:30pm”.
- Four parking bays signed “1/4P meter 7:30am-6:30pm, Mon-Fri, 7:30am-12:30pm Sat”.

6.3.2.3 Bicycle Lane Closure

It is proposed that the bicycle lane be closed for the length of the construction zone.

6.3.2.4 Waste Bin Access

In order to empty the waste bin a waste truck is required to reverse up to the bin, as detailed in CG140222/T/04. This reverse manoeuvre is to be supervised by two traffic controllers to hold traffic in each lane of Flemington Road, and is to occur before the morning peak starts, i.e. approximately 6:00am.
6.3.2.5 Pedestrian Protection

An overhead protection gantry with a minimum footpath width of 1.5 metres is proposed along the entire site frontage to Flemington Road, as detailed in CG140222/T/04. Typical hoarding will also be installed along the frontage to protect the work zone.

A traffic controller will supervise local traffic, construction vehicles, cyclists and pedestrian movements along Flemington Road, as required.

All construction works will be advised by standard traffic management signage as appropriate.
7 Major Site Access Routes

The recommended ingress and egress route is prescribed as follows as shown in Figure 7-1:
The City Link will be the preferred major access route to and from the site.
> Inbound (all vehicles): City Link – Footscray Road – Dudley Street – Peel Street – Flemington Road;
> Outbound (all vehicles): Flemington Road – Racecourse Road – City Link.

Figure 7-1 Truck Access Routes and Height Clearance Warnings

Spec Property will require all subcontractors to advise (and induct as required) operatives/drivers of the approved access route plan and the traffic management plan for the proposed development. Drivers are to be provided with a map highlighting the approved routes and potential hazards in the vicinity of the project.
APPENDIX

A

TRAFFIC MANAGEMENT PLANS
CONSTRUCTION SITE
(HELIOS APARTMENTS, 91-95 FLEMINGTON ROAD)

CONSTRUCTION SITE
(NORD APARTMENTS, 81-85 FLEMINGTON ROAD)

LEGEND

SUBJECT SITES
POTENTIAL TRUCK SWEPT PATHS
EXISTING PARKING RESTRICTIONS
PROPOSED PARKING RESTRICTIONS

SKETCH CG140075SK02 P1 - PROPOSED PARKING CHANGES - NORD & HELIOS APARTMENTS
CONSTRUCTION STAGE

MELWAY 2AK7
APPENDIX B

WORKSITE HAZARD ASSESSMENT
Worksite Hazard Assessment Checklist

<table>
<thead>
<tr>
<th>Project No:</th>
<th>CG140222</th>
<th>Prepared By:</th>
<th>BR</th>
<th>Checked By:</th>
<th>GC</th>
<th>Date:</th>
<th>08.05.14</th>
</tr>
</thead>
<tbody>
<tr>
<td>Project:</td>
<td>HELIOS APARTMENTS</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Work Location: Little George St

Step 1 - Worksite Hazard Rating

Road Type: Local Traffic Road
Traffic speed: 50 km/h
Clearance between workers and traffic: >3.0m

Project: HELIOS APARTMENTS
Date: 08.05.14

Step 2 - Required Level of Planning

A site specific traffic management plan has been prepared and reviewed by Cardno and discussed with and communicated to those on the worksite.

Step 3 - Hazards at Worksite and Step 4 - Hazard Control Measures

<table>
<thead>
<tr>
<th>Safety Hazard / Risk Factors</th>
<th>Present at Worksite</th>
<th>Hazard Control Measure(s)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Clearance to traffic</td>
<td>No</td>
<td></td>
</tr>
<tr>
<td>High speed traffic through worksite</td>
<td>No</td>
<td></td>
</tr>
<tr>
<td>Poor advance sight distance to worksite (&lt;200 metres)</td>
<td>No</td>
<td></td>
</tr>
<tr>
<td>Poor observance of directions / instructions by motorists</td>
<td>No</td>
<td></td>
</tr>
<tr>
<td>Narrow pavement with no escape path (&lt;2.9 metres width)</td>
<td>No</td>
<td></td>
</tr>
<tr>
<td>Presence of workers at the worksite</td>
<td>No</td>
<td></td>
</tr>
<tr>
<td>Excavations adjacent to worksite</td>
<td>No</td>
<td></td>
</tr>
<tr>
<td>Presence of unprotected hazards within the clear zone</td>
<td>No</td>
<td></td>
</tr>
<tr>
<td>Rough or unsealed road surface</td>
<td>No</td>
<td></td>
</tr>
<tr>
<td>High volume of traffic through worksite (&gt;10,000 vpd)</td>
<td>No</td>
<td></td>
</tr>
<tr>
<td>End-of-queue build-up of traffic / Poor sight distance to end-of-queue</td>
<td>No</td>
<td></td>
</tr>
<tr>
<td>High volume of heavy vehicles</td>
<td>No</td>
<td></td>
</tr>
<tr>
<td>Works vehicles entering/leaving worksite</td>
<td>Yes</td>
<td>Road closure, with traffic controllers at Harcourt Street to supervise truck reversing movements, supported by parking bans and standard advance warning signage.</td>
</tr>
<tr>
<td>Cyclists/pedestrians through worksite</td>
<td>No</td>
<td></td>
</tr>
<tr>
<td>Other</td>
<td>No</td>
<td></td>
</tr>
</tbody>
</table>

Step 5 - Hazard Control Measures to be Used (include details of the assessment in accordance with the Hierarchy of Safety Controls indicating why higher levels were considered not to be reasonably practicable)

Having considered the nature of the works and identified all hazards in accordance with Table 3 of the Road Management Act, 2004 (Worksite Safety – Traffic Management ), the hazard control measures to be applied, in consultation with those who will be working on the worksite or supervising the works, are shown on the Traffic Management Plan, Cardno drawing number CG140222/T/03

Step 6 - Traffic Management Plan Prepared and Implemented

1. For prepared traffic management plan refer to Cardno drawing number CG140222/T/03
2. It is important that workers are made aware of both the existence and contents of the traffic management plan that applies to their worksite.

Step 7 - Traffic Management Plan in Practice Reviewed

After the traffic management plan has been implemented, a review should be undertaken to ensure that it is operating as expected. This review should take place before work commences on site (refer also Clause 14 of the Road Management Act, 2004 (Worksite Safety – Traffic Management).

Step 8 - Carry out the Work

The Road Safety (Traffic Management) Regulations 2009 require that a copy of the traffic management plan, a hazard assessment and measures to control identified hazards must be kept at the worksite at all times when workers are present.
In addition, all necessary written authorisations as required for the erection of certain traffic control devices shall also be kept at the worksite when workers are present.

For more details of the steps involved in the worksite hazard assessment, refer to The Road Management Act, 2004 (Worksite Safety – Traffic Management) - Part 2 Worksite Hazard Management Process.
Worksite Hazard Assessment Checklist

Project No: CG140222  Prepared By: BR  Checked By: GC  Date: 08.05.14

Project: HELIOS APARTMENTS

Work Location: Flemington Road

Step 1 - Worksite Hazard Rating

| Road Type: Urban arterial or Rural 'M' Road | Traffic speed: 60 km/h |
| Clearances between workers and traffic: <1.2m | Worksite Hazard Rating: High |

Step 2 - Required Level of Planning

A site specific traffic management plan has been prepared and reviewed by Cardno and discussed with and communicated to those on the worksite.

Step 3 - Hazards at Worksite and Step 4 - Hazard Control Measures

<table>
<thead>
<tr>
<th>Safety Hazard / Risk Factors</th>
<th>Present at Worksite</th>
<th>Hazard Control Measure(s)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Clearance to traffic</td>
<td>Yes</td>
<td>Concrete pour bay to be protected by impact-absorbing bollards and standard warning signage.</td>
</tr>
<tr>
<td>High speed traffic through worksite</td>
<td>No</td>
<td></td>
</tr>
<tr>
<td>Poor advance sight distance to worksite (&lt;200 metres)</td>
<td>No</td>
<td></td>
</tr>
<tr>
<td>Poor observance of directions / instructions by motorists</td>
<td>No</td>
<td></td>
</tr>
<tr>
<td>Narrow pavement with no escape path (&lt;2.9 metres width)</td>
<td>No</td>
<td></td>
</tr>
<tr>
<td>Presence of workers at the worksite</td>
<td>Yes</td>
<td>Concrete pour bay to be protected by impact-absorbing bollards and standard warning signage.</td>
</tr>
<tr>
<td>Excavations adjacent to worksite</td>
<td>No</td>
<td></td>
</tr>
<tr>
<td>Presence of unprotected hazards within the clear zone</td>
<td>No</td>
<td></td>
</tr>
<tr>
<td>Rough or unsealed road surface</td>
<td>No</td>
<td></td>
</tr>
<tr>
<td>High volume of traffic through worksite (&gt;10,000 vpd)</td>
<td>Yes</td>
<td>Concrete pour bay to be protected by impact-absorbing bollards and standard warning signage.</td>
</tr>
<tr>
<td>End-of-queue build-up of traffic / Poor sight distance to end-of-queue</td>
<td>No</td>
<td></td>
</tr>
<tr>
<td>High volume of heavy vehicles</td>
<td>No</td>
<td></td>
</tr>
<tr>
<td>Works vehicles entering/leaving worksite</td>
<td>Yes</td>
<td>Drive-through concrete pour bay, with bay supervised by traffic controller. Bin pick-up to be performed under traffic controller supervision and at low traffic times.</td>
</tr>
<tr>
<td>Cyclists/pedestrians through worksite</td>
<td>Yes</td>
<td>Protective pedestrian gantry/ Warning signage advising bicycle lane closed.</td>
</tr>
<tr>
<td>Other – Elm Trees</td>
<td>Yes</td>
<td>Root protection slabs under concrete pump and waste bin to council arborist’s satisfaction</td>
</tr>
</tbody>
</table>

Step 5 - Hazard Control Measures to be Used (include details of the assessment in accordance with the Hierarchy of Safety Controls indicating why higher levels were considered not to be reasonably practicable)

Having considered the nature of the works and identified all hazards in accordance with Table 3 of the Road Management Act, 2004 (Worksite Safety – Traffic Management ), the hazard control measures to be applied, in consultation with those who will be working on the worksite or supervising the works, are shown on the Traffic Management Plan, Cardno drawing number CG140222/T/04

Step 6 - Traffic Management Plan Prepared and Implemented

1. For prepared traffic management plan refer to Cardno drawing number CG140222/T/04
2. It is important that workers are made aware of both the existence and contents of the traffic management plan that applies to their worksite.
Step 7 - Traffic Management Plan in Practice Reviewed

After the traffic management plan has been implemented, a review should be undertaken to ensure that it is operating as expected. This review should take place before work commences on site (refer also Clause 14 of the Road Management Act, 2004 (Worksite Safety – Traffic Management).

Step 8 - Carry out the Work

The Road Safety (Traffic Management) Regulations 2009 require that a copy of the traffic management plan, a hazard assessment and measures to control identified hazards must be kept at the worksite at all times when workers are present. In addition, all necessary written authorisations as required for the erection of certain traffic control devices shall also be kept at the worksite when workers are present.

For more details of the steps involved in the worksite hazard assessment, refer to The Road Management Act, 2004 (Worksite Safety – Traffic Management) - Part 2 Worksite Hazard Management Process.