CoA E132 – Local Roads Plan

Warringah Freeway Upgrade

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Document Approval

Rev.	Date	Prepared by	Reviewed by	Approved by	Remarks
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Distribution and Authorisation

Document Control

The CPB Downer JV Project Director is responsible for ensuring that this plan is reviewed and approved. The Design Manager is responsible for updating this plan to reflect changes to the project, legal and other requirements, as required.

Amendments

Any revisions or amendments must be approved by the CPB Downer JV Project Director before being distributed / implemented.

Revision Details

Revision	Details
A	For TfNSW review
B	For DPE submission
C	For DPE submission
D	For DPE submission

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Compliance with CoA Requirements

This Local Roads Plan sets out the minimum client requirements as defined in Table 1, and shows where each requirement has been addressed within this Plan or the wider CPB Contractors Management System (CMS).

Table 1: Compliance with Conditions of Approval E132, E133, E135, E136

Requirement			Reference
E132	Construction Traffic Management	Local roads proposed to be used by heavy vehicles to directly access the construction boundary and ancillary facilities that are not shown in Figure 5-7 to 5-22 inclusive of Appendix F of the EIS must be approved by the Planning Secretary and included in the Traffic, Transport and Access Management CEMP Sub-plan.	Section 4.1, Figure 2 and Table 3
E133	Construction Traffic Management	All requests to the Planning Secretary under **Condition E132** must include the following:	
		(a) a swept path analysis;	Section 5.1
		(b) demonstration that the use of local roads by heavy vehicles for the CSSI will not compromise the safety of pedestrians and cyclists or the safety of two-way traffic flow on two-way roadways;	Section 5.2, 5.3
		(c) provide details as to the date of completion of the road dilapidation surveys for the subject local roads;	Section 6.0
		(d) measures that will be implemented to avoid where practicable the use of roads past schools, aged care facilities and child care facilities during their peak operation times; and	Section 4.4, 5.2.1
		(e) written advice from an appropriately qualified professional on the suitability of the proposed heavy vehicle route which takes into consideration items (a), (b), (c), and (d) of this condition.	Appendix A1
E135	Construction Traffic Management	The locations of all heavy vehicles used for spoil haulage must be monitored in real time and the records of monitoring be made available electronically to the Planning Secretary and the EPA upon request for a period of no less than one year following the completion of construction. **Note:** *Refer to **Condition A47** in relation to vehicle identification.*	Section 7.0
E136	Road Dilapidation	Before any local road is used by a heavy vehicle for the purposes of the CSSI, a **Road Dilapidation Report** must be prepared for the road. A copy of the **Road Dilapidation Report** must be provided to the relevant council within three weeks of completion of the survey and no later than one month prior to the road being used by heavy vehicles associated with the CSSI.	Section 6.0 and Section 3.0

Abbreviations and definitions

Below is a list of abbreviations and definitions used in this document in addition to the Scope of Works Technical Criteria Glossary of Terms, Warringah Freeway Upgrade, Schedule C1.

Table 2: Abbreviations and definitions

Key Term / Abbreviation	Definition
CPB Downer JV	CPB Contractors Downer EDI Works Joint Venture
CCTV:	Closed Circuit Television system
Contract:	The Deed, Scope of Works & Technical Criteria, and other contractual requirements forming the agreement between Leighton Dragados Samsung Joint Venture (CPB DOWNER JV) to design and construct the Tunnel and Civil Works of the WFU Main Works (the Project).
CCS	Community Communication Strategy
CEMP	Construction Environmental Management Plan
CGC	Cammeray Golf Course
CoA	Condition of Approval
CSS	Construction Support Site
DPE	Department of Planning, Industry and Environment
Document:	Including Manuals, Standards, Plans, Procedures, Inspection & Test Plans, Forms, Instructions and other related management system documents and data in the form of any type of media (hard copy or electronic).
EIS	Western Harbour Tunnel and Warringah Freeway Upgrade Environmental Impact Statement (January 2020)
EP&A Act	*Environmental Planning and Assessment Act 1979*
EB	Eastbound
ESO	Emergency Service Organisation
FAS	Flashing Arrow Signs
GRN	Government Radio Network
Health, Safety & Environment (HSE) Representative:	Nominated site management representative, responsible for establishing, implementing and maintaining the site HSE systems and reporting on the performance of these systems to site management for review and improvement. Referred to as Environmental Management Representative and Site Safety Representative (SSR) within the Contract.
Incident	A localised event, either accidental or deliberate, which may result in injury or damage to property that requires normal response from a support agency.
IoA	Instrument of Approval
IRC	Incident Response Crew
IRP	Incident Response Procedure
ITS	Intelligent Transport Systems
IV	Independent Verifier
LRP	Local Roads Plan
METS	Motorist Emergency Telephone System
NSC	North Sydney Council
NB	Northbound
NSWFB	New South Wales Fire Brigade
OHS	Occupational Health and Safety.
Project, the	Western Harbour Tunnel and Warringah Freeway Upgrade

REMM	Revised Environmental Management Measures
ROL	Road Occupancy Licence
RtS	Western Harbour Tunnel and Warringah Freeway Upgrade Response to Submissions (September 2020)
RASS	Radar Activated Speed Sign
SCO	Sydney Coordination Office
SEARS	Secretary's Environmental Assessment Requirements
SSI	State Significant Infrastructure
SZA	Speed Zone Authorisation
SB	Southbound
SCATS	Sydney's Coordinated and Adaptive Traffic System
SPA	Sydney Project Alliance (early works contractor)
SOP	Standard Operating Procedure
TCP	Traffic Control Plan
TfNSW	Transport for New South Wales
TTLG	Traffic and Transport Liaison Group
TMC	Transport Management Centre
TMP	Traffic Management Plan
TGS	Traffic Guidance Scheme (formerly Traffic Control Plan)
TTAMP	Traffic, Transport and Access Management Sub-Plan (this document)
TIMP	Traffic Incident Management Plan
TMO	Traffic Control Room
VMS	Variable Message Sign
VMP	Vehicle Movement Plan
VMS	Variable Message Sign
WB	Westbound
WFU	Warringah Freeway Upgrade
WHTBL	Western Harbour Tunnel and Beaches Link

Part A

1. Structure of this Plan

This Construction Traffic Management- Local Roads Plan forms part of the Project Management System (PMS). It is part of a suite of plans that together outline how the Warringah Freeway Upgrade will be managed to ensure an integrated approach to meeting contract requirements.

In addition to the Construction Traffic Management - Local Roads Plan, other Project Plans that interface with this Construction Traffic Management - Local Roads Plan include:

- WFU Site Establishment Traffic Management Plan
- Incident Management Plan for Traffic
- Construction Parking and Access Strategy
- Traffic Management and Safety Plan

This plan has the following structure:

Part A: Introduction (Section 1-3)	This section clearly defines: ▪ Introduction ▪ Purpose, locations and scope of works ▪ Project requirements and obligations
Part B: Local Roads	This section outlines proposed local roads for approval: • Egress route • Justification • Volumes • Swept path analysis • Pedestrian, cyclist and traffic flow safety • Dilapidation surveys • Heavy vehicles haulage monitoring and recording
Part C: Appendices	A list of appendices providing additional detail that supports this plan including: ▪ Consultation ▪ Heavy Vehicle Egress Route ▪ Local Roads Swept Path Diagrams ▪ Hazard & Risk Assessment ▪ Driver's Code of Conduct

1.1 Project Overview

Warringah Freeway Upgrade is a critical component to the Western Harbour Tunnel and Beaches Link (WHTBL) Program. It will enable the connection of the new WHTBL motorways into the existing motorway network, ensuring the WHTBL Program delivers its connectivity and safety benefits for public transport, freight and private vehicle customers, while improving the journey experience for existing Warringah Freeway users.

The program of works is designed to boost transport capacity around the Harbour CBD and improve connectivity to and from the Northern Beaches – two areas of importance to Greater Sydney's future as a liveable, productive and sustainable global city. Once complete, the upgraded corridor will optimise demand across Sydney Harbour Tunnel, Sydney Harbour Bridge and Western Harbour Tunnel, enabling each to perform its intended function.

The Warringah Freeway Upgrade consists of surface road upgrades, structural works and ancillary works of an approximate four-kilometre section of the freeway corridor. The upgrade is focused on the simplification of traffic flows and wayfinding, as well as enabling works for the new WHTBL.

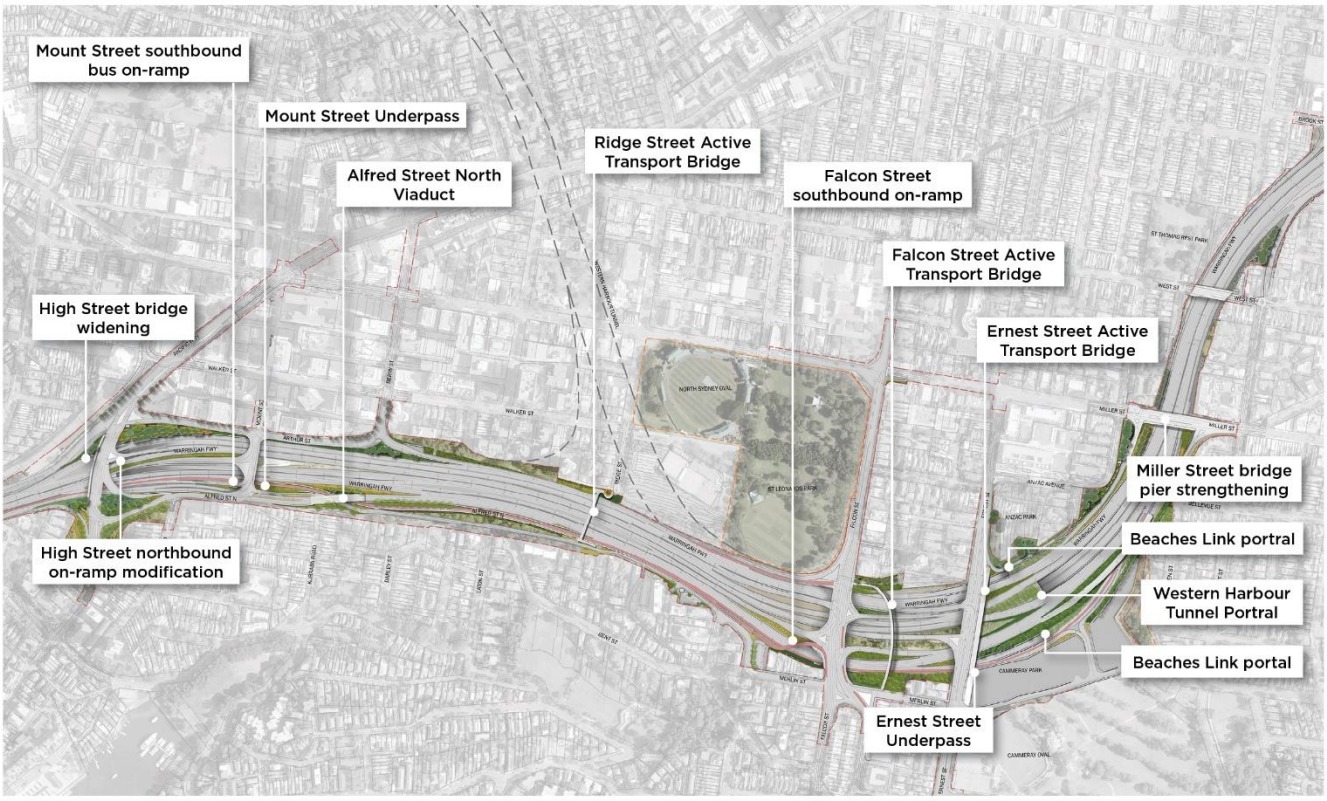


Figure 1: Warringah Freeway Upgrade Project Scope

1.2 Context and scope

This Local Roads Plan (LRP) will support the delivery program and Ernest St Site Establishment at the Cammeray Golf Course Precinct.

This Local Roads Plan has been prepared to address the Minister's Conditions of Approval (CoA) as shown in Table 1 with regards Ernest Street CSS construction heavy and light vehicle egress from the Cammeray Golf Course Precinct.

This Local Roads Plan (LRP) describes the workability of using the proposed local roads and how CPBDowner proposes to manage potential traffic impacts on Ernest St, Park Ave and Cammeray Rd - Amherst St during the Warringah Freeway Upgrade, Ernest Street Site Establishment Work.

Other construction stages of the Project, including operational traffic and transport impacts and operation mitigation measures do not fall within the scope of this LRP, and consequently are not included within the processes contained within this LRP.

1.3 Background

The Western Harbour Tunnel and Warringah Freeway Upgrade EIS (January 2020) assessed potential traffic impacts from construction of the Western Harbour Tunnel and Warringah Freeway Upgrade.

As part of the EIS development, a detailed construction traffic and transport assessment was prepared to address the Secretary's Environmental Assessment Requirements (SEARS) issued by the Department of Planning, Industry and Environment (DPE). The traffic and transport assessment were included in Chapter 8 Construction Traffic and Transport and Appendix F Traffic and Transport Technical Paper of the EIS. Access and egress to most construction support sites would be via state and regional roads with some exceptions that are unavoidable.

1.4 Project description

At present, SPA have an Early Works CSS situated on the southern portion of the Cammeray Golf Course construction precinct adjacent to Ernest St which will be handover to CPBDowner mid-April 2022 for Site Establishment and Preparatory Works.

Site Establishment Work includes:

- Traffic switch; and
- Site mobilization (constructing a laydown area, perimeter security fencing/hoarding, crib rooms and male/female amenities.)

This will be used for the duration of the project.

Preparatory Work includes:

- Upgrading watermains;
- Utility relocations and adjustments;
- Stormwater drainage work; and
- Formation of the CGC Access Road (trimming & clearing, earthworks, pavement construction) opposite Merlin St.

Access and egress to the site is left-in and left-out via a driveway on the north side of Ernest St between the Warringah Freeway and Merlin St.

The local roads including Park Ave, Cammeray Rd and Amherst St received North Sydney Council concurrence and DPE conditional approval as a haulage route for the Warringah Freeway Early Works undertaken by the Sydney Project Alliance.

The conditions for using the local roads route included 12 months period of use, use by a 12.5m HRV and a prescribed volume of heavy vehicle movements through the day.

To permit site establishment in sync with the delivery program, CPBDowner propose in the short-term to continue to use the local roads surrounding the CGC as the CGC-CSS egress haulage route. The **egress route** local roads include: Park Ave (northbound), Cammeray Ave (adjacent the CGC westbound) and Amherst St (westbound).

The **access route** roads include Miller St (State Road) southbound between Amherst St and Ernest St and Ernest St (Regional Rd) eastbound between Miller St and Park Ave.

1.5 Purpose of this local roads approval

This Document has been prepared to describe the workability of using the proposed local roads and how CPBDowner (CPBD) during the Cammeray Golf Course/Ernest St Site Establishment phase of construction will comply with the requirements of the NSW Minister for Planning and Public Space's CoA E132. This Document will be lodged to DPE for approval prior to heavy vehicles (HV) use of local roads that **have not been** identified, assessed and approval as part of the EIS.

In accordance with CoA E133, this Document will:

- Include swept path analyses for local roads that require DPE approval;
- Demonstrate that DPE approval of local roads nominated in this Document will not compromise the safety of pedestrians and cyclists or the safety of two-way traffic flow on two-way roadways;
- Provide details related to the date of the road dilapidation survey that has been conducted for local roads that require DPE approval;
- Detail measures that will be implemented to avoid use of nominated local roads past schools, aged care facilities and childcare facilities during peak operation times;
- Include advice from an appropriately qualified traffic engineer regarding the suitability of nominated local roads that require DPE approval;
- Describe the technology system to be used to monitor in real time the locations of all heavy vehicles used for spoil haulage and keep records of monitoring and made available electronically to the Planning Secretary and the EPA upon request for a period of no less than one year following the completion of construction.(Note: Refer to Condition A47 in relation to vehicle identification); and
- Address the approach and timing for the delivery a Road Dilapidation Report for all the local roads to be used as an egress haulage route. A copy of the Road Dilapidation Report will be provided to the relevant council within three weeks of completion of the survey and no later than one month prior to the road being used by heavy vehicles associated with the CSSI.

1.6 Objectives

The key objective of this Local Roads Plan is to describe the approach to manage traffic impacts of construction heavy and light vehicle usage on the local roads. The key objectives of this Local Roads Plan is to describe and consider the needs of all road users, pedestrians and cyclists and to ensure the safety for both workers and the general public.

To achieve these objectives, CPBDowner will implement appropriate:

- Controls and procedures during construction activities to address potential traffic impacts along the Project corridor; and
- Measures to address the relevant CoA outlined in Table 1, and the safeguards detailed in the EIS.

2. Environmental requirements

2.1 Minister's Conditions of Approval

This Local Roads Plan has been prepared to meet the requirements of CoA E132.

The requirements of CoA E132 and E133, and where they are addressed in this Document are shown in Table 1 Compliance with SWTC Requirements and cross referenced against where the CoA is addressed in this Local Roads Plan.

In accordance with the IoA SSI-8663 Summary of Reporting Requirements Part E Traffic and Transport E132 and E133, this Local Roads Plan (LRP) will be submitted to DPE for approval before accessing the local roads for egress from Ernest St CSS. Travel on the local roads will not commence until this Local Roads Plan, has been approved by DPE.

3. Co-ordination

A briefing session was held with North Sydney Council to provide an overview of the proposed use of the local roads and to provide a forum for discussion.

Subsequent to the meetings, the LRP was provided to North Sydney Council for co-ordination

Consultation has been carried out with Bike North and Bicycle NSW regarding the bicycle detours.

As required stakeholder (including emergency service and bus operators) updates will be provided through a range of tools outlined within the TTAMP Section 6 and Appendix A, including meetings (or at a frequency agreed with key stakeholders), community updates and notifications and emails, to ensure all upcoming changes and impacts are communicated in a timely fashion.

Part B

4. Local roads proposed for approval

4.1 Identification of local roads for approval

As required by CoA E132, DPE approval is required for any local roads that have not been identified and assessed in the EIS. Local roads and other roads requiring DPE approval under CoA E132 are detailed in Table 2.

Table 2 Local roads requiring DPE approval under CoA E132

Local road	Direction of movement	Description of use during construction	Description of potential impacts
Park Avenue between Ernest St & Cammeray Rd	Northbound	Egress from work site	Construction vehicle route12.5m HRV Period of use: 12 months
Cammeray Road (between Park Avenue and Amherst Street)	Westbound	Egress from work site	Construction vehicle route 12.5m HRV Period of use: 12 months
Amherst Street between Warringa Rd & Miller Street	Westbound	Egress from work site	Construction vehicle route 12.5m HRV Period of use: 12 months

Figure 2 presents local roads (red route) requiring DPE approval for use during Warringah Freeway Upgrade works.

Figure 2 Local roads requiring approval

4.2 Other Roads

Under TfNSW(RMS) roads classification Miller St is a state road and Ernest St is a regional road. There are no signs posted to restrict road and bridge use and, as such general access vehicles have unrestricted access on these roads.

The proposed construction heavy vehicles include the 12.5m HRV, 19m Truck and trailer and the 19m AV which are categorized as general access heavy vehicles. Refer Appendix A5.

Provided these vehicles have current registration appropriate to the vehicle configuration, no specific access restrictions apply, and no additional permits are required to access Miller St and Ernest St.

4.3 Justification for the use of local roads

Justification for the selection of local roads shown in Figure 2 is provided in Table 3.

Table 3 Justification for the selection of local roads

Local road	Justification
• Amherst Street, Cammeray • Cammeray Road, Cammeray • Park Avenue, Cammeray	• Forms part of the shortest route between the Cammeray Golf Course (north) CSS and the nearest arterial road (Miller Street) for access to the Sydney motorway network • The use of other local roads would result in a more circuitous route and impact a greater number of residential properties and sensitive receivers

The local roads required for Planning Secretary approval will be included in the Stage 2 TTAMP.

4.4 Proposed volumes of heavy vehicles on local roads

Proposed volumes of heavy vehicles on local roads that are assessed in this Document (shown in Figure 2) are detailed in Table 4.

Table 4 Proposed total volumes of heavy vehicles on local roads

Local road	Peak vehicle movements per day (one-way or two-way movements)	Morning peak vehicle movements (6 am to 10 am) (one-way or two-way movements)	Evening peak vehicle movements (3 pm to 7 pm) (one-way or two-way movements)
	Heavy	Heavy	Heavy
Park Avenue between Ernest St and Cammeray Rd	12 (12.5m HRV one-way northbound only) included in SPA's one-way total of 70 vehicles per day# for Park Avenue	8 (12.5m HRV one-way northbound only) included in SPA's one-way total volume of 25 vehicles during morning peak times#. .	8 (12.5m HRV one-way northbound only) included in SPA's one-way total volume of 25 vehicles during even peak times#
Cammeray Road (between Park Avenue and Amherst Street)	12 (12.5m HRV one-way westbound only) included in SPA's one-way total of 70 vehicles per day# for Cammeray Rd	8 (12.5m HRV one-way westbound only) included in SPA's one-way total volume of 25 vehicles during morning peak times#	8 (12.5m HRV one-way westbound only) included in SPA's one-way total volume of 25 vehicles during evening peak times#
Amherst Street (between Warringa Rd and Miller St)	12 (12.5m HRV one-way westbound only) included in SPA's two-way total of 35 vehicles per day# for Amherst Street	8 (12.5m HRV one-way westbound only) included in SPA's two-way total volume of 13 vehicles during morning peak times#	8 (12.5m HRV one-way westbound only) included in SPA's two-way total volume of 13 vehicles during evening peak times#

Project approval | Transport for NSW | Community Analytics (caportal.com.au) Appendix B1 Construction Traffic, Transport and Access Management Sub-Plan

While construction traffic volumes are anticipated to contribute to further congestion of the local road network, construction traffic movements would be minimised during peak periods. Where reasonable and feasible CPBD will not schedule deliveries to site during peak traffic times. A Vehicle Movement Plan will be prepared and will detail a restriction on heavy vehicle movements during school zone times where applicable.

Daily vehicle volumes consider waste removal, material deliveries, and arrival and departure of construction personnel. The proposed vehicle movements are the peak movements and would not be expected for the duration of the works. Typical light vehicles to be used during construction will be worker's 4WD utes and small trucks under 4.5t Gross Vehicle Mass (GVM). Typical heavy vehicles expected to be used during construction would include, but not limited to, rigid bogey tippers, concrete agitators, vacuum trucks, articulated floats and flatbed trucks. Refer Appendix A5.

Where possible, deliveries will be scheduled outside of peak traffic times. Worker shift patterns will regularly be influenced by road occupancy licences.

4.5 Heavy vehicle volume cumulative impacts

SPA Early Work is continuing and CPBD work programs will now overlap on the Project.

SPA's heavy vehicle volumes on local roads is a combination of one-way on Park Ave northbound between Ernest St and Cammeray Rd and Cammeray Rd westbound between Park Ave and Warringa Rd (i.e. egress) or two-way movements on Amherst St between Warringa Rd and Miller St (i.e. access and egress). Whereas CPBD's heavy vehicle volumes on local roads (Park Ave northbound between Ernest St and Cammeray Rd, Cammeray Rd westbound between Park Ave and Warringa Rd and Amherst St westbound Warringa Rd and Miller St) are totals for the one-way movements i.e. egress only. This is reflected in Table 4.

SPA 's heavy vehicle volumes will now be shared between SPA and CPBD and therefore will not contribute to additional or cumulative heavy vehicle impacts on local roads.

Heavy vehicle volumes will be managed through weekly co-ordination meetings between TfNSW, SPA and CPBD. The Cammeray precinct site Vehicle Movement Plan will reflect maximum heavy vehicle volumes on Park Ave, Cammeray Rd and Amherst St.

In addition, the one-way heavy vehicle volumes on local roads (Park Ave northbound between Ernest St and Cammeray Rd, Cammeray Rd westbound between Park Ave and Warringa Rd and Amherst St westbound Warringa Rd and Miller St) will change over the short to long term.

In the short to medium term, (up to mid-July 2022) one-way egress for heavy vehicle volumes will be shared by SPA and CPBD on Park Ave, Cammeray Rd and Amherst St.

In the medium term as part of CPBD Site Establishment works a new Cammeray Golf Course access road will be built as the fourth leg of the Ernest St and Merlin St signalised intersection. In the medium to long term a right-turn from the CGC access road to westbound on Ernest St will be operational.

Although the occasional one-way movements on Park Ave, Cammeray Rd and Amherst St may be required by CPBD to supplement the operation of the right-turn from the CGC access road to westbound on Ernest St at the intersection of Ernest St and Merlin St.

Construction heavy vehicle use of Park Ave, Cammeray Rd and Amherst St for egress will not be used unless unavoidable, and as approved by DPE.

The Local Road Approval Plan and TTAMP will be updated again once the SPA Stage 1A works have completed and local roads are only being used by CPBD for Stage 2 works. The volume of heavy traffic will then go back to the vehicle numbers provided in Table 4 for Stage 2 works.

Short to long term CPBD access to the Cammeray precinct will be eastbound via Ernest St.

No heavy vehicle cumulative impacts are anticipated on the local roads for the Project

5. Local roads assessment

5.1 Swept path analysis

As required by CoA E133(a), swept paths have been prepared for all local roads requiring DPE approval. Swept path diagrams are provided in Appendix A2 for:

- A 12.5-metre single unit truck, which is the maximum size vehicle that will be used on local roads for CPBD works;

The swept paths provided in Appendix A2 are detailed comments provided in Table 5.

Table 5 Summary of swept path analysis

Local Road	Drawing number in Appendix A2	Can 12.5 m single unit truck make movement **without** encroaching on existing kerbs, traffic management / traffic control devices or on-street parking spaces?	Additional comments
Ernest St at CSS driveway (Left-in and left-out)	Drawing #1201250	12.5 m single unit truck – yes	N/A
Ernest Street and Park Avenue (left-turn)	Drawing #1201250	12.5 m single unit truck – yes	N/A
Cammeray Road and Park Avenue (left-turn)	Drawing #1201251	12.5 m single unit truck – yes	N/A
Amherst Street, Cammeray Road and Warringa Road (through westbound)	Drawing #1201251	12.5 m single unit truck – yes	N/A
Amherst Street and Bellevue Street (through westbound)	Drawing #1201252	12.5 m single unit truck – yes	N/A
Miller Street and Amherst Street (left-turn)	Drawing #1201252	12.5 m single unit truck – yes	N/A

5.2 Key Hazards and Risks Assessment

As required by CoA E133(b), a pedestrian, cyclist and two-way traffic flow safety risk assessment has been undertaken to demonstrate that the use of local roads by heavy vehicles will not

compromise pedestrian, cyclist and two-way traffic flow safety.

Existing potential hazards to pedestrians, cyclists and two-way traffic were identified during site inspections. These were assessed against a risk matrix. The risks of these potential hazards were then reassessed, taking into consideration the use of local roads by heavy vehicles.

The methodology of identifying hazards and assessing their level of risk is similar to that undertaken for road safety audits. The risk assessment system is the easiest means of identifying the level of risk associated with any given hazard. The risk assessment system is outlined in Appendix A3.

The pedestrian, cyclist and two-way traffic flow safety risk assessment is detailed in Table 6 below. Potential hazards to pedestrians, cyclists and vehicles were identified with respect to travelling on, crossing and manoeuvring on the egress route. Potential hazards to cyclists have been identified where there is an existing designated cycle route on Ernest St, Park Ave, Cammeray Road, Amherst Street, and Miller St. The results of the safety risk assessment demonstrate that the use of local roads by heavy vehicles will not have an impact on pedestrian, cyclist and two-way traffic flow safety as indicated by the revised level of risk being the same as the existing level of risk for all identified potential hazards.

Table 6 Pedestrian, cyclist and two-way traffic flow safety risk assessment

Location	Description of existing hazard	Existing conditions			Use of local roads by heavy vehicles			
		Crash frequency	Crash severity	Level of risk	Mitigating factors	Revised crash frequency	Revised crash severity	Revised level of risk
Ernest St (eastbound left-turn into Park Ave), Cammeray	There is the potential for conflict between *pedestrians and cyclists crossing* Park Ave and *vehicles* doing the left-turn from Ernest St into Park Ave (northbound)	Improbable	Serious	Medium	• Existing pedestrian refuge to assist/separates pedestrians from vehicles crossing the left-turn lane • Existing low numbers of pedestrians • Existing 50 km/h posted speed limit • Intervisibility between road users. • Driver induction process to include safety awareness in relation to all road users	Improbable	Serious	Medium
Ernest St (eastbound left-turn into Park Ave), Cammeray	There is the potential for conflict between *vehicle-vehicle left-turn turning manoeuvres* from Ernest St into Park Ave (northbound)	Improbable	Serious	Medium	• Swept path analysis shows workability of heavy vehicles undertaking turning manoeuvres. • Existing low numbers of pedestrians • Existing 50 km/h posted speed limit • Intervisibility between	Improbable	Serious	Medium

Location	Description of existing hazard	Existing conditions			Use of local roads by heavy vehicles			
		Crash frequency	Crash severity	Level of risk	Mitigating factors	Revised crash frequency	Revised crash severity	Revised level of risk
					road users. • Driver induction process to include safety awareness in relation to all road users			
Park Avenue (northbound between Ernest Street and Cammeray Road), Cammeray	There is the potential for *on-road cyclist* and *vehicle conflict with other vehicles* travelling northbound in the same direction on Park Avenue as they share the same road space	Improbable	Serious	Medium	• There is an existing separated cycleway on the western side of Park Avenue between Ernest St Sutherland Street • Existing low numbers of cyclists • Signage to warn cyclists (and other vehicles) of the presence of heavy vehicles • Existing 50 km/h posted speed limit • Speed humps to regulate vehicle speed • Delineation edge and centreline markings and centre of road median • Driver induction process to include safety awareness in relation to all road users	Improbable	Serious	Medium

Location	Description of existing hazard	Existing conditions			Use of local roads by heavy vehicles			
		Crash frequency	Crash severity	Level of risk	Mitigating factors	Revised crash frequency	Revised crash severity	Revised level of risk
Park Avenue (northbound between Ernest Street and Cammeray Road), Cammeray	There is the potential for conflict between *pedestrians crossing* Park Avenue and vehicles travelling on Park Avenue	Improbable	Serious	Medium	• Existing lack of pedestrian desire lines across the majority of Park Avenue • Existing low numbers of pedestrians • Existing 50 km/h posted speed limit • Speed humps to regulate vehicle speed • Driver induction process to include safety awareness in relation to all road users	Improbable	Serious	Medium
Park Avenue (northbound between Ernest Street and Cammeray Road), Cammeray	There is the potential for conflict between vehicle *turning manoeuvres* and *pedestrians* using Park Avenue	Improbable	Serious	Medium	• Swept path analysis shows heavy vehicles undertaking turning manoeuvres would not encroach on footpaths • Existing low numbers of pedestrians • Driver induction process to include safety awareness in relation to all road users.	Improbable	Serious	Medium

Location	Description of existing hazard	Existing conditions			Use of local roads by heavy vehicles			
		Crash frequency	Crash severity	Level of risk	Mitigating factors	Revised crash frequency	Revised crash severity	Revised level of risk
Sutherland Street and Park Ave, Cremorne	There is the potential for conflict between vehicle *turning manoeuvres* and *cyclists* using Sutherland Street	Improbable	Serious	Medium	• Swept path analysis shows heavy vehicles undertaking turning manoeuvres would not encroach on cycleways • Existing low numbers of pedestrians • Driver induction process to include safety awareness in relation to all road users • Cycleway sign posted, delineated and good inter-visibility	Improbable	Serious	Medium
Sutherland Street/Earle St and Park Ave, Cremorne	There is the potential for conflict between *pedestrians* and *cyclists crossing* Park Avenue and *vehicles* travelling on Park Avenue	Improbable	Serious	Medium	• Existing low numbers of pedestrians • Existing 50 km/h posted speed limit • Driver induction process to include safety awareness in relation to all road users • Swell sign posted, delineated and good inter-visibility	Improbable	Serious	Medium

Location	Description of existing hazard	Existing conditions			Use of local roads by heavy vehicles			
		Crash frequency	Crash severity	Level of risk	Mitigating factors	Revised crash frequency	Revised crash severity	Revised level of risk
Cammeray Road, Cammeray	There is the potential for *on-road cyclist* and *vehicle conflicts* travelling in the same direction on Cammeray Road as they share the same road space.	Improbable	Serious	Medium	• Existing low numbers of cyclists • Signage to warn cyclists (and other vehicles) of the presence of heavy vehicles • Existing 50 km/h posted speed limit • Driver induction process to include safety awareness in relation to all road users • On-road cycleway marked and centre of road delineation with BB line	Improbable	Serious	Medium
Cammeray Road, Cammeray	There is the potential for conflict between *pedestrians crossing* Cammeray Road and *vehicles* travelling on Cammeray Road	Improbable	Serious	Medium	• Existing lack of pedestrian desire lines across Cammeray Road. Existing dedicated footways east-west. • Existing low numbers of pedestrians • Existing 50 km/h posted speed limit • Driver induction process to include safety awareness in relation to all road users	Improbable	Serious	Medium

Location	Description of existing hazard	Existing conditions			Use of local roads by heavy vehicles			
		Crash frequency	Crash severity	Level of risk	Mitigating factors	Revised crash frequency	Revised crash severity	Revised level of risk
Cammeray Road, Cammeray	There is the potential for conflict between *vehicles turning manoeuvres and pedestrians* using Cammeray Road	Improbable	Serious	Medium	• Swept path analysis shows heavy vehicles undertaking turning manoeuvres would not encroach on footpaths • Existing low numbers of pedestrians • Driver induction process to include safety awareness in relation to all road users	Improbable	Serious	Medium
Amherst Street westbound approach and departure at Warringa Rd, Cammeray	There is the potential for *cyclist* and *vehicle* conflicts where the cycle lane and traffic lane converge on approach and diverge on departure at the roundabout	Occasional	Minor	Medium	• Heavy vehicles would travel at lower speed in the westbound direction due to the uphill grade and small radius curve/deflection through roundabout • Existing low numbers of cyclists • Signage to warn cyclists (and other vehicles) of the presence of heavy vehicles • Driver induction process to include safety awareness in relation to all road users	Occasional	Minor	Medium

Location	Description of existing hazard	Existing conditions			Use of local roads by heavy vehicles			
		Crash frequency	Crash severity	Level of risk	Mitigating factors	Revised crash frequency	Revised crash severity	Revised level of risk
Amherst Street between Warringa Rd and Miller St (westbound), Cammeray Including side roads; Warringa Rd, Echo St/Bells Ave, Bellevue St, Ixion Lane & Miller Lane.	There is the potential for *cyclist and vehicle* conflicts with *other vehicles* travelling in the same direction or turning from side roads on Amherst Street as they share the same road space	Improbable	Serious	Medium	• There is an existing linemarked on-road cycleway on the southern side of Amherst St • Road space is delineated with traffic lane edge lines and centre of road BB-line. • Side roads are priority controlled with Giveway or Stop signs. Warringa Rd and Belleuve Rd intersection are controlled by roundabouts. • Existing low numbers of cyclists • Signage to warn cyclists (and other vehicles) of the presence of heavy vehicles • Existing 50 km/h posted speed limit • Driver induction process to include safety awareness in relation to all road users	Improbable	Serious	Medium

Location	Description of existing hazard	Existing conditions			Use of local roads by heavy vehicles			
		Crash frequency	Crash severity	Level of risk	Mitigating factors	Revised crash frequency	Revised crash severity	Revised level of risk
Amherst Street between Warringa Rd and Miller St St(westbound), Cammeray	There is the potential for conflict between *pedestrians crossing* Amherst Street and *vehicles* travelling on Amherst Street	Improbable	Serious	Medium	• Presence of pedestrian refuge islands at Bellevue Street and Warringa Road roundabouts plus at Echo Street / Bells Avenue. • Existing low numbers of pedestrians • Existing 50 km/h posted speed limit • Driver induction process to include safety awareness in relation to all road users	Improbable	Serious	Medium
Amherst Street between Warringa Rd and Miller St St(westbound), Cammeray	There is the potential for conflict between *vehicle turning manoeuvres* and *pedestrians* using Amherst Street	Improbable	Serious	Medium	• Swept path analysis shows heavy vehicles undertaking turning manoeuvres would not encroach on footpaths • Existing low numbers of pedestrians • Driver induction process to include safety awareness in relation to all road users	Improbable	Serious	Medium

Location	Description of existing hazard	Existing conditions			Use of local roads by heavy vehicles			
		Crash frequency	Crash severity	Level of risk	Mitigating factors	Revised crash frequency	Revised crash severity	Revised level of risk
Miller Street, (Amherst St to WF), Cammeray	There is the potential for conflict between *pedestrians crossing* Miller St and *vehicles* turning manoeuvre on Miller St.	Improbable	Serious	Medium	• Existing signalised pedestrian crossing on Amherst St and Miller St. • Existing low numbers of pedestrians • Existing 50 km/h posted speed limit • Driver induction process to include safety awareness in relation to all road users	Improbable	Serious	Medium
Miller Street (Amherst St to WF), Cammeray	There is the potential for *on-road cyclist* and *vehicle conflict with other vehicles* travelling in the same direction on Miller St as they share the same road space.	Improbable	Serious	Medium	• Existing low numbers of cyclists • Signage to warn cyclists (and other vehicles) of the presence of heavy vehicles • Existing 50 km/h posted speed limit • Driver induction process to include safety awareness in relation to all road users • On-road cycleway marked and centre of road delineation with BB line	Improbable	Serious	Medium

Location	Description of existing hazard	Existing conditions			Use of local roads by heavy vehicles			
		Crash frequency	Crash severity	Level of risk	Mitigating factors	Revised crash frequency	Revised crash severity	Revised level of risk
All local roads	There is the potential for side-swipe and head-on crashes between two vehicles travelling in opposite directions on two-way roads	Improbable	Serious	Medium	• Road widths are sufficient for two heavy vehicles to pass each other • Existing 50 km/h posted speed limit (40 km/h during school zone times on ANZAC Avenue) • Driver induction process to include safety awareness in relation to all road users	Improbable	Serious	Medium

5.2.1 Explanation of Key Hazards and Risk Areas Assessment

Table 6 evaluates the hazards and risks along Park Ave, Cammeray Rd and Amherst St . The evaluation carries out a crash risk assessment comparison for pedestrians, cyclists and vehicles potential conflicts without HRVs and with HRVs. Due to the nature of the urban road environment pedestrians, cyclists and vehicles without or with HRVs would use, occupy and travel on Park Ave, Cammeray Rd and Amherst St in the same way and in accordance with the road regulations. The swept path analysis confirms that HRVs at key locations can travel on Park Ave, Cammeray Rd and Amherst St in the same ways as other vehicles without encroaching on the existing kerbs, traffic management, traffic controls or on street parking. For the with HRVs scenario the assessment identifies the mitigation factors that ensures the prevailing conditions with the introduction of heavy vehicles is workable and the likely level of risk is the same for without HRVs and with HRVs use of the local road.

A summary of the risk assessment and mitigation strategies/approach to ensure the proposal will not compromise the safety of pedestrians and cyclists or the safety of two-way traffic flow on two-way roadways (CoA E133(b)) is as follows:

- There will be no changes to the existing road management arrangements that permits two two-way traffic flow on the two-way local roads
- There is a variety of traffic control devices to maintain pedestrian road safety and/or allocate right of way.
- The form of the roadway supports the safety of cyclists in the two-way road, two-way traffic flow. Heavy vehicles will be subject to the existing speed limits and road rules
- The 3.2m traffic lane widths in each direction and the centre of road median permit oncoming vehicles like the HRV to pass each other therefore maintaining two-way traffic flow on the two-way local roads.
- Road users retain, and the heavy vehicle drivers can use the road environment features and the visual cues to safely negotiate the two-way traffic flow two-way local roads .
- The speed at which a vehicle may be driven on the local roads is restricted by the prevailing LATM scheme traffic control devices and the posted speed limit of 50km/hr to ensure the safety of motorists, cyclists and pedestrians.
- CPBD has developed a Driver's Code of Conduct for the Early Establishment works (refer to Appendix A4) defines driver speed behaviour.
- The pavement condition assessment indicated no serious pavement degradation and that the pavement was in a functional state. With the addition of the heavy vehicles, traffic flows remain light. HRV movements are infrequent. Park Ave, Cammeray Rd and Amherst St are not subject to any load limit restrictions. The additional traffic loading may contribute to some minor localised pavement damage that CPBD will rectify in a timely manner.

In addition, measures that will be implemented to avoid where practicable the use of local roads past schools, aged care facilities and child care facilities during peak times for operation (CoA E133(d)) are:

- Heavy vehicle routes have been selected which avoid passing schools, aged care facilities and child care facilities where possible.
- Where a route passes by a school, aged care facility or child care facility the project will consult with the sensitive receiver to confirm peak times of operation and periods when they are more sensitive to heavy vehicle traffic, e.g. during school drop off and pick up times, during peak visiting hours at aged care facilities. The project will avoid using heavy vehicle routes past receivers during these

periods where practicable.

Further details are provided in the following sections.

5.3 CoA E133(b) Demonstrated Safety on Local Roads

A closer examination of the road users use of the road environment with HRVs shows that the with HRVs will not compromise the safety of pedestrians, cyclists or the safety of two-way traffic flow on two-way roads.

5.3.1 Pedestrians

There will be no changes to the existing pedestrian road management arrangements on Park Ave, Cammeray Rd and Amherst St. Pedestrians will continue to use the existing footways and designated crossing points.

The vulnerability of pedestrians in the road space has led to the use of a variety of traffic control devices to improve pedestrian road safety and or allocate right of way. Such devices include a signalised pedestrian crossing at Miller and Amherst St, the pedestrian refuges at Bellevue St and Amherst St roundabout, the pedestrian refuge on Amherst St at Bells Ave, the pedestrian refuges at Warringa Rd and Amherst St/Cammeray Rd roundabout and the parallel formalised footways. The contemporary devices are regularly spaced along Park /Cammeray Rd/ Amherst St route providing the opportunity and means to cross the roadway safely with security and minimal delay. The pedestrian refuges allow pedestrians to negotiate crossing the roadway in two stages and reduce pedestrian exposure by separating pedestrians from vehicle movements. The road horizonal and vertical alignments afford good inter-visibility between drivers and pedestrians

With the addition of the heavy vehicles, traffic flows remain light and HRV movements are infrequent. With HRVs pedestrians will continue to use the variety of traffic control devices as described, finding suitable gaps in the traffic flow so they can easily and safely cross the two-way traffic flow roadway.

Pedestrians will continue to use the existing footways and designated crossing points without noticeable material change to their exposure in the two-way traffic flow.

5.3.2 Cyclists

On Park-Cammeray-Amherst route there will be no change to the roadway existing separated bicycle pathway, separated on-road bicycle lane and on-road cyclist facilities. Cyclists will continue to use the existing cyclist facilities in the same way that they have in the past. In accordance with the Australian Roads Rules Division 2 Rule 15 a bicycle is classified as a vehicle and cyclists share the road space.

- The separated bicycle pathway on Park Ave from Ernest St to Sutherland St is offset and adjacent to the two-way traffic flow including heavy vehicle movements. Cyclists' are not exposed to the parallel truck movements. The road horizonal and vertical alignments afford mutual visibility between road users.

  At the crossing point at Sutherland St cyclist and vehicle drivers' (including HRVs) have inter-visibility. Cyclists can cross the road when it is safe to do so.
- The separated on-road bicycle lane on Amherst St between Warringa Rd and Miller Lane is located on the uphill gradient that is offset and adjacent to the traffic flow including the northbound heavy vehicle movements. The bicycle lane is delineated in accordance with the road regulations and Austroads design standard formalizing how cyclists and vehicles use the road space. Cyclists and vehicle movements are separated and a vehicle on the adjacent traffic lane can safely pass the slower moving cyclist.

- On road cyclists' share a single traffic lane with vehicles and HRVs on Park - Cammeray - Amherst two-way traffic flow road segments, and on approach and departure at the intersecting roads of Warringa Rd, Bells Ave and Bellevue St.

While different types of cyclist and vehicles have variability in their movement characteristics the single traffic lane, its widths and associated regulatory delineation formalize the passage of a single streams of cyclists and vehicles in series, on the two-way road in each direction. Physically and as supported by the road regulations cyclists and vehicles have an equal right-of way on the road. Due to the inter-visibility along Park Ave and Cammeray Rd two-way road, when there is a suitable gap in the oncoming traffic flow, faster moving vehicles can safely pass the slower moving cyclist (as permitted by the road regulations) removing congestion in the traffic flow and potential conflicts.

The form of the roadway supports the safety of cyclists in the two-way road, two-way traffic flow.

5.3.3 Safety of two-way traffic flow on two-way roadways

5.3.3.1 Road User Lane widths

There are no changes to Park Ave, Cammeray Rd and Amherst St traffic lanes, parking lanes, parking arrangements.

Park Ave, Cammeray Rd, Amherst St and the intersecting roads are undivided local collector roads that provide for two-way traffic flow with a traffic lane in each direction, space for on-street parking and bicycle lanes where the road width permits.

A comparison between Austroads standard lane widths and Park Ave, Cammeray Road and Amherst St road user lane widths shown in Table 8 indicates that the road user lane widths are consistent with the Austroads standards and are greater than the minimum standard. The 3.2m traffic lane widths in each direction and the centre of road median permit oncoming vehicles like the HRV to pass each other therefore maintaining two-way traffic flow.

Table 8 Widths of the two-way roadway elements

Road User Lane	Austroads	Park Ave	Cammeray Rd	Amherst St		
	Standard Width Range	Ernest to Cammeray	Park to Warringa	Warringa to Bells	Bells to Bellevue	Bellevue to Miller
Traffic Lane	2.8- 3.7m	3.0#-3.3m	3.4m	3.2m	3.2m	3.2m
Bicycle Lane	1.4 - 2.5m	NA	NA	1.5m	1.5m	1.5m
Parking Lane	2.0-2.3m	3.0m	NA	2.6m	2.6m	2.6m

with centre of road median

5.3.3.2 Safe Urban Two-way Road Environment.

There are no changes to Park Ave, Cammeray Rd, Amherst St road environment.

A site inspection and review of the Park Ave, Cammeray Road and Amherst St road environment (i.e. road carriageway, vertical and horizontal road geometry, traffic volumes , parking and bike lane widths, medians, inter-visibility, intersection controls, formed footways, pedestrian crossing locations, local area traffic management, road delineation, road and way finding signage, street lighting) indicate that the road

environment features are consistent with a functionally safe urban road environment. As there are no changes on Park Ave, Cammeray Road and Amherst St road users retain, and the heavy vehicle drivers can use the road environment features and the visual cues to safely negotiate the two-way traffic flow on the two-way road roadways.

5.3.3.3 Travel Speed

The speed at which a vehicle may be driven on roads is restricted to ensure the safety of motorists and , cyclists and pedestrians. For urban local roads like Park Ave, Cammeray Rd and Amherst St the speed limit is 50km/hr defined by posted regulatory signs, pavement markings and by the road regulations.

In addition, Park Ave, Cammeray Rd and Amherst St are part of a wider local area traffic management scheme (LATM). For example, the use of regularly spaced speed humps on Park Ave traffic lanes, the speed hump on the eastern leg traffic lanes of Cammeray Rd and Park Ave intersection, and the roundabout at the intersections of Warringa Rd and Amherst St/Cammeray Rd and Bellevue St and Amherst St. The purpose of the LATM scheme devices is to limit the speed that a vehicle may be driven on the two-way flow, two-way local roads.

Heavy vehicles will be subject to the existing speed management conditions. The heavy vehicles due to their variable load, speed and acceleration characteristics on the downhill and uphill two-way flow local road segments will travel at or below the posted limit of 50km/hr. CPBD has developed a Driver's Code of Conduct for the Early Establishment works (refer to Appendix A4) that defines driver speed behaviour. This Code of Conduct will be included in the Early Establishment site induction, reiterated at shift tool box sessions and will also be provided to all sub-contractors and delivery drivers.

5.3.3.4 Road Pavement

CPBD has carried out road dilapidation surveys on Park Ave, Cammeray Rd and Amherst St before they are used by heavy vehicles associated with the Site Establishment works, and following completion of the works. From the dilapidation surveys a visual assessment of the pavement's condition state (e.g. surface distress like rutting and cracking) as outlined in Austroads was undertaken. The assessment indicated no serious pavement degradation and that the pavement was in a functional state. Park Ave, Cammeray Rd and Amherst St are not subject to any load limit restrictions. With the addition of the heavy vehicles, traffic flows remain light and HRV movements are infrequent. The additional traffic loading may contribute some minor localised pavement damage that CPBD will repair and restore in a timely manner.

Repair and restore

In accordance with CoA E137, if damage to roads occurs as a result of the Site Establishment works, CPBD will either (at the relevant road authority's discretion):

- Compensate the relevant road authority for the damage so caused; or
- Rectify the damage to restore the road to at least the condition it was in pre-works as identified in the road dilapidation reports.

CPBD will obtain the necessary approvals and concurrence of the relevant road authority, prior to conducting any works on the road or the road reserve.

A Road Occupancy Licence (ROL) will be obtained for work which:

- Slows, stops or otherwise delays or affects the normal flow of traffic

- Diverts traffic from its normal course along the road, including lane closures and detours
- Occupies any portion of the road related area, including the footpath that is normally available for vehicular, pedestrian or bicycle movement.

The ROL will be obtained prior to the commencement of any works on or near a State road except in the case of an emergency, or when directed by Police or Emergency services. ROL applications will be submitted in accordance with Road Occupancy Licensing Guidelines to the Traffic Management Centre (TMC).

6. Details of road dilapidation surveys undertaken

As required by CoA E133(c), road dilapidation surveys have been undertaken on the local roads requiring DPE approval. The road dilapidation surveys were completed on 11 March 2022. The Road Dilapidation Report in accordance with E136 will provided to North Sydney Council for information within three weeks of completion of the survey a no later than one month prior to the roads being used by heavy vehicles.

7. Heavy vehicles haulage monitoring and recording

For the purposes of keeping track of the locations of all heavy vehicles used for spoil haulage CPBD will employ Virtual Superintendent a cloud-based reporting software used for construction.

The Virtual Superintendent collects data from on-machine devices, a mobile app or sensors which integrates with other software applications, tracks and gives a detailed view of heavy vehicle movements. The software functions will identify vehicles, monitor in real time their location and record heavy vehicle spoil haulage movements on the road network.

The geospatial database allows the information to be stored electronically and made available electronically to the Planning Secretary and the EPA upon request.

8. Mitigation measures

To mitigate any potential impacts:

- All heavy vehicles egressing the Cammeray Golf Course Site Establishment worksite will be required to use Park Ave (northbound), Cammeray Rd westbound , Amherst St (westbound) and Miller St southbound, which will be included in the vehicle movement plan for the Cammeray Golf Course Site Establishment worksite;
- All heavy vehicles accessing Cammeray Golf Course Site Establishment worksite will be required to travel southbound on Miller St and eastbound on Ernest St, which will be included in the vehicle movement plan for the Cammeray Golf Course Site Establishment worksite;
- To safely manage the heavy vehicle movements on Ernest St to and from Cammeray Golf Course Construction Support site driveway, a traffic controller/spotter as required will be deployed during construction hours when heavy vehicle movements occur;
- For heavy vehicles egressing from the Ernest Street (eastbound) worksite (west of Park

Avenue), the maximum size of heavy vehicle that will be permitted to travel on Park Ave, Cammeray Rd, Amherst St and Miller St to the Warringah Freeway Miller St on ramp is a 12.5-metre single unit truck (HRV);

- Vehicle movement plans showing approved routes and vehicle sizes to and from Cammeray Golf Course Site Establishment worksite will be issued to all subcontractors as part of contract documentation upon engagement. Signage will also be installed along approved routes to guide heavy vehicle drivers;
- Signage will be installed on cyclist routes (Park Ave, Cammeray Rd, Amherst St and Miller St to the Warringah Freeway Miler St) to warn cyclists (and other vehicles) of the presence of heavy vehicles.
- Implementation of a Driver's Code of Conduct (refer to Appendix A4)
- The driver induction process will include safety awareness in relation to all road users (including pedestrians and cyclists) and the strict requirement to obey all road rules and to travel only on approved roads.
- Community consultation will be undertaken via fact sheets showing the Cammeray Golf Course Site Establishment worksite heavy vehicle route as well as community and stakeholder updates, notifications and emails, to ensure all upcoming changes and impacts are communicated in a timely fashion to the community and stakeholders.
- Coordination meetings between CPBD, TfNSW, Transport Management Centre and Customer Journey Planning – Operations will occur on a regular basis throughout the delivery of the CSSI. Key issues for discussion at the coordination meetings will include road occupancy licences and any other transport network changes or impacts resulting from construction of the CSSI
- Continuous review and improvement will be undertaken. This CoA E132 local roads approval document will be reviewed and updated as required:
  - Following reportable environmental incidents;
  - Upon identification of new 'significant' risks, including risks identified during risk register updates;
  - When non-compliances are identified;
  - When the root cause of incident or non-conformance is identified as part of the investigation;
  - In response to significant project change (including modifications to the CSSI);
  - Within one month of any of the above occurrences;
  - As part of a continuous improvement process; and
  - The effect of changes in standards and legislation.
- Regular monitoring of mitigation measures for compliance and effectiveness will be undertaken (refer to Section 5.1.4 of the TTMP). Further detail on regular inspections is detailed in Section 8.1 below.

8.1 Inspections

In accordance with Section 6.3 of the TTAMP CPBD will undertake regular inspections to ensure the safety of all traffic movements, as well as the wellbeing of pedestrians, cyclists, drivers and property through and surrounding all worksites. The responsibility and frequency of inspections is stipulated in section 6.1 of the TfNSW Traffic Control at Worksites Manual.

These regular inspections will also verify the on-street parking commitments established by the 'Driver Code of Conduct'.

Three main types of inspections and records will occur:

- Inspections of short-term (single shift) traffic controls during the shift
- Regular daytime inspections of long-term traffic controls after implementation
- Regular night time inspections of long-term traffic controls after implementation.

Pre-opening inspections will be carried out by the Traffic Manager before the start of each new temporary roadwork site or major modification.

Any signage or devices identified during the checks or audits requiring attention will either be rectified at the time or advised to the Traffic Manager during that shift for follow-up and corrective action.

Part C

Appendices

Appendix A1 Advice regarding the suitability of local roads as proposed heavy vehicle routes

MEMORANDUM

CPB WFU Site Establishment
CPB Downer

Memo Title	Suitability of proposed heavy vehicle routes on local roads
Recipient	CPBDowner
Prepared by	Denis Fung
Revision	A
Date	22 March 2022

I. Introduction

This memo provides advice on the suitability of proposed heavy vehicle routes for the Stage 1A Early and Enabling Works – Critical utility installation, relocation and protection in accordance with the NSW Minister for Planning and Public Space's Conditions of Approval (CoA) E133(e). The advice is based on Revision B of the CoA E132 – Local Roads Approval document, which has been updated to include:

- The egress movement of 12.5m HRV construction vehicles on local roads; including Park Ave , Cammeray Road and Amherst Street, Cammeray;
- The access movement of 12.5m HRV construction vehicles on a regional road with respect CoA E132(d) including Ernest St eastbound between Miller Street and Merlin Street, Cammeray; and egress movement on Ernest Street between Merlin Street and Park Ave.
- The access movement of 12.5m HRV construction vehicles on a state road with respect to CoA E132(d) including Miller St southbound between Warringah Freeway and Ernest Street;
- The access movement of 19.0m Articulated Vehicle and 19.0m Truck and Trailer construction vehicles on state and regional roads with respect CoA E132(d) including ; Miller Street southbound between Warringah Freeway and Ernest Street, Cammeray and Ernest St eastbound between Miller St and Merlin Street , Cammeray

II. Assessment

The following local roads were assessed for their suitability as proposed heavy vehicle routes:

- Park Avenue (northbound);
- Cammeray Road (between Park Avenue and Amherst Street);
- Amherst Street (westbound);
- Miller Street southbound between Amherst Street, Warringah Freeway and Ernest St; and
- Ernest Street eastbound between Miller Street and Park Avenue.

Items that were considered in the assessment include:

- CoA E133: All requests to the Planning Secretary under Condition E132 must include the following:
    - CoA E133(a): include a swept path analysis

- CoA E133(b): demonstration that the use of local roads by heavy vehicles for the CSSI will not compromise the safety of pedestrians and cyclists or the safety of two- way traffic flow on two-way roadways
- CoA E133(c): provide details as to the date of completion of the road dilapidation surveys for the subject local roads
- CoA E133(d): measures that will be implemented to avoid where practicable the use of roads past schools, aged care facilities and child care facilities during their peak operation times.

Taking into account CoA E133(a), CoA E133(b), CoA E133(c) and CoA E133(d), it is considered that all local roads that were assessed are suitable as proposed heavy vehicle routes.

III. Formal statement

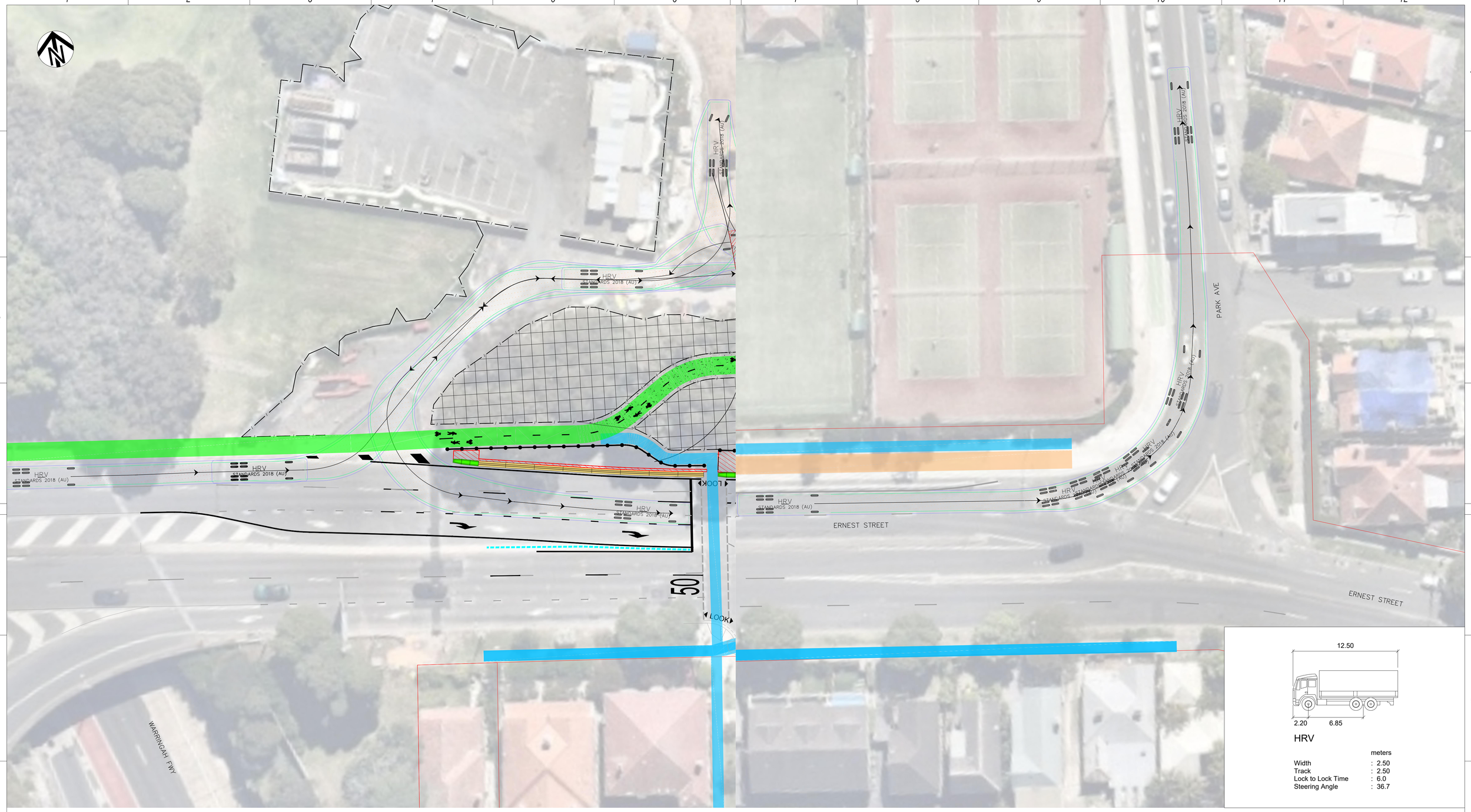
This assessment has been undertaken by Denis Fung, who is an appropriately qualified professional from the Downer Group

Denis Fung is a Traffic manager and traffic and transport engineer with over 20 years of experience. He has a broad range of skills that enable him to analyse complex problems and develop innovative solutions. He has demonstrated these skills in major projects involving public transport planning, traffic engineering, traffic and transport management, traffic impact assessments, road user safety and road safety auditing. He has traffic and transport technical lead for projects including Sydney Metro, WestConnex Stage 3A, and The Northern Road 3 upgrade.

This assessment has been undertaken for the sole purpose of providing advice on the suitability of proposed heavy vehicle routes for the Site Establishment Work – WFU Cammeray Golf Course construction works in accordance with the NSW Minister for Planning and Public Space's Conditions of Approval (CoA) E133(e).

Denis Fung
Traffic Manager
22.03.2022

Appendix A2 Swept path diagrams



HRV

	meters
Width	: 2.50
Track	: 2.50
Lock to Lock Time	: 6.0
Steering Angle	: 36.7

PLAN
SCALE 1:250

DRAWING COLOUR CODED - PRINT ALL COPIES IN COLOUR

PRELIMINARY ISSUE
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REV	BY	DATE	DESCRIPTION	APPD.
A1	GP	23.02.2022	ISSUED FOR INTERNAL REVIEW	IV

REVISION IN PROGRESS

A1 Original | Co-ordinate System: MGA Zone 56 | Height Datum: A.H.D. | Scale: N.T.S.

0 2.5 5 7.5 10 12.5m
SCALE 1:250 (A1)
SCALE 1:500 (A3)

CONSTRUCTOR

DESIGNER

CLIENT

NSW GOVERNMENT Transport for NSW

DRAWN	GRETCHEN PANIEL	23.02.2022
DESIGNED	PAUL DAVIDSON	23.02.2022
DRG CHECK	GRETCHEN PANIEL	23.02.2022
DESIGN CHECK	DENIS FUNG	23.02.2022
APPROVED	IAN VEINOT	23.02.2022

WARRINGAH FREEWAY UPGRADE

WARRINGAH FREEWAY TO ERNEST STREET

SWEPT PATH ASSESSMENTS

FILE No.	SHEET: 1 OF 3	A1
STATUS:		©
DRG No. WFU-JAJV-DRG-1201250	A1	EDMS No.

Plot Date: 16 March 2022 - 1:44 PM
Plotted by: Paniel, Gretchen
Cad File No: K:\Delivery\TR Traffic\TR50 Draft Documentation\04_CAD Files\Working\Temporary TMPs\WFU\Ernest Street\Swept Path\WFU-JAJV-DRG-1201150_ERNEST STREET.dwg
DeskSite No.: 18159617, Rev 5

HRV

	meters
Width	: 2.50
Track	: 2.50
Lock to Lock Time	: 6.0
Steering Angle	: 36.7

PLAN
SCALE 1:250

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0 2.5 5 7.5 10 12.5m
SCALE 1:250 (A1)
SCALE 1:500 (A3)

A1 Original | Co-ordinate System: MGA Zone 56 | Height Datum: A.H.D. | Scale: N.T.S.

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DRAWN	GRETCHEN PANIEL	23.02.2022
DESIGNED	PAUL DAVIDSON	23.02.2022
DRG CHECK	GRETCHEN PANIEL	23.02.2022
DESIGN CHECK	DENIS FUNG	23.02.2022
APPROVED	IAN VEINOT	23.02.2022

WARRINGAH FREEWAY UPGRADE

ERNEST STREET TO WARRINGAH FREEWAY

SWEPT PATH ASSESSMENTS

FILE No. | SHEET: 2 OF 3 | A1

STATUS: Ⓒ

DRG No. WFU-JAJV-DRG-1201251 | A1 | EDMS No.

Plot Date: 16 March 2022 - 1:44 PM
Plotted by: Paniel, Gretchen
Cad File No: K:\Delivery\TR Traffic\TR50 Draft Documentation\04_CAD Files\Working\Temporary TMPs\WFU\Ernest Street\Swept Path\WFU-JAJV-DRG-1201150_ERNEST STREET.dwg
DeskSite No. 181586 Rev 5

HRV

	meters
Width	: 2.50
Track	: 2.50
Lock to Lock Time	: 6.0
Steering Angle	: 36.7

PLAN
SCALE 1:250

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A1	GP	23.02.2022	ISSUED FOR INTERNAL REVIEW	IV

REVISION IN PROGRESS

A1 Original | Co-ordinate System: MGA Zone 56 | Height Datum: A.H.D. | Scale: N.T.S.

0 2.5 5 7.5 10 12.5m
SCALE 1:250 (A1)
SCALE 1:500 (A3)

CONSTRUCTOR

DESIGNER

CLIENT

NSW GOVERNMENT Transport for NSW

DRAWN	GRETCHEN PANIEL	23.02.2022
DESIGNED	PAUL DAVIDSON	23.02.2022
DRG CHECK	GRETCHEN PANIEL	23.02.2022
DESIGN CHECK	DENIS FUNG	23.02.2022
APPROVED	IAN VEINOT	23.02.2022

WARRINGAH FREEWAY UPGRADE

ERNEST STREET TO WARRINGAH FREEWAY

SWEPT PATH ASSESSMENTS

FILE No.
SHEET: 3 OF 3
A1
STATUS: C
DRG No. WFU-JAJV-DRG-1201252
A1
EDMS No.

Desk/File No.: 181586 / Rev 5
Plot Date: 16 March 2022 - 1:45 PM
Plotted by: Paniel, Gretchen
Cad File No: K:\Delivery\TR Traffic\TR50 Draft Documentation\04_CAD Files\Working\Temporary TMPs\WFU\Ernest Street\Swept Path\WFU-JAJV-DRG-1201150_ERNEST STREET.dwg

Appendix A3 The risk assessment system

Each identified hazard has been recorded and assessed in accordance with the Austroads *Guide to Road Safety Part 6: Managing Road Safety Audits* (Edition 1.0), 2019. The guide recommends a risk matrix be used to determine the level of risk associated with each hazard. This risk matrix is described below.

Estimated crash frequency: the probable frequency of an incident occurring as a direct result of the hazard was determined using the scale displayed in Table 7.

Table 7 Estimated crash frequency

Frequency	Description
Frequent	Once or more per week
Probable	Once or more per year (but less than once a week)
Occasional	Once every five or ten years
Improbable	Less often than once every ten years

Estimated crash severity: the likely severity of the incident which occurred as a direct result of the hazard was determined using the scale displayed in Table 8.

Table 8 Estimated crash severity

Severity	Description	Examples
Catastrophic	Likely multiple deaths	• High-speed, multi-vehicle crash on freeway • Car runs into crowded bus stop • Bus and petrol tanker collide • Collapse of a bridge or tunnel
Serious	Likely death or serious injury	• High or medium-speed vehicle/vehicle collision • High or medium-speed collision with a fixed roadside object • Pedestrian or cyclist struck by a car
Minor	Likely minor injury	• Some low-speed vehicle collisions • Cyclists falls from bicycle at low speed • Left-turn rear-end crash in a slip lane
Limited	Likely trivial injury or property damage only	• Some low speed vehicle collisions • Pedestrian walks into object (no head injury) • Car reverses into post

Deemed level of risk: the risk matrix displayed in Table 9 was used to assess the level of risk for each hazard. The risk matrix uses the frequency / severity determined above to determine the likely level of risk for each hazard.

Table 9 - Deemed level of risk

		Frequency			
		Frequent	**Probable**	**Occasional**	**Improbable**
Severity	**Catastrophic**	Intolerable	Intolerable	Intolerable	High
	Serious	Intolerable	Intolerable	High	Medium
	Minor	Intolerable	High	Medium	Low
	Limited	High	Medium	Low	Low

Appendix A4 Driver Code of Conduct

DRIVER CODE OF CONDUCT

This Driver Code of Conduct applies to all CPBDowner personnel and any other person undertaking work for the CPBDowner, whether they are a direct employee of CPBDowner or employed by another organisation providing a service or product to CPBDowner.

All drivers must:

- Drive courteously.
- Obey all road rules, including posted speed limits and other traffic signage within work sites and site compounds.
- Take extreme care when driving past other vehicles travelling in the opposite direction on local roads including, Park Avenue, Cammeray Road and Amherst Street, and on Miller St southbound and Ernest Street eastbound.
- Report any incidents or near misses to your supervisor immediately.
- Hold a current and valid driving licence for the class of vehicle that you operate. Additionally, you must always carry your current driver licence with you while you are on duty. If your licence is cancelled or suspended, you must let your supervisor know immediately.
- Maintain and operate your vehicle in accordance with the vehicle manufacturer's recommended standards (refer to the vehicle manufacturer's handbook and service schedule).
- Not use engine brakes in residential areas.
- Try to avoid reversing whenever possible. If you cannot avoid it, use extreme caution.
- Ensure your vehicle is fitted with audible reversing alarms.
- Always follow posted signs as they provide vital clues to road conditions and characteristics.
- Always be aware of the following:
  - Reduce your speed in wet conditions
  - Drive cautiously in fog or heavy rain
  - Descend hills at signposted heavy vehicle speeds, or in the lowest gear to suit the conditions
  - Observe road work speed limits
  - Do not exceed the posted speed limit
  - Do not drive at speed past schools, school buses, playgrounds, shopping areas etc.
- Follow Vehicle Movement Plans that specify approved routes to and from work sites and site compounds. Only roads that are shown on the Vehicle Movement Plans may be used. The use of roads that are not shown on the Vehicle Movement Plans is strictly prohibited.
- Follow directions provided by a CPBDowner Traffic Manager.
- Park within work sites and site compounds where possible. Parking on public roads is to be avoided. Where this is not possible, contact your CPBDowner contact to seek alternative arrangements.

- This Driver Code of Conduct is applicable 24 hours per day, seven days per week. Failure to comply with this Driver Code of Conduct will lead to either the issue of a non-conformance notice or disciplinary action if the offender is an employee of CPBDowner. If the offending person is employed by another organisation providing a service or product to CPBDowner, then a suspension or cancellation of a service contract or arrangement with that organisation may be considered.

Appendix A5 Heavy vehicle routes according to vehicle size

Figure 3 Heavy Vehicle routes according to vehicle size

Appendix A6 Stakeholder Consultation

MINUTES & ACTIONS

NSC / CPBD Construction 90 Day Lookahead

Warringah Freeway Upgrade

MEETING: No. 1

Date	Wednesday 30th March 2022	**Time**	15.00 to 16.00
Venue	Microsoft Teams	**Chair**	
		Meeting Facilitator	Kim Gardner

Invitees	Co.,	Attendance / Distribution			Invitees	Co.,	Attendance / Distribution		
		Attended	Appology	Ref.,			Attended	Appology	Ref.,
Ian Moffat	CPBD	x		IM	Adam Fitzpatrick	CPBD	x		AF
Aidan McCann	CPBD	x		AMc	Lise Maddocks	TfNSW		x	LM
Haydn Chellew	CPBD	x		HC	Graeme Robertson	TfNSW	x		GR
Albert Roberson	CPBD	x		AR					
Kim Gardner	CPBD	x		KG	Gavin McConnell	NSC	x		GMc
Leah Fisher	CPBD	x		LF	Iman Mohammadi	NSC	x		IMo
					Jon Higlett	NSC	x		JH
Anne Learmonth	CPBD		x	AL					
Sarah Power	CPBD		x	SP					
David Quan	CPBD		x	DQ					
Dennis Fung	CPBD	x		DF					

The purpose of these meetings is to provide an overlapping look ahead to identify WFU & NSC Works, prior to any Works commencing and whereby the Parties will discuss and agree the cooperation and coordination required to successfully effect the delivery of each Parties Works.

These meetings will occur between 15:00 and 16:00 at Monthly intervals commencing Wednesday 30th March 2022 and reoccur the last Wednesday of each month, or other such agreed intervals.

Parties will present a 90 day lookahead of their Work Activities at each such meeting.

A typical Work Package will present and discuss the following:

- Construction 90 day look ahead:
  - Schedule/Program
  - Work Activity Details
  - Locations / Areas Effected
  - Traffic Plans
- Relevant Environmental Matters
- Relevant Community Matters

Meeting Rules & General Business

1. Chair will
   a. Acknowledge attendees, including members dialling in remotely via Teams, and invitee's apologies.
   b. Seek acceptance of previous meeting minutes, where applicable
   c. Call for New Business at the end of Agenda Business discussions
   d. Set Date and Time for the next Meeting.
   e. Close meeting on time.
2. When dialling in via Teams attendees will,
   a. Use RAISE HAND icon to be recognised to address the meeting
   b. Switch their camera on when talking to the meeting

Item No.	Items	Action	Responsible	Due Date
1.	**NORTHERN ZONE AREA** • Extents of northern Area presented by Ian Moffat			
2.	**Early Investigation works presented** • Scope/ Work activity details • Locations			
3.	**Cammeray Golf Course Works presented** • Scope/ Work activity details • Locations			
4.	**SOUTHERN ZONE AREA** • Extents of Southern Area presented by Albert Roberson			
5.	**Geotech & Pavement Investigations presented by Leah Fisher** • Scope/ Work activity details • Locations			
6.	**Service Locating presented by Leah Fisher** • Scope/ Work activity details • Locations			
7.	**Drainage CCTV – Dilapidation presented by Leah Fisher** • Scope/ Work activity details • Locations			

Item No.	Items	Action	Responsible	Due Date
8.	**COMMUNITY -**			
9.	**Proposed Cycle Detours Presentation by Dennis Fung**	Details for Ridge St Pedestrian Bridge end state Design to NSC	Dennis Fung	
10.		NSC request Community detail what each contractor is responsible for in the Notice of Works	KG - AL	
	The Chair: 1. Invited conversation for new business from attendees and Raised Hands 2. Confirm Date and Time for the next Meeting. Wed 4/05/2022 3. the Meeting closed			

INCL., 3 Attachments

WFU Presnetation - North Sydney Council

Master Plan - 90 Day Lookahead Presentati

WFU - Freeway Closure Cyclist Detou

CPB CONTRACTORS | Downer

WARRINGAH FREEWAY UPGRADE

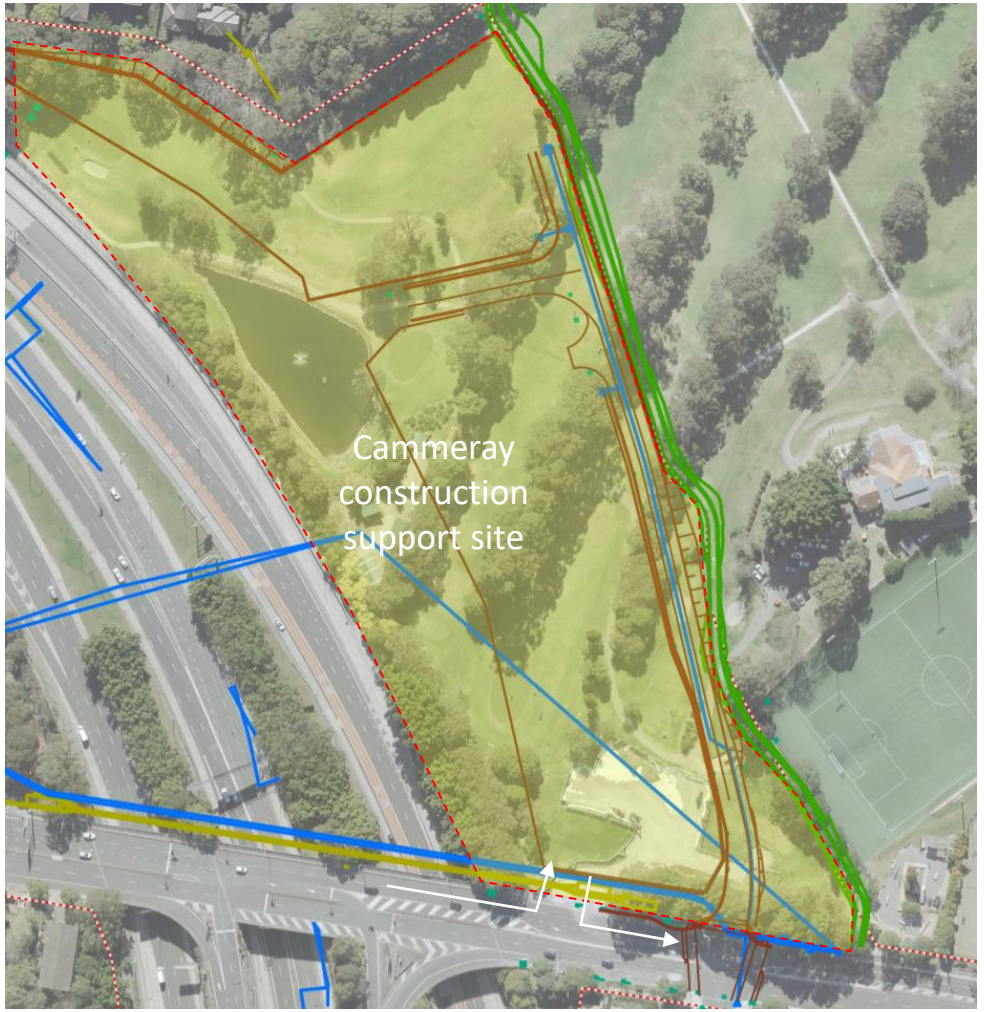
Warringah Freeway Upgrade

Northern Zone
90 Day look ahead

30 March 2022

Cammeray Construction Support site

- Proposed Site access 19th of April
- Access via Ernest St (current SPA access)
- Establish minor compounds
- Pedestrian/ Cyclist shifted to new ATL constructed by SPA
- Remove trees and shrubs within construction area inline with the EIS
- Construct site perimeter hoarding
- Dam dewatering
- Minor earthworks



Duration: April 20 – June 20

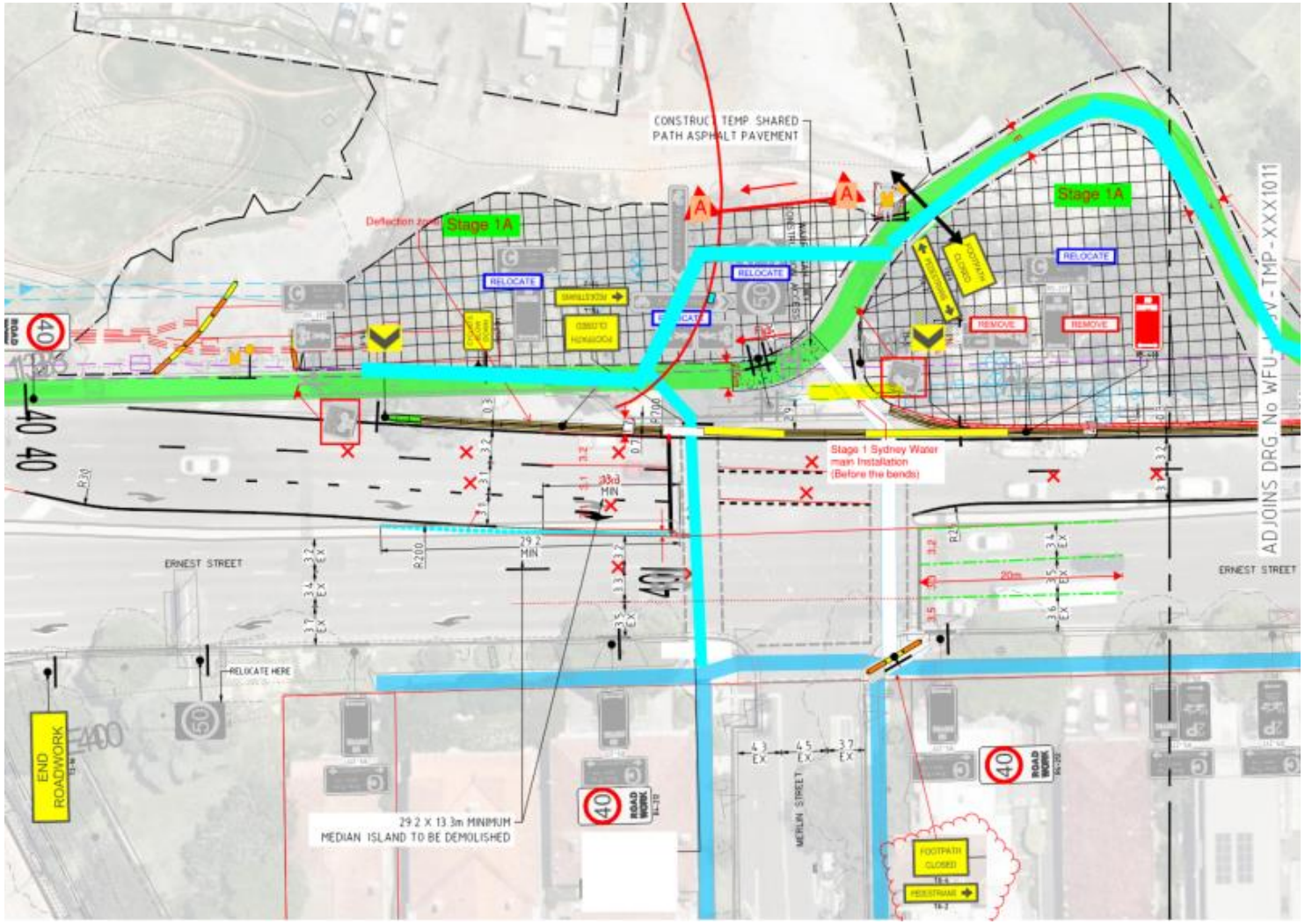
Cammeray site access

- Local road access
  - Until June 2022
- E132 local roads assessment
- 12.5m vehicles
- Heavy vehicle route
  - Park Ave
  - Cammeray Rd
  - Amherst St

Duration: April 20 – June 20

Ernest Street and merlin st intersection

- Temporary TCS
  - Detour for pedestrians and cyclist
- Sydney water main installation adjacent to Ernest St
- Heavy vehicle access from construction site



Duration: April 20 – June 20

Bus relocation

Bus facility partial relocation

- Construct Ernest street onramp temporary bus facility
- Establish Ernest street bus depot temporary bus facility

Miller street onramp

- Construction of Miller street temporary onramp

Duration: June 20 – July 20

Cammeray Construction Support site

Program overview

Activity	Key Date – Start
Cammeray Site Access	19/04/2022
Clearing and Grubbing	2/05/2022
Site hoarding	09/05/2022
Installation of Temp TCS at Ernest St intersection	04/05/2022
Ernest St Onramp Bus Layover (8x Busses)	20/05/2022
Miller St Ramp Construction and Access to Cammeray	20/06/2022