Construction Traffic Management Framework

Sydney Metro City & Southwest
Chatswood to Sydenham

(Construction of Sydney Yard Access Bridge & Demolition Works)

Version 4.5 18 April 2017

Contents

Figures

1 Procedural Requirements/Document control

1.1 Purpose and scope

This Construction Traffic Management Framework (CTMF) has been prepared in response to the Sydney Metro City & Southwest SSI 15_7400 project approval issued by the Department of Planning and Environment on 9th January 2017. The Plan sets out the approach to managing issues focussing on traffic management during the construction of the Sydney Metro City & Southwest.

This document provides a basis for the Construction Traffic Management Plans for each construction site.

The intent is for this document to comply with the Conditions of the SSI Approval for the Chatswood to Sydenham component of the Sydney Metro Program. The document also addresses Contractor requirements including those detailed in project specific agreements including Work Authorisation Deed (WAD) agreements with RMS.

This version of the CTMF has been prepared to address the general requirements for the demolition work sites along the Sydney Metro City & Southwest corridor and the Sydney Yard Access Bridge (SYAB) construction works. A separate CTMF will be prepared for all other City & Southwest contracts including tunnelling works to be undertaken under the Tunnel and Station Excavation (TSE) contract. This CTMF provides an outline of the traffic management requirements and processes which will be common to each of the proposed work sites along the route of the Sydney Metro City & Southwest. Contract wide (Demolition contracts excluded) and site specific Construction Traffic Management Plans (CTMP) will be prepared, along with Traffic Control Plans (TCP's), as required. These documents are to be prepared by the Sydney Metro City & Southwest Contractor having regard to the contents, principles and objectives of this CTMF, contractual requirements, Revised Environmental Mitigation Measures (REMM) and other obligations of the SSI Planning Approval.

This CTMF establishes the traffic management processes and acceptable criterion regarding management of the adjacent roads to be considered and followed in the preparation of the CTMP's for the Sydney Metro City & Southwest.

1.2 Review

This document may be reviewed and re-issued to include any modifications or subsequent planning approvals. Any revisions of this document will be reviewed by the TTLG and endorsed by the Environmental Representative (ER).

Table 1.1 below sets out the application of the CTMF

Table 1.1

Date/Version No.	Scope
April 2017	• Demolition • Sydney Yard Access Bridge

1.3 Plan Control

The approved version of the Plan will be available on the Sydney Metro Delivery Office website. This document has been reviewed by TTLG, RMS, and SCO, and has been endorsed by the ER.

The Sydney Metro Delivery Office will be the document owner of the approved Plan. This plan requires approval by the Secretary, Department of Planning and Environment.

1.4 Definitions and terminology

In this document the following terms refer to the following:

- **"Approval"** means any licence, permit, consent or approval required to be obtained from any Authority to perform the Construction Activities or required in relation to the Construction Site by the Contractor.
- **"Authority" or** "**Authorities"** means any authority or person that has a right to impose requirements on any part of the Contractor's Activities or over the Construction Site.
- **"Construction Site"** generally means the land where the Contractor undertakes the Contractor's Activities.
- **"Sydney Coordination Office"** means the delivery office established to lead the proactive planning and coordination of the operations and management of the transport network for major infrastructure projects on behalf of Transport for NSW.
- "**Construction Traffic Management Plan**" **(CTMP)** means the Construction Traffic Management Plan required by the Project Planning Approval. The CTMP is a plan showing how traffic will be managed when construction works are being carried out. It describes the work activities being proposed, their impact on the roadway and on road users, and how these impacts are being addressed. A CTMP will incorporate Traffic Staging Plans, Traffic Control Plans and Vehicle Movement Plans. Pedestrian Movement Plans may also be required to be incorporated. City & Southwest Metro Contract wide CTMPs will need to be prepared in addition to Site-specific CTMPs.
- **"Contractor"** means the organisation engaged by the Principal for the delivery of the Project Works and the Temporary Works.
- **"Contractor's Activities"** means all things and tasks which the Contractor is required to do under the Contract whether or not such things and tasks are performed by Subcontractors.
- **"Disability Discrimination Act" (DDA)** means the *Disability Discrimination Act 1992*.
- **"Emergency"** means an unforeseen event which requires urgent action to protect life or property, or an occasion when emergency services (Police, Fire & Rescue, Ambulance or State Emergency Services) take control of a portion of the road network.
- **"Hold Point"** means a point beyond which a work process must not proceed without the authorisation or release of a designated authority.
- **"Long term works"** means works that impact on the road network for more than one shift. Traffic management measures will be installed on one day/night and remain in place for weeks or months but are removed on completion of the project or that work, e.g.: concrete barriers and signage.
- **"Pedestrian Movement Plan"** means a diagram showing the allocated travel paths for workers or pedestrians around or through a work site. A PMP may be combined with or superimposed on a Traffic Control Plan.
- **"Planning Approval"** means the approval being sought under the EP&A Act by TfNSW and which is required to be complied with by the Contractor, as directed in respective Project Deeds.
- **"Preferred Infrastructure Report" (PIR)** means the report prepared to address issues raised in submissions on the Environmental Impact Statement and any proposed changes to the project to minimise its environmental impact.
- **"Principal"** means Transport for NSW.
- **"Project Works"** means any permanent works which the Contractor is required to design, construct, complete and hand over.
- **"Reference Documents"** means the codes, standards, specification and guidelines specified in this document.
- **"Revised Environmental Mitigation Measures"** means mitigation measures –

additional to the project design which are identified through the environment impact assessment and updated in Chapter 11 of the Chatswood to Sydenham Submissions and Preferred Infrastructure Report, October 2016.

- **“Road Occupancy”** means an activity that is likely to impact on the traffic flow of the road network, and may involve the closure of traffic lane(s) or parking lane(s).
- **“Road Occupancy Licence”** means a licence for Road Occupancy issued by TMC that allows the holder to use or occupy a specified road space at approved times, providing that certain conditions are met.
- **“Road Safety Audit” (RSA)** means an assessment and report of a road’s safety performance and crash potential at various stages of a road/project’s life cycle.
- **"Road User"** means all users of roads and public spaces including, but not limited to, pedestrians, pedal cyclists, public transport passengers, public transport operators and motorists.
- **“Short Term Works”** means works that are undertaken for one shift only. They may return the next day/night but it is set up and packed entirely in one shift, e.g.: cones and signs for a lane closure.
- **"Subcontractor"** means a subcontractor of the Contractor and includes a supplier of goods or services (including professional services and construction plant hire) or both.
- **“Sydney Metro City & Southwest”** means that section of the proposed Sydney Metro City & Southwest between the Chatswood Dive Site and the Marrickville Dive Site, including the proposed construction sites along its length.
- **"Temporary Works"** means any temporary works required to carry out the Contractor's Activities but which do not form part of the Project Works**.**
- **"TBM"** means tunnel boring machine.
- **“Traffic Control Plan”** means a diagram showing signs and devices arranged to warn traffic and to guide it around, past or if necessary through a work site or temporary hazard.
- **“Traffic Control Group”** means a group chaired by the Sydney Coordination Office and including the Principal, relevant Contractor’s Traffic and Transport representative and other stakeholders.
- **“Traffic Staging Plan”** means road design drawings showing traffic lane configurations to be provided for traffic passing through the Site during the various construction stages, including details of road alignment and geometry, intersection layouts, provision for buses and cyclists, work areas and pedestrian areas, drainage, signs and pavement markings, etc.
- **"Traffic and Transport Liaison Group"** means the group formed by the Principal in accordance with the requirements in the Project Planning Approval. This group will be chaired by the Sydney Coordination Office.
- **"Transport Management Centre"** means the Transport for NSW Transport Management Centre located at Eveleigh.
- **“Traffic and Transport Representative”** means the person appointed to the position of Transport and Transport Representative by the Contractor.
- **“Vehicle Movement Plan”** means a diagram showing the preferred travel paths for vehicles associated with a work site entering, leaving or crossing the through traffic stream. A VMP may be combined with or superimposed on a Traffic Control Plan.
- **“Verifier”** means a person appointed to the position of Verifier by the Contractor.
- **“WAD”** means Works Authorisation Deed, an agreement between RMS and the proponent authorising implementation of road works or other works for which RMS has a statutory interest and subject to identified requirements and conditions.
- **“WHS”** means workplace health and safety.

1.5 Compliance

This document has been prepared to address these requirements of the SSI Approval of 9th January 2017 and the Revised Environmental Mitigation Measures (REMMs) identified in the Sydenham to Chatswood Submissions and Preferred Infrastructure Report.

The following table indicates the correlation between the requirements of those two documents and this Framework. The requirements of these documents have been summarised in the table below. A full list of the requirements is provided in Appendix C.

Table 1.2 – Compliance outline

SSI Approval Requirement Reference	CTMF Reference
E75 – Integration of proposal and minimising impacts	
(a) Consultation with TTLG.	3.4.2
(b) Consideration of existing and future demand	3.1, 3.2, 3.7, 3.10, 3.11, 3.12
(c) Minimise and manage local area traffic impacts.	3.1
(d) Ensure property access	3.1, 3.5.1
(e) Meet relevant standards and guidelines	2.4.2, 2.4.3
(f) Submission of plans	3.4.2, 3.4.3, 3.6.3, 3.6.8
E76 – Safety Audits	3.4.2, 3.10.
E77 – Establish Traffic and Transport Liaison Group (TTLG)	3.4.2
E78 – Supplementary Analysis	TTLG Terms of Reference
E79 – Weight restricted roads	3.6.9.
E80 – Minimise truck movements in peaks	3.7.1, 4.
E81 – Implement CTMF	This document
a) Construction site access	3.9.
b) Hoardings, scaffolds, structures on roads.	3.8, 3.8.1.
c) Lane closures.	3.5.2, 3.6.4.
d) Cumulative construction vehicle management	4.1.1.

SSI Approval Requirement Reference	CTMF Reference
e) Impact on bus stops and services	3.6.10.
f) Work Zones	3.7.5
g) Mail zone impacts	3.6.11.
h) Works in road reservation	5.
i) Sign changes and modifications	3.6.1, 3.6.2
j) Parking management	3.7.7
k) Heavy vehicle management	3.7.1, 3.7.4, 3.7.5
l) Special event management	3.6.6
m) Emergency and property access	3.1, 3.2, 3.3, 3.5
n) Retention of user and passenger safety	3.11, 3.12
o) Incident response	5.3
p) Monitoring of impacts	3.7.2, 5.1.2, 5.2
E82 – Construction Traffic Management Plans	2.4.2, 3.6.3
E83 – Further impacts of construction on surrounding area	Noted – to form part of CTMP reviews through TTLG and TCG. 5.2
E84 – removal of spoil by non-road methods	Being investigated as part of project development.
E85 – Heavy vehicles not to use local roads	3.7.1
E86 – Maintain pedestrian and vehicle access	3.5.1
E87 – Permanent road works subject to safety audits	3.10.2
E88 – Haulage route details in CTMP's	3.7.1
E89 – Truck marshalling and logistics	3.7.5, 3.7.8
E90 – Road dilapidation report	3.7.2
E91 – Damage to roads	3.7.2

REMM reference	CTMF Reference
T1 – Ongoing consultation with stakeholders	3.4
T2 – Road safety audits	3.10
T3 – Signposting at construction sites	3.2, 5.1.2
T4 – traffic related incidents	5.3
T5 – Notification to community	3.2, 3.5.2
T6 – Management of pedestrian access	5.1
T7 – Additional enhancements for pedestrian, cyclist & motorist safety including:	
(g) Speed awareness and variable message signs	3.12
(h) Community educational events	3.5
(i) Construction driver training	3.7.9
(j) Vehicle monitoring systems	3.12
(k) Blind spot warning devices	3.12
T8 – Access to be maintained	3.1
T9 – Trucks to enter and exit in a forward direction	3.7.4
T10 – relocation of bus stops	3.6.10
T11 – Special events	3.6.6
T12 – staff parking	3.7.7
T13 – Minimise truck movements in peaks	3.7.1, 4
T14 – Minimise movements through School Zones	3.7.1
T15 – Pedestrian and cyclist access – Crows Nest	3.1, 3.2, 3.12
T16 – Devonshire St tunnel closure timing	To be considered in Central Station construction planning.
T17 – Consultation with re shipping channels	3.4

REMM reference	CTMF Reference
T18 – Martin Place access closures pedestrian management	To be considered in Martin Place construction planning.
T19 – Removal of parking	3.4, 3.5
T20 – Alternate pedestrian access	3.5
T21 - Cumulative construction vehicle management	4.1
T22 – Pedestrian paths condition surveys	3.7.2

2 Introduction

2.1 Project background

Sydney Metro is a key component of *Sydney's Rail Future* (Transport for NSW, 2012), a plan to transform and modernise Sydney's rail network so that it can grow with the city's population and meet the needs of customers in the future. The Sydney Metro network consists of Sydney Metro Northwest (previously known as the North West Rail Link) and Sydney Metro City & Southwest. The proposed Sydney Metro City & Southwest comprises two core components:

- Chatswood to Sydenham - New 15.5 kilometre twin tunnels from Chatswood, under Sydney Harbour through Sydney's CBD to Sydenham.
- Sydenham to Bankstown upgrade - Proposed upgrade and conversion of the existing 13.5 kilometre railway from Sydenham Station to Bankstown, to metro standards. This will be subject to a separate environmental assessment process.

The key components of the project (from north to south) would include:

- Realignment of T1 North Shore Line surface track within the existing rail corridor between Chatswood Station and Brand Street, Artarmon including a new bridge for a section of the 'down' (northbound) track to pass over the proposed Chatswood dive structure.
- About 250 metres of new above ground metro tracks between Chatswood Station and the Chatswood dive structure.
- A northern dive structure (about 400 metres in length) and tunnel portal just north of Mowbray Road, Chatswood.
- About 15.5 kilometres of twin rail tunnels (that is, two tunnels located side-by-side) between the northern dive structure and Bedwin Road, Marrickville (the Marrickville dive structure)
- A substation (for traction power supply) at Artarmon.
- New metro stations at Crows Nest, Victoria Cross, Barangaroo, Martin Place, Pitt Street and Waterloo, as well as new underground platforms at Central Station.
- A southern dive structure (about 400 metres in length) and tunnel portal north of Sydenham Station and south of Bedwin Road, Marrickville.
- A services facility (for traction power supply and an operational water treatment plant) adjacent to the southern dive structure.

The project would also include a number of ancillary components, including new and alterations to existing overhead wiring, signalling, access tracks / paths, rail corridor fencing, noise walls, fresh air ventilation equipment, temporary and permanent alterations to the road network, facilities for pedestrians, and other construction related works.

2.2 Stations/worksites

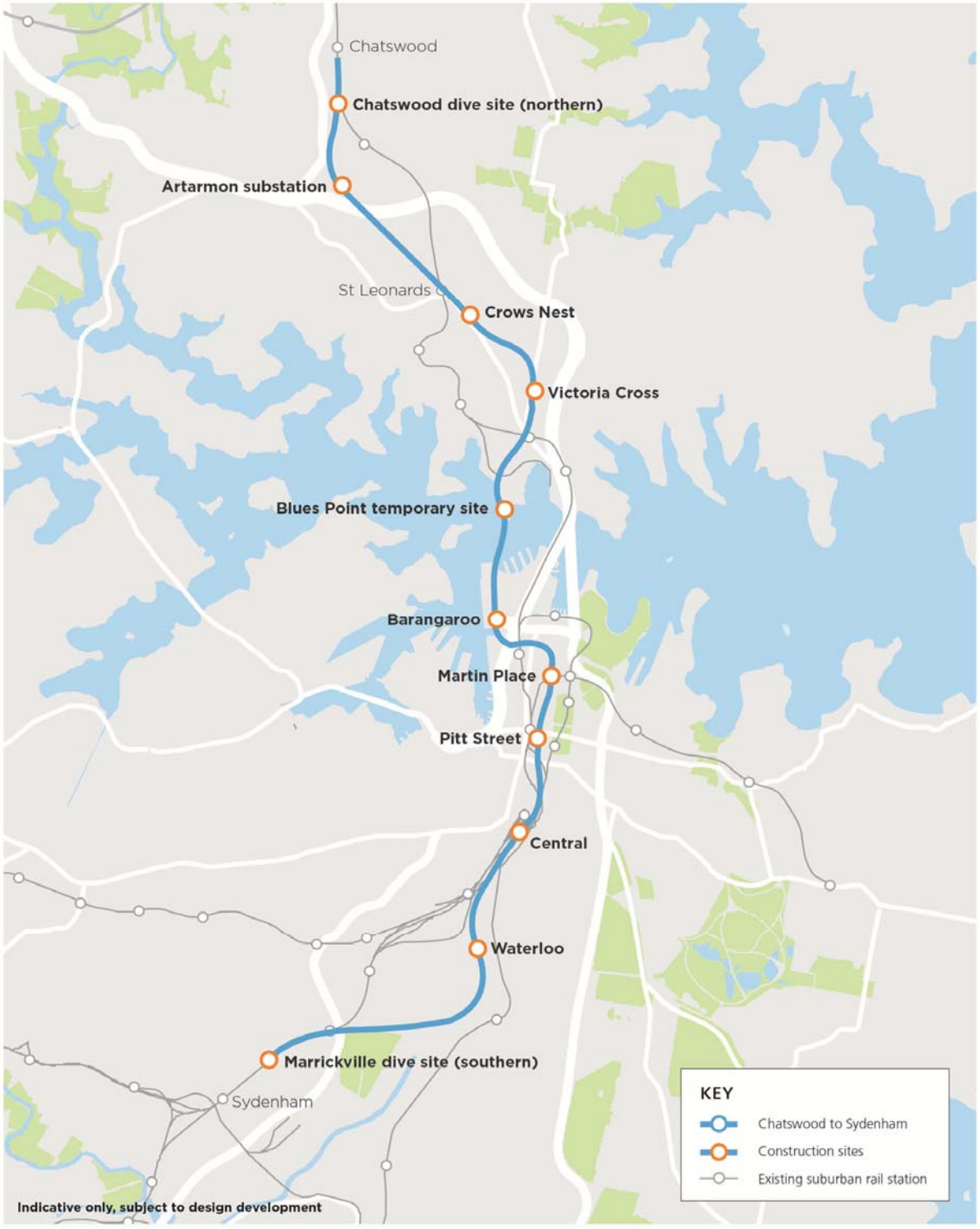
Details of station and construction work sites are to be provided in the contract wide CTMPs and each of the site specific CTMPs for:

- Chatswood Dive Site
- Artarmon Sub-station
- Crows Nest
- Victoria Cross (North Sydney)
- Blues Point
- Barangaroo

- Martin Place (north and south)
- Pitt Street (north and south)
- Central
- Waterloo
- Marrickville Dive Site

Figure 2.1 indicates the locations of the proposed stations and work sites.

Figure 2.1 – Proposed work sites



2.3 Construction stages and timing

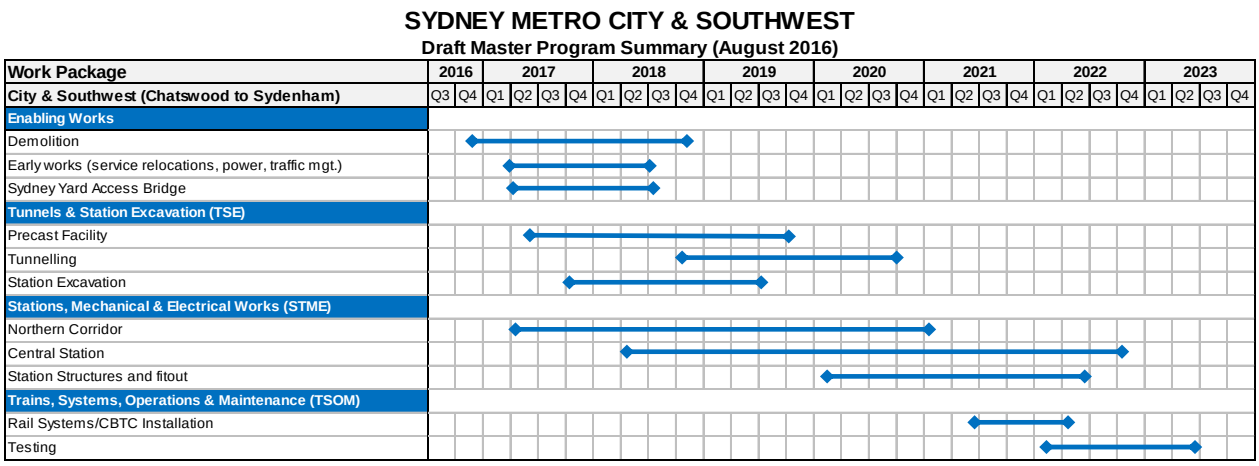
It is proposed that construction works for the Sydney Metro City & Southwest will commence in early 2017 with trains operating by 2024. The delivery packages are:

- Enabling Works (EW)
- Demolition (Demo 1 & Demo 2)

- Sydney Yard Access Bridge (SYAB)
- Central Station Works (CSW)
- Tunnel and Station Excavation (TSE)
- Trains Systems Operations and Maintenance (TSOM)
- New Stations Track Mechanical & Electrical Works (STME)

The August 2016 draft program is outlined in **Figure 2.2**.

Figure 2.2 – Draft Construction Program



2.4 Traffic management planning

The project requires construction work to be undertaken for the tunnels, stations, ancillary facilities and connections to the stations at various locations within the City of Sydney, North Sydney Council, Willoughby Council and Inner West (formerly Marrickville, Leichhardt, Ashfield) Council areas. It is important that there is a robust approach to managing the impacts of construction traffic on the road and pedestrian networks in the vicinity of the surface construction works.

The Construction Traffic Management Framework (CTMF) is one of a number of Management Plans to be prepared for each of the construction sites. The levels and responsibilities for preparation of Management Plans for the Sydney Metro City & Southwest are:

- Construction Traffic Management Framework (this document) – Sydney Metro Delivery Office
- Contract wide Construction Traffic Management Plans – Contractor (excludes demolition contract as CTMPs will be prepared for individual sites)
- Site specific Construction Traffic Management Plans – Contractor
- Traffic Control Plans (and supporting plans) – Contractor

The purpose of each of the above documents is outlined in **Table 2.1.**

Table 2.1 – Traffic Management Plans Hierarchy

Document	Purpose	Produced by
Construction Traffic Management Framework (CTMF)	Provides the approach within which subsequent contract specific and site specific CTMPs will be prepared.	Sydney Metro Delivery Office
Contract wide Construction Traffic Management Plan (CTMP)	Contract specific CTMPs are to be prepared for each Sydney Metro City & Southwest contract.	Contractor (excluding demolition contract)*
Site specific Construction Traffic Management Plan (CTMP)	Site specific CTMPs are to be prepared for each Sydney Metro City & Southwest construction site for each contract.	Contractor
Traffic Control Plans (TCP)	Produced for each traffic change, and road occupancy, for all work sites. Requires the preparation of supporting plans.	Contractor

*A contract wide CTMP will not be prepared for the two demolition contracts because the demolition task within each contract is geographically and methodologically separate. Sufficient detail can be provided within each site specific CTMP for each demolition site.

2.4.1 Construction Traffic Management Framework (this document)

The CTMF provides the framework within which subsequent contract specific and site specific CTMPs will be prepared. The CTMF describes the traffic management objectives, principles and strategies to be implemented during Sydney Metro City & Southwest construction, having regard to contractual requirements, the Revised Environmental Mitigation Measures (REMM) and other obligations of the SSI Planning Approval

This CTMF identifies and outlines the major sections of the Project that require consideration of matters for traffic management, cycling and pedestrian management for the areas that will be potentially impacted by the construction works. The suitable development of traffic management plans for the potential impacts of the works is a key component to ensure that the impacts are minimised as much as possible with regard to vehicle and people movement disruption and to manage the efficient construction of the Sydney Metro City & Southwest.

This CTMF has been prepared to address the general requirements for the demolition work sites along the Sydney Metro City & Southwest corridor and the Sydney Yard Access Bridge (SYAB) works. A separate CTMF will be prepared for all other City & Southwest contracts including tunnelling works to be undertaken under the Tunnel and Station Excavation (TSE) contract.

2.4.2 Construction Traffic Management Plans

Contract wide Construction Traffic Management Plans (CTMPs) will be prepared by Contractors, covering the full spatial extent of their works and multiple sites.

The CTMPs will be required to comply with the RMS' "Traffic Control at Worksites Manual", relevant Australian Standards, relevant Austroads guides, RMS supplements to Australian Standards and Austroads, and the Principals General Specification (G10 – Traffic and Transport Management) documentation.

As the two demolition contracts cover multiple geographically and methodologically separate sites, 'contract wide' CTMPs for the two demolition contracts will not be required. Individual site specific CTMPs will be prepared for each demolition site. Similarly, as the Sydney Yard Access Bridge (SYAB) works are concentrated around the Central Station site then a site specific CTMP only will be prepared.

In addition, all CTMP's will be prepared and implemented having regard to the REMMs documented in Chapter 11 of the Chatswood to Sydenham Submissions and Preferred Infrastructure Report, October 2016. Some of the twenty two construction traffic and transport REMMs include:

T1 - Ongoing consultation would be carried out with (as relevant to the location) the Sydney Coordination Office, Roads and Maritime Services, Sydney Trains, NSW Trains, the Port Authority of NSW, Barangaroo Delivery Authority, local councils, emergency services and bus operators in order to minimise traffic and transport impacts during construction.

T2 - Road Safety Audits would be carried out at each construction site. Audits would address vehicular access and egress, and pedestrian, cyclist and public transport safety

T6 - Vehicle access to and from construction sites would be managed to ensure pedestrian, cyclist and motorist safety. Depending on the location, this may require manual supervision, physical barriers, temporary traffic signals and modifications to existing signals or, on occasions, police presence

T13 - Construction site traffic would be managed to minimise movements in the AM and PM peak periods

T18 - During the closure of existing entrances to Martin Place Station, marshals would be provided during the AM and PM peak periods to direct customers to available access and egress points.

T21 - The potential combined impact of trucks from multiple construction sites would be further considered during the development of Construction Traffic Management Plans.

Contractors will also prepare more detailed site specific Construction Traffic Management Plans (CTMPs) developed for each work site and identifying proposed heavy vehicle routes, traffic and parking management measures. These plans will be developed in consultation with the TTLG.

The site specific CTMPs provide the basis for preparation of the Traffic Control Plans (TCP) and Road Occupancy Licence (ROL) applications. The CTMP details the potential works and the traffic management and mitigation measures that would be required to be implemented for the proposed works. It would include any relevant correspondence with stakeholders (e.g. bus operators) where applicable. It would also include the Traffic Control Plan (TCP) Vehicle Movement Plan (VMP), Pedestrian Movement Plans (PMP), Parking Management Plans and Traffic Staging Plans for the specific works. CTMP's should provide details regarding on-site and off-site staff parking arrangements including any proposed bussing to and from the works sites.

2.4.3 Preparation and implementation of Traffic Control Plans

All Traffic Control Plans to be prepared for the construction activities will be developed in accordance with Australian Standard AS1742.3 and RMS' "Traffic Control at Worksites Manual", by a suitably qualified person.

A TCP must be prepared by a person who has completed and passed the RMS' "Traffic Control at Worksites Manual" training course and whose certification is current, to the required level.

Documents to be referenced in the preparation of TCP's include:

- Australian Standard AS1742.3 – Manual of uniform traffic control devices, Part 3, traffic control devices for works on roads.
- Roads and Maritime Services NSW – Traffic Control at Worksites Manual
- Principals General Specification G10 – Traffic and Transport Management.
- Relevant Austroads Guides.
- RMS Supplements to Austroads and Australian Standards.
- SM PS-ST-221 Sydney Metro Principal Contractor Health and Safety Standard

3 Project Policies and Practices

3.1 General traffic management approach

Sydney Metro Delivery Office is committed to achieving a good performance in relation to the health and safety of workers employed on the construction of the Sydney Metro City & Southwest, and to minimising the impacts of the works on road users and the community. The construction objectives that relate to CTMF are outlined below.

Table 3.1 – Construction objectives

Key Result Area	Construction Objectives
Transport network	• Minimise disruption to pedestrians, cyclists and motorists. • Ensure Sydney Metro City & Southwest construction traffic accesses the arterial network as soon as practicable on route to and immediately after leaving the construction site. • Keeping Sydney moving • Buses run on time with no disruption to routes and stops, where possible. • Minimum of changes to traffic operation and kerbside access. • Minimise construction traffic generation during network peak periods. Maximum construction vehicle volumes should not exceed those outlined in the EIS. • Maintain access to properties and businesses.
Safety	• No worker injury accidents during construction. • No injury accidents to members of the public because of construction
Cumulative impacts	• Work collaboratively with other stakeholders and major projects to mitigate traffic and transport impacts.

All construction activity to be undertaken or proposed for the construction of the Sydney Metro City & Southwest is to comply with the following principles:

- Safe provision for vehicular, cyclists and pedestrian traffic must be made at all work sites.
- Delays to traffic in the immediate vicinity of work sites should be minimised as much as practicable.
- Minimise construction traffic generation during network peak periods to the maximum numbers outlined in the EIS. It is an RMS operational imperative that the capacity and efficiency of the network is not reduced, particularly during peak periods. These peak periods have been identified as 7-10am and 4-7pm, Monday to Friday (excluding public holidays).

- Works should be co-ordinated so that road users do not encounter a series of delays in quick succession and such that the cumulative impact of multiple closures does not lead to unexpected congestion.
- Implement appropriate operational and other measures to ensure the safety of vulnerable road users (refer to **Section 3.12**).
- Access for residents and businesses is to be maintained.
- Road users should be kept informed about:
  - The location of works.
  - Forecast travel delays they are likely to experience.
  - Suitable alternative routes, if available.
  - Timing of any works, including dates and times, to enable informed decisions by the road user regarding times and routes of travel.
- The project should present a professional and helpful interface with road users during all parts of the construction process.
- Consideration of the above for road users should include potential impacts on pedestrians and cyclists.
- Public transport users should be kept informed of changes due to construction.

The Sydney Metro City & Southwest project requires demolition and construction work to be undertaken within the Sydney, North Sydney, Willoughby and Inner West Council areas. At all locations it is important that adequate consideration and emphasis is given to the operation of public transport, pedestrian and cyclist management measures, private vehicles and service vehicles to minimise impacts. It is also important that access for residents and businesses is maintained consistent with the SSI approval.

The design and operation of any proposed temporary traffic management measures will require careful planning, co-ordination and implementation.

Pedestrians, cyclist and vehicle drivers expect a high level of safety and service in using the existing road and pedestrian network. This requires efficient, effective and reliable traffic management strategies to be in place which:

- Achieve uniform traffic throughput.
- Minimise changes to pedestrian routes and movement.
- Ensure reliable and consistent travel times.
- Provide clear information to allow drivers and other road users to make appropriate decisions in relation to their journey.

These traffic management goals will be achieved by:

- Understanding the impacts of the works and identifying appropriate methods to mitigate these impacts.
- Strategic advance planning of the traffic management.
- Implementation of an approach to traffic management that minimises traffic disruption.
- Ongoing stakeholder engagement and communication.

3.2 Traffic management strategy

There is the potential for construction activities associated with the construction of the Sydney Metro City & Southwest to have an impact on the existing surrounding road network. Where possible, these impacts will be minimised through the provision of effective traffic management measures, in accordance with Sydney Metro Delivery Office's objectives and relevant guidelines and standards, in order to achieve the objectives of the project. Development of the traffic management measures would be carried out in consultation with TTLG, RMS, SCO and other stakeholders in accordance with the SSI approval.

Priority is to be given to providing adequate guidance to pedestrians, cyclists, drivers and the community prior to the commencement of any works. Priority is also to be given to responding

appropriately to issues and events that may arise during the works. As part of this strategy, some key traffic management measures include:

- The provision of directional signage and line marking to direct and guide drivers and pedestrians past work sites and to suitable alternative routes (if required) on the surrounding road network.
- Notification of proposed changes and duration using newspapers (local or majors), radio, project website, social media and direct community engagement (as required).
- On-going or direct co-ordination with the Transport Management Centre and SCO to mitigate congestion and provide rapid response should incidents or undue congestion occur. Notification of incidents or congestion should also be relayed to SMDO at the earliest opportunity.
- Management and co-ordination of construction vehicle access to and from the work sites where these access will cross pedestrian paths. The type of traffic management to be employed will be dependent and adjusted accordingly, with regard to the volume of pedestrians, passing traffic and volume of construction vehicle activities for the site. The types of management could include manual supervision, physical barriers, temporary traffic signals (where approved by RMS or Council) or modification to existing traffic signals (where approved by RMS). This may also require NSW Police presence.
- Ensure that access to existing properties and businesses is maintained during the period of the works.

3.2.1 Information

The Contractor's Stakeholder and Community Manager will be responsible for ensuring a system is in place to advise the Sydney Metro City & Southwest Project Communications Team, the TTLG and other key stakeholders each time proposed changes are to be made to traffic arrangements. Advice will include information about the changes to the traffic operation, anticipated delays to traffic, any changes to the times and duration of the work, and any other potential major disruptions.

Appropriate signposting, whether static or Variable Message Signs (VMS), should be located and installed to provide for the easy and safe passage of vehicles, pedestrians and cyclists. This also includes public transport users accessing facilities such as bus stops.

Any signposting should be placed in accordance with relevant guidelines and standards. Messages should be clear and easily interpreted by drivers, and should not create a safety hazard.

3.3 Hierarchy of access

In identifying the most appropriate form of traffic management for each site, consideration should be given to the priorities of the potential different users. The site specific CTMP's will be required to be developed on the basis of the following hierarchy of access:

1) Incidents & emergency services access
2) Events (Special and unplanned)
3) Pedestrians
4) Cycles
5) Public transport – buses
6) Service vehicles
7) Coaches
8) Taxis
9) Kiss and Ride
10) Private cars

The strategic importance of traffic routes and the existing road hierarchy is as follows:

- Major Arterial/State road
- Sub-arterial or Regional road
- Collector road
- Local road

It should be noted that while most streets within the Sydney CBD are “local roads” they are important traffic routes for circulation around the CBD for public transport, active transport and service vehicles.

3.4 Inter-agency and Community Liaison

3.4.1 General Approach

The magnitude of this project requires effective and ongoing interaction between a number of different organisations, key stakeholders and the general public.

Having regard for the need for regular and ongoing discussions and distribution of information, the following groups will be convened to assist in traffic management planning, document review and stakeholder consultation.

- Traffic and Transport Liaison Group (TTLG)
- Traffic Control Group(s) (TCG)

3.4.2 Traffic and Transport Liaison Group

A Traffic and Transport Liaison Group (TTLG) operates, in accordance with the SSI approval (Condition E77), to ensure the stakeholders most affected are aware of the proposed construction activities, upcoming works and related traffic and transport implications. The participants in this group are specified in Condition E77 and will reflect the location of the worksite however, representation is anticipated to include:

- Sydney Metro Delivery Office
- Transport for NSW (including Centre for Road Safety; Sydney Light Rail; Metro Bus & Ferry Planning and Development; Freight Strategy & Planning)
- RMS
- TMC
- Sydney Coordination Office
- Port Authority of NSW
- Barangaroo Delivery Authority (BDA)
- Department of Planning and Environment
- Sydney Motorway Corporation (WestConnex)
- NSW Police
- NSW Fire & Rescue
- NSW Ambulance Service
- Local Council (depending on worksite locations)
    - Lane Cove Council
    - Willoughby Council
    - North Sydney Council
    - City of Sydney Council
    - Inner West Council
- State Transit Authority
- Sydney Metro Contractor(s)

The TTLG provides a forum for key stakeholders, contractors and Sydney Metro Delivery Office to discuss matters that could impact on the road network operations around the sites. The TTLG also provides a forum through which information on proposed traffic changes is

made available to key stakeholders. It will also allow key transport agencies, local councils and BDA to inform the development of traffic management plans and construction staging by providing local and specialist knowledge and insights. The TTLG will also:

- Maintain good communication between Sydney Metro Delivery Office project team, contractors and other stakeholders.
- Plan and review the construction traffic management arrangements for the Sydney Metro City & Southwest works and approvals.
- Assist in identification and refinement of potential measures to mitigate the impacts of the Sydney Metro City & Southwest works in an area.
- Assist co-ordination of works for Sydney Metro City & Southwest and other projects.
- Facilitate in-principle agreement for traffic management arrangements.
- Ensure that submitted plans are agreed in a timely manner in accordance with the overall Sydney Metro City & Southwest project programme.
- Be consulted in the preparation of safety audits before the completion and use of infrastructure.

3.4.3 Traffic Control Group

For each Sydney Metro City & Southwest contract, a Traffic Control Group (TCG) will be convened to provide a technical forum for the discussion of proposed works that will impact on the surrounding road network and feedback on proposed TCP's prior to formal submission. This group would meet on regular occasions (weekly or fortnightly) to provide an assessment of the forthcoming program and to ensure that any identified or potential issues are raised and addressed to ensure that works proceed in accordance with the agreed programme. The participants in this group will vary depending on the location of the contract. Representation would be expected to include:

- Sydney Metro Contractor
- Sydney Metro Delivery Office
- Transport for NSW
- RMS
- TMC
- Sydney Coordination Office
- Local Councils

The TCG would primarily provide a forum for discussion on proposed traffic management measures during the various stages of each of the contracts and to discuss potential impacts on the road network operations around the sites, and how to address or minimise those impacts.

3.4.4 Other organisations

Other organisations may be asked to attend the TTLG and/or receive relevant information depending on the matters under discussion or consideration. This may include:

- NSW Taxi Council
- NSW Taxi Drivers Association
- BusNSW
- Bicycle NSW
- BIKESydney
- BIKEast
- Pedestrian Council of Australia
- Sydney Buses
- Property NSW
- Sydney Ports

- Sydney Ferries / Harbour City Ferries and other relevant ferry operator(s)
- Disability Council of NSW
- Transurban
- NRMA
- NSW Trains
- NSW Health Infrastructure
- CSELR Managing Contractor

The Sydney Metro City & Southwest TTLG has been established separate to the Sydney Metro Northwest TTLG which has been meeting since late 2012.

3.5 Communication with Community

All external communication with the community including businesses must follow the guidelines set out in the Sydney Metro City & Southwest Community Communication Strategy.

The community must be notified of any current and upcoming works, temporary works or Contractor's Activities with the potential to impact on stakeholders and the community, prior to them occurring.

An overview of stakeholder and community involvement during construction of the project is provided in the Construction Environmental Management Framework. A Community Communication Strategy will be developed by each Principal Contractor. A key element of this strategy will relate to notification to stakeholders that may be affected by changes to transport, access and local traffic arrangements.

3.5.1 Existing businesses and residents

Owners and operators of potentially affected properties and businesses will be consulted throughout the delivery of the project and notified well in advance of any works that may potentially disrupt access to their property.

Every endeavour is to be made to maintain access at all times to properties for both pedestrians and vehicles. If works will temporarily affect access to a property, consideration should be given to the staging of the works, in order to maintain access and limit the disruption. Any access restrictions for residents, tenants or property owners and alternative arrangements are to be undertaken and agreed with the occupiers.

Residents, property owners and businesses in the surrounding area will also be notified prior to the start of works.

The proposed works and changes should also be advertised in the public notices section of newspapers (as required).

3.5.2 Notification of traffic changes or disruptive works

Activity specific communications strategies are required to be developed prior to any traffic event. These strategies should include details of the work, impacts and proposed mitigation measures.

In addition to the strategy, activity specific notifications will need to be developed and issued to directly impacted properties prior to works commencing.

Notification of proposed changes should also be included on the project website.

Other communication methods that may be implemented could include, but are not limited to:

i. Doorknocks
ii. Letterbox drops
iii. Advertising (newspapers)

iv. Social media updates
v. Radio.

3.6 Approvals

3.6.1 Policy context and legislative backing

Notwithstanding the project Planning Approval being secured under Part 5.1 of the EP&A Act, Sydney Metro Contractors will be required to secure all required statutory approvals prior to the commencement of works.

Any changes to regulatory signs will require the approval from the road authority and arrangements with the road authority for the changes to occur. Regulatory sign changes on local or regional roads will require a submission to the local Council and approval of the Local Traffic Committee. Sign changes on State Roads will require the approval of RMS.

3.6.2 Stakeholders

The agencies that may have a potential interest in the traffic management measures proposed for each City and Southwest Metro construction site are outlined in **Table 3.2**.

Table 3.2 – Principal Agencies

Station / Site	SCO	BDA	Sydney Trains	RMS	WC	NSC	CoS	IWC	TMC
Chatswood Dive	X		X	X	X				X
Artarmon	X			X	X				X
Crows Nest	X			X		X			X
Victoria Cross (Nth Sydney)	X			X		X			X
Blues Point	X			X		X			X
Barangaroo	X	X		X			X		X
Martin Place	X		X	X			X		X
Pitt Street	X			X			X		X
Central	X		X	X			X		X
Waterloo	X			X			X		X
Marrickville Dive	X		X	X				X	X

Legend:

SCO-Sydney Coordination Office; **BDA** – Barangaroo Delivery Authority; **RMS** – Roads and Maritime Services; **WC** – Willoughby Council; **NSC** – North Sydney Council; **CoS** – City of Sydney Council; **IWC** – Inner West Council; **TMC** – Transport Management Centre
Note: Other Councils will be consulted as required

3.6.3 Construction Traffic Management Plans Approvals Process

Construction Traffic Management Plans will require approval and consideration by a number of key stakeholders. Contractors should assess the overall required approval times at the beginning of the project in order to provide adequate scheduling of the preparation and submission of the CTMP's.

Condition E82 requires *"Construction Traffic Management Plans (CTMPs), consistent with the CTMF required in Condition E81, must be prepared for each construction site in consultation with the TTLG(s), and submitted to RMS for approval following Sydney Coordination Office endorsement before construction commences at the relevant construction site."*

Condition E83 also requires that *"Where construction results in a worsening of the matters identified in Condition E81 (a)-(o), the Proponent must review the measures identified in the CTMPs in consultation with the TTLG(s), as relevant. Any changes to the CTMPs must be submitted to the RMS for approval following Sydney Coordination Office endorsement and implemented."*

An overview of the approvals process for the City & Southwest Metro project is as follows:

- Sydney Metro Delivery Office prepared Construction Traffic Management Framework:
  a) Prepared in consultation with the TTLG (Condition E81).
  b) Submitted to SCO and RMS and relevant road authority for review.
  c) After SCO and RMS acceptance, RMS approves the Plan.
  d) Reviewed by Environmental Representative
  e) Then submitted to DP&E for approval in accordance with SSI Planning Approval.

- Contract specific CTMPs to be prepared by the Contractor (e.g. 1 CTMP covering all TSE works):
  a) Initially tabled at TCG meeting for Council and other stakeholder feedback.
  b) Prepared in consultation with the TTLG (Condition E81).
  c) Submitted to SCO, RMS and relevant road authority for review and comment.
  d) Reviewed by Environmental Representative.
  e) After review and agreed edits, submitted to RMS for approval following the Sydney Coordination Office endorsement for approval, before construction commences at the relevant construction site.
  f) Will not be sent to DP&E unless specifically requested for information purposes.

- Site specific CTMPs to be prepared by the Contractor (e.g. 1 CTMP covering Demolition and Enabling works at Chatswood Dive site) for each site covered under the contract: These CTMPs must comprise other plans such as Traffic Staging Plans, Traffic Control Plans, Vehicle Movement Plans, and Pedestrian Movement Plans. It may also include a Parking Management Plan.
  a) Initially tabled at TCG meeting for Council and other stakeholder feedback.
  b) Prepared in consultation with the TTLG (Condition E81).
  c) Submitted to SCO, RMS and relevant road authority for review and comment.
  d) After review and resolution of issues, submitted to RMS for approval following the Sydney Coordination Office endorsement for approval, before construction commences at the relevant construction site.
  e) Will not be sent to DP&E unless specifically requested for information purposes.

- ROL and related applications are submitted by the Contractor to TMC for occupation of roadway (other than approved Work Zones) on classified roads where RMS is the road manager. These plans are approved by TMC.
  a) Application made to TMC
  b) TMC assesses for potential conflicts, any identified conflicts to be resolved to satisfaction of TMC.
  c) TMC will consult with SCO prior to submission to RMS for approval.
  d) TMC/SCO may consult with other stakeholders including TfNSW (Infrastructure & Services).
  e) Contractors will require Council approval of ROLs/Permits to Stand Plant/Road

Openings impacting non classified roads.

The Contractor will be responsible for documenting all stakeholder feedback and comments in a document specific issues register. These comments will be addressed and closed out by the Contractor in consultation with the relevant stakeholders. RMS and SCO will not be responsible for processing or referring comments on behalf of the Contractor.

Applications for scaffolds and hoardings would be to the relevant Council with concurrent notifications to RMS, SCO and TMC. ROL and related applications will be tabled at TCG meetings for Council and other stakeholder feedback.

3.6.4 Road Occupancy Licence Approval Process

Whenever it is proposed to occupy or close a lane or road during the construction program for each of the sites, the approval of the closure will require the Contractor to apply for a Road Occupancy Licence (ROL) from the Transport Management Centre (TMC). ROL's are approved by the TMC, following endorsement by the SCO, for RMS classified roads (State Roads) or locations on unclassified roads within 100m of traffic signals. It should be noted that due to the critical nature of the potential traffic impacts for unclassified streets within the Sydney and North Sydney CBDs that applications for ROLs on streets within these areas will be required to be submitted to TMC.

For local roads outside of the areas highlighted above, the approval of the local Council will be required. This will require an application in the appropriate method to Council.

For roads within the Barangaroo Development Authority's area of responsibility (Hickson Road, Napoleon Street) the following process is required in obtaining a permit to occupy the roadway.

- The contractor provides the information to BDA on the proposed works, location and times for the proposed road occupancy.
- BDA provides a written agreement for the proposed road occupancy via email.
- The BDA agreement is included in with the ROL application to the TMC.
- Once TMC approval provided, BDA will issue a permit for the road occupancy.

The requirements are outlined in the RMS Road Occupancy Manual (and in the Principals General Specification G10 – Traffic and Transport Management), available at:

www.rms.nsw.gov.au.

The Contractor must allow a minimum of 10 working days for a response to an application from the TMC. A minimum of 10 working days should also be assumed for responses to applications from other roads authorities.

ROL's will generally be issued for relatively short periods of time and the TMC will require that an approved CTMP for the work be in place.

Information on approved ROLs should also be provided to the Sydney Metro City & Southwest Project Communications Team for notification, prior to works commencement.

3.6.5 Speed Zone Authorisation

An application must be made to RMS for any proposed adjustment of the speed limit on the road network, whether they are proposed as temporary measures for work zones and road occupancies or for longer periods such as the duration of the construction works at a site. A Speed Zone authorisation application usually accompanies a ROL application where a change in speed limit is proposed as part of the road occupancy.

The RMS Speed Zone change process involves the submission of a form, available on-line from the RMS website, which is to be submitted to the TMC's Planned Incident Unit. Depending on the extent of the works and project familiarity the application will be supported

by the contract wide and/or site specific CTMP. Short term speed zone changes can be dealt with via the CTMP process. Longer term (multiple years) or permanent changes must be referred to RMS for assessment and approval. Permanent speed zone changes can only be installed by RMS.

3.6.6 Special Event Co-ordination

There are a number of special events that occur in and around the Sydney CBD and North Sydney. These special events have an impact through increased visitor numbers, road closures and diversion of bus services. The major events such as New Year's Eve, Australia Day, Vivid Festival and ANZAC Day all have significant impacts on the CBD with increased visitor numbers and the need to provide additional rail and bus services, and impacts on the road network.

Class 1 & 2 events, outlined below, are to be facilitated in the planning of work programs as works may not be permitted during these classes of events. For example, works are not permitted to happen between 3pm and midnight during the Vivid Festival in and around the CBD, Pyrmont and parts of Chatswood. Other areas and times may be incorporated in these restrictions in the future.

In addition, pedestrian activity in the CBD and shopping centres increases significantly during December and early January, in the lead up to Christmas and the post-Christmas sales. Increased tourist numbers and frequent cruise ship arrivals and departures also occur during this period. City of Sydney has a policy of not permitting works that will cause disruption to the retail core of the city during December. Works that would have a significant impact on pedestrian paths and station accesses should be minimised during these periods and/or additional and increased interface supervision between the site and the adjoining pedestrian network.

The RMS special event management guidelines identify four classes of special events. These classes provide direction on the approvals required, timeframes and methods of advertising measures such as road closures and other aspects of the event. The document can be found at http://www.rms.nsw.gov.au/trafficinformation/downloads/special_events_guide_part1.pdf.

The classes of events can be summarised as follows:

- **Class 1**: is an event that impacts major traffic and transport systems and there is significant disruption to the non-event community. For example: an event that affects a principal transport route in Sydney, or one that reduces the capacity of the main highway through a country town.
- **Class 2**: is an event that impacts local traffic and transport systems and there is low scale disruption to the non-event community. For example: an event that blocks off the main street of a town or shopping centre but does not impact a principal transport route or highway.
- **Class 3**: is an event with minimal impact on local roads and negligible impact on the non-event community. For example: an on-street neighbourhood Christmas party.
- **Class 4**: is an event that is conducted entirely under Police control (but is not a protest or demonstration). For example: a small march conducted with a Police escort.

During the project, special consideration and traffic planning will need to be undertaken for each of the sites to address the road user needs during programmed special events. It should also include the response to ad hoc events that may occur with minimal notice, including marches, protests and other public events.

The traffic management requirements of Special Events may require adjustments to times of operation and routes used for haulage or delivery operations as well as varying road occupancy licence (ROL) conditions for Sydney Metro City & Southwest construction. The ROL approval and CTMP approvals will identify any time and day restrictions, taking in to account any known potential conflicts at the time of submission and approval.

Sydney Metro City & Southwest Contractors will be responsible for identifying special events that occur in the area of the worksite, incorporating known special events into the construction program and to detail responses and contingencies in the CTMP for each site. This co-ordination will occur through the Sydney Coordination Office, approved event registers of Councils, Barangaroo Development Authority, the TCG and the TTLG.

During development of the site CTMP's the proposed traffic management measures should take account of major and regular events such as ANZAC Day and the Vivid Festival, as two examples, to ensure that proposals do not impede or impact on these events.

3.6.7 Traffic Control Plans

All Traffic Control Plans (TCP) to be used for the site works will be developed in accordance with Australian Standard 1742.3 and the RMS "Traffic Control at Worksites Manual" (http://www.rms.nsw.gov.au/business-industry/partners-suppliers/documents/technical-manuals/tcwsv4i2.pdf) by a suitably qualified person.

A "suitably qualified person" to prepare TCP's is a person who has undertaken and passed the RMS' "Traffic Control at Worksites Manual" training course and holds a minimum qualification of "Prepare Work Zone Traffic Management Plan" (:http://www.rms.nsw.gov.au/business-industry/partners-suppliers/traffic-control-training/).

All worksites and related TCP's will be implemented in compliance with the approved ROL and appropriate standards.

3.6.8 Adjustments to traffic signals

Any temporary or permanent works which impact upon the operation or require the reconstruction or adjustments to traffic signals requires RMS approval of the traffic signal design plans, prior to the commencement of any work. This will require entering in to a Works Authorisation Deed (WAD) with RMS.

The Contractor will need to take account of potentially lengthy approval lead times in any works involving traffic signal construction or modifications. Additional time may also be required to facilitate the modification of the electronic hardware, in addition to undertaking any physical changes onsite.

The Contractor will be responsible for the preparation of any traffic signal designs and obtaining the necessary approvals, allowing sufficient time in order to maintain the works program. Designs should comply with the RMS Traffic Signal Design Manual (RTA/Pub 08.092). Any works at a traffic signal site shall be carried out by an RMS accredited traffic signal contractor. A list of contractors can be found at http://www.rms.nsw.gov.au/business-industry/partners-suppliers/tenders-contracts/prequalified-contractors.html.

3.6.9 Over-dimension or Over-mass vehicle permits

Prior approval for the passage of any proposed oversize or overmass vehicles is required from RMS for State Roads and Councils where using Regional or local roads and, an authorisation permit issued prior to the operation of the vehicle.

3.6.10 Adjustments to bus routes and stops

Any proposed adjustments or relocation of bus stops to facilitate construction works require the prior approval of TfNSW, SCO, the local Council and affected bus operators prior to submitting an ROL application to TMC.

3.6.11 Adjustments to Australia Post boxes or other roadside furniture

Consultation regarding the relocation and/or adjustments to post boxes and the associated kerbside 'Mail Zone' will be required to be undertaken with Australia Post and the relevant road authority. In some instances post boxes may be able to be relocated however, there will be instances where the post box, for heritage requirements, will not be able to be relocated. These post boxes will need to be protected to ensure that they are not damaged during construction works.

Adjustments or relocation of other roadside furniture or modifications to signposting such as advisory signs or regulatory signs will require consultation and approval of the owner. In most cases this will be the local Council. Changes to regulatory signposting on local roads will require the approval of the Local Traffic Committee.

3.6.12 Council traffic committees

Each Council is delegated authority by RMS on certain aspects for the control of traffic on regional and local roads, including regulatory signposting. The delegation requires Council to seek the advice of the NSW Police and RMS prior to exercising these delegated functions. This is usually done through the establishment and consultation with the Local Traffic Committee.

Councils can sub-delegate the approval of certain traffic control measures e.g. Works Zones, to an appropriate staff member. These further delegations are determined by each individual Council. Contractors will need to consult with Council on the extent of the delegations.

Where possible, the Contractor should endeavour to secure all necessary Council approvals under delegation so as to avoid the need for approvals to be secured through the Local Traffic Committee and Council meetings.

The Local Traffic Committee is a technical committee which considers matters related to prescribed traffic control devices and traffic control facilities for which the Council has delegated authority. It is made up of four formal, or voting, members:

- One representative of Council (may be a Councillor or council officer)
- One representative of the NSW Police
- One representative of RMS
- The local State Member of Parliament or their nominee

Matters that may need to be considered by the Local Traffic Committee include:

- Establishment of a kerbside 'Work Zone' on a local or regional road.
- CTMP's
- Other changes to parking restrictions
- Road closures

3.7 Management of Construction Traffic

3.7.1 Haulage routes

Designated access routes for heavy vehicle movements during demolition, construction and spoil removal will be along the arterial (State) road network as much as practically possible. Condition E85 requires that heavy vehicles must not use local roads unless no feasible alternatives are available.

Details of any proposed routes for heavy vehicle access will be developed in consultation with the relevant state or local government authority and detailed in the appropriate section of the site specific CTMP (Condition E88).

Where haulage routes differ from the primary and secondary routes shown in the EIS/Submissions Report/PIR, the Contractor will need to document these in the contract wide and site specific CTMPs and undertake a consistency assessment of the proposed variations.

In addition, measures should be in place to avoid heavy vehicles queuing on the road network near the worksite. In general, the sites for this project have a very constrained road network surrounding the site and the parking of vehicles on the surrounding road network will not be possible. A suitable off-street truck marshalling area and logistics facility will be required to ensure that heavy vehicle queuing on the road network does not occur within the Sydney and North Sydney CBDs or other locations where the road network is constrained (Condition E89).

It will be necessary for the contractor to develop a timetable of arrivals and departures to ensure a consistent and timely arrival and departure of vehicles for the site. This should be communicated to all sub-contractors and operators prior to commencement of works.

It should also be noted that there will be a need to minimise the volume of truck movements in the CBD areas during the peak periods of 7-10am and 4-7pm, Monday to Friday (excluding public holidays). The Contractor will be required to schedule minimal arrivals and departures of trucks during these peak periods. Heavy vehicle movements through designated 'School Zone' should be minimised when these zones are in operation (8-9:30am, 2:30-4pm, school days)

3.7.2 Dilapidation surveys

Condition E90 of the conditions of approval states: *"Road Dilapidation Report must be prepared for local roads proposed to be used by heavy vehicles for the purposes of the CSSI before the commencement of use by such vehicles. Copies of the Road Dilapidation Report must be provided to the Relevant Council within three (3) weeks of completing the surveys and no later than one (1) month before the use of local roads by heavy vehicles."*

Dilapidation surveys of local and regional roads, where used by worksite traffic, will be required to be undertaken prior to the commencement of contracted works. Monitoring will be carried out to the satisfaction of, and dilapidation report in a format acceptable to the relevant local government authority submitted to the relevant local government authorities. The proponent will be responsible for any necessary repair of deterioration attributable to the impacts of construction activity as provided in condition E91 as follows:

"If damage to roads occurs as a result of construction of CSSI, the proponent must either (at the landowner's discretion):

(a) Compensate the landowner for the damage so caused. The amount of compensation may be agreed with the landowner; or
(b) Rectify the damage so as to restore the road to at least the condition it was before construction commenced as identified in the road Dilapidation Report(s)."

If the selected route is already subject to some heavy vehicle use, this should be surveyed and the information provided as part of the initial assessment of the route.

3.7.3 Chain of Responsibility and Heavy Vehicle National Law

Contractors must have systems in place to ensure compliance with Chain of Responsibility legislation, including the Heavy Vehicle National Law and regulations at all times. All necessary heavy vehicle approvals and permits (e.g. oversize, over mass, etc.), must be obtained from the relevant road manager. Specific Chain of Responsibility requirements are further outlined in the SM PS-ST-221 Sydney Metro Principal Contractor Health and Safety Standard.

3.7.4 Management of heavy vehicle movements

Vehicle and pedestrian access to each work site, including the locations of entries, exits, turning restrictions, slip lanes, traffic signals, signage and other site management requirements will be established in line with the requirements of the project approvals and in consultation with RMS, SCO, BDA and Councils. The contractor is responsible for supervising heavy vehicle movements to ensure compliance with the requirements of this CTMF and relevant authorities.

All vehicles are to enter and exit the work sites in a forward direction, where possible. If this cannot be achieved then traffic control is to be provided. Refer to Section 7.3 of the RMS "Guide to Traffic Control at Worksites".

3.7.5 Work zones and heavy vehicle marshalling

During some stages of the works at each of the sites there may be a requirement for making use of kerb space on the adjacent street to enable short term parking or unloading for deliveries to the site. Applications for a 'Works Zone' will be undertaken by the contractor to the relevant authority (Council for local and regional roads and RMS for State Roads). The use of a 'Works Zone' should be minimised as much as practicable. Where approved, 'Work Zone' locations are to be included in site specific CTMP's.

In general, Work Zones will not be permitted within existing Bus Zones and their operating times, unless arrangements have been approved for the relocation of the Bus Zone.

During times of continuous construction traffic activity, such as during excavation works, one or more remote truck marshalling and logistics facilities will be required to assist with construction traffic management and to minimise disruptions to other road users. These facilities will need to be identified and an effective method of heavy vehicle arrivals established and approved in accordance with Condition E89.

3.7.6 Construction/demolition vehicle types

In order to minimise the number of heavy vehicle movements on the road network, the selection of vehicle size will consider the number of movements required, the impact of the quantity of vehicles on road and pedestrian movements, road geometry and safety. It is recognised that the Sydney and North Sydney CBD sites will have constraints on access routes, safety considerations and site constraints.

The types of truck to be used for the transporting of materials will be assessed in consultation with the relevant authorities in the preparation of the site CTMP's.

Higher mass and longer heavy vehicles will be required to transport particular materials to and from the sites (some under permit) and these would be subject to separate approvals. Daytime weekday use of truck and dog combinations within the Sydney CBD is not supported.

It is anticipated that contractors will need to make greater use of truck and dog heavy vehicle combinations than envisaged in the EIS. Details of proposed truck and dog use will be provided in the CTMPs.

3.7.7 Worker access and parking

The constrained nature of the sites requires that car parking for construction personnel would not be able to be provided at most sites. With the exception of the Chatswood and Marrickville dive sites there may be the opportunity to provide minimal light vehicle parking spaces for engineers and other site management staff use.

The Chatswood and Marrickville Dive sites could provide up to 300 car parking spaces each, within the site. These parking facilities may provide the opportunity to be used as park and ride

locations for workers from other sites with shuttle buses operating from the dive sites to other work sites. The Contractor may also be required to identify remote parking areas for workers, in order to minimise any impacts of workers parking on-street.

The assumption for all site specific CTMP's is that there will be no provision, either on the road or within the work site, for worker parking. Workers should be encouraged to use public transport in travelling to and from the work sites.

3.7.8 Construction consolidation centre/depot

To mitigate the potential impact of construction traffic the provision of a centralised Project Centre should be considered. This centre could receive deliveries and arrange for combining of loads and materials for distribution to the various work sites. This may be incorporated into the truck marshalling and logistics facility.

This would have the potential to significantly reduce construction traffic movements to the sites, particularly for small loads.

3.7.9 Driver training

Heavy vehicle drivers should be made fully aware by the Contractor of the worksite traffic management arrangements and site access requirements including approach and departure routes, and any heavy vehicle noise management measures required. Driver training should take into account current best practice and information including Cycle Awareness Training.

The Contractor is to ensure that daily briefings are provided to drivers on routes, potential changes and impacts on the routes in the form of toolbox talks.

Contractors must ensure mandatory completion of the Sydney Metro City & Southwest project specific Heavy Vehicle Driver Introduction Training.

Contractors are required to have systems in place to monitor vehicle locations at all times and address any identified non-conformances.

3.8 Worksites

Details of the proposed erection and maintenance of hoardings, scaffolds and associated structures shall be documented in the Construction Traffic Management Plans in accordance with the SSI approval (Condition E81). Where reasonable and feasible, all worksite boundaries will be clearly defined with the use of hoardings. The CTMPs will identify the boundaries and detail accesses for the site, the footpath and road controls. Activities within the worksite are excluded from the CTMPs except in relation to ensuring the movement of construction traffic in and out of the worksite is physically possible and can be done safely.

Worksites include any gantries, or other structures associated with the site layouts. The site specific CTMPs will consider these interactions and the impacts of gantries, etc. on the road and footpaths.

3.8.1 Hoardings

Hoardings will be required to be erected around the construction sites so as to protect the site and any passing pedestrians and vehicles. These may also need to provide site facilities for the worker's on the site due to the constrained nature of the sites. The erection of hoardings around the sites may require the consideration and approval of the local Council.

In providing any hoarding and gantry structure, consideration will be given to ensuring sight lines for side roads, vehicle accesses, signposting, and traffic signals are maintained. The City of Sydney has published policies on hoardings, accessible on its web site. While the policy

document provides guidelines for the presentation of the hoarding, the branding and visual aspects of the hoarding are to be in line with TfNSW/Sydney Metro requirements.

Each Council may specify requirements for the type of hoarding proposed and may require the submission and approval of an application prior to the commencement of the site establishment works. Detailed information should be obtained from the respective Council websites. In some locations, there may also be a requirement for the hoarding to comply with design guidelines. All hoardings around Sydney Metro construction sites should comply with the TfNSW/Sydney Metro branding requirements.

Council is likely to require the submission of an application for the erection of any hoarding or crane on the site. Information that would be required to be submitted with the application can include, but not limited to, the following:

- Plans of the proposed hoarding and/or crane drawn to scale, elevations of hoardings and identifying any Council or other asset that may be impacted.
- An engineer's statement on the proposed hoarding and any facilities to be provided.
- Approval from NSW Police.
- Approval from RMS (for sites located on a State Road or on any road within 100m of traffic signals).
- Structural certificate (for Class B Hoarding)

For North Sydney Council, the Hoarding application form can be found at http://www.northsydney.nsw.gov.au/Council_Meetings/Forms/Building_Development_Forms/Construction_Forms#4.

For Willoughby Council, the Hoarding application form can be found at http://www.willoughby.nsw.gov.au/About-Council/Forms-Policies---Publications/councilforms/permit-application---hoarding/.

For City of Sydney Council, the Hoarding application form and other information can be found at http://www.cityofsydney.nsw.gov.au/development/building-and-construction-approvals/temporary-structures/hoardings-and-scaffolding.

For Inner West Council, the Hoarding application form can be found at http://www.marrickville.nsw.gov.au/Templates/Advanced/Bridge/TrimDownload.aspx?TrimDocNum=15221.00

In addition, some Councils may have specific requirements for the type of hoarding and operational requirements. A sample of some of the hoarding requirements of City of Sydney Council is provided below. The contractor should check with Council over any specific requirements.

"The design of hoardings will have an important impact on the success of pedestrian and vehicle management measures. The following considerations will be taken into account in designing hoardings:

- *Surfaces are bright*
- *Smooth surfaces are used which allow pedestrians to brush past without snagging (this reduces shying from the edge)*
- *Surfaces are regularly cleaned and inspected*
- *Removal of graffiti and advertisements*
- *Adequate lighting provided*
- *Where adjacent to road edge a minimum hoarding offset of 500mm from the road edge with design feature to prevent pedestrians walking alongside the kerb.*
- *A City of Sydney preference for concertina style driveway gates rather than fixed rigid gates."*

The application for permits to erect hoardings may differ between Council's and this will need to be considered for each worksite.

3.9 Site security, site access and Signage

The issues to be considered in determining the location of site accesses are:

- Safety of travelling public.
- Safety of construction workers and equipment.
- Efficient and safe entry and exit to the site, consistent with the requirements of the relevant Australian Standard, Austroads or RMS guidelines.
- Impact on local communities in terms of safety, noise and road damage.
- Ease of access for emergency vehicles.
- Site security.

The worksites will have appropriate arrangements to discourage entry without approval and minimise vandalism. All access points to work sites will have lockable gates.

Appropriate information signs will be provided at work sites to identify the Project and contact persons.

Contractors will be required to develop and prepare Security Management Plans based on the site specific security threats (hazards) identified. Requirements for Security Management Plans are outlined in the SM PS-ST-221 Sydney Metro Principal Contractor Health and Safety Standard.

3.10 Safety Audits

3.10.1 Purpose and benefits

A Road Safety Audit (RSA) *"assesses a road's safety performance and crash potential at various stages of a road/project's life cycle"* (Road Safety Audits Fact sheet – RTA 2010).

It is a formal procedure for checking the design, implementation and operation of road works and other traffic measures from a safety perspective. The establishment of quality systems provides the philosophy underpinning the RSA process. The overriding objective of the process is to ensure that all existing road schemes and future routes operate at an acceptable level of safety, with safety being an integral part of the road network development process (Condition E87).

The benefits of a RSA's are that:

- The likelihood of crashes on the road and the adjacent network can be reduced.
- The severity of crashes can be reduced.
- Road safety is given prominence in the minds of road designers.
- The need for costly remedial work is reduced.
- The total cost of a project to the community, including crashes, disruption and trauma, is reduced.

3.10.2 Stages when Road Safety Audits are undertaken

Road Safety Audits will be undertaken at the following stages:

Detailed Design Stage

At this stage, the geometric design, traffic signage scheme, linemarking plans, lighting plans and landscaping plans are available and will be reviewed in in relation to the operation of the road.

Pre-Opening Stage

Prior to the opening of a site, an inspection will be made for all relevant conditions at night and during the day for all likely road users to ensure that the construction has addressed earlier

audit concerns and to check for any hazardous conditions that were not apparent at the feasibility or design stages.

Road Safety Audits of Temporary Work/Construction Traffic Management Plans

Sydney Metro City & Southwest and/or its contractors will undertake Road Safety Audits for CTMP's, to be submitted with the CTMP.

Regular safety audits of work zones are also to be undertaken to ensure all worksite safety arrangements are in place. These audits will be additional to the daily inspections by the site staff. Particular attention will be given to WHS guidelines, work areas adjacent to the road, movement of construction traffic, vehicle speeds and all warning devices or systems.

Road Safety Audit Procedure

All Road Safety Audits will be undertaken in accordance with the RMS 'Guidelines for Road Safety Audit Practices (2011), with reference to current practices outlined in Austroads Guide to Road Safety Part 6 Road Safety Audit (2009) and the Sydney Metro Principal Contractor H&S Standard.

3.11 Pedestrian security/safety/lighting

The consideration of safety and security issues for pedestrians will be considered at all worksites. Any hoardings or other structures on the site boundaries will have lighting in accordance with current standards, particularly where existing street lighting is removed or obscured as a result of the site works. In those locations where this occurs, supplementary lighting is to be provided to meet the current standards.

Discussions will be carried out with the relevant authority or operator of CCTV cameras if the coverage or operation of CCTV cameras is impacted by the works. The relevant authority may be RMS, Council, other authority or building owner.

3.12 Management of risks to vulnerable road users

The Contractor is to adopt applicable vulnerable road user safety measures as per the SM PS-ST-221 Sydney Metro Principal Contractor Health and Safety Standard to minimise the road safety risks to pedestrians, cyclists and motorcyclists en-route to, and in the vicinity of, construction sites. Such measures include, but are not limited to:

- The deployment of speed awareness signs in conjunction with variable message signs;
- Heavy vehicles equipped with systems to improve vehicle safety, visibility and the detection of vulnerable road users;
- Mandatory completion of Sydney Metro City & Southwest project specific Heavy Vehicle Driver Introduction Training; and
- Contractor engagement in shared experience educational events.

Where worksites have an impact on footpaths, consideration will be given to the requirements of all pedestrians and especially vulnerable road users (school children, elderly and mobility impaired).

DDA requirements will be adopted with kerb ramps or other measures provided at road crossings. Footpath widths are required to allow for two way pedestrian traffic allowing for prams/strollers and wheelchairs to pass each other.

Where high numbers of vulnerable road users are using a footpath, special provision and design consideration may be required to mitigate any impacts.

4 Proposed Work Method

The stations along the proposed Sydney Metro City & Southwest route will be a mixture of mined caverns or cut-and-cover excavations.

A single span mined cavern is proposed for Victoria Cross (North Sydney) with binocular mined caverns proposed for Martin Place and Pitt Street stations. Crows Nest, Barangaroo, Central and Waterloo are proposed to be constructed as cut-and-cover stations.

Tunnel Boring Machines (TBMs) will be used to excavate the twin tunnels. Two machines are proposed to commence at Chatswood and tunnel to Blues Point with a further two TBMs commencing at Sydenham and tunnelling to Barangaroo. A fifth, specialist TBM for operations in soft soils will be used to tunnel the section from Barangaroo to Blues Point and under the harbour.

A primary worksite will be established at the surface to support the station construction. Secondary worksites will be required to support tunnelling, power supply and station excavations. While site constraints at the surface level for the stations are significant and will impact on pedestrian and vehicular traffic for the period of construction, it is an RMS operational imperative that the capacity and efficiency of the network is not reduced, particularly during peak periods (7-10am, 4-7pm, Monday-Friday – excluding public holidays). Heavy vehicle movements are to be minimised during these periods.

Station shafts will be excavated using conventional excavation methods and the station caverns will be excavated using roadheaders and rock breakers. Cavern excavation would be completed prior to the arrival of the TBM which will be excavating the main tunnels. The TBM's will be pulled through the station cavern and prepared for the tunnelling excavation to the next station. A range of activities will be required at the primary worksite to support this process.

The main heavy vehicle generating activity will be associated with spoil removal from the tunnelling excavation and the excavation of the stations, entrances/surface connections, emergency egress and ventilation shafts. Other activities that would be supported by heavy vehicle activities include:

- Enabling works including building demolition works, power, water and other utilities, and site establishment of the station worksites.
- Ground support and lining works for stations with plant and materials delivered to the station sites from the surface.
- Delivery of tunnel linings from the pre-cast yard at the Marrickville dive site to other tunnel boring machine launch sites at Chatswood dive site and Barangaroo.
- Structural concrete works for station entrances, emergency egress and ventilation shafts, with internal building works and station architectural fit-out.
- Specialised installation works associated with station platforms, concourses, accommodation and circulation areas, services and other amenities, station entry/exit gates, platform screens and doors and barrier installation.
- Mechanical and electrical fitout of station services and communication systems.
- Testing and commissioning station and train systems.

4.1 Traffic Management Considerations

4.1.1 Site Specific Issues

The individual CTMPs for each of the sites will provide details on the various construction and traffic related issues, and measures to mitigate those issues (where possible). **Table 4.1** summarises some of the issues identified for each of the worksites. The site specific CTMP's will also need to consider, assess and identify potential traffic management measures with

regard to construction traffic from other developments as information becomes available. This will be facilitated through the TCG and TTLG meetings.

Table 4.1 – Site issues

Station/Worksite	Key Issues
Chatswood Dive Site	• Closure of Nelson Street. • Introduction of traffic signals at the Mowbray Road / Hampden Road intersection to accommodate construction traffic. • Pedestrian and cyclist safety. • Access to Mowbray Road. • Residential access (Nelson Street). • Gordon Avenue site access. • Construction traffic from other developments.
Artarmon Services Facility	• Load limit on sections of Reserve Road. • Business access.
Crows Nest Station	• Pedestrian and cyclist safety. • Closure of Hume Street. • Pedestrian activity on Pacific Highway. • Relocation of bus stops. • Business and residential access. • Construction traffic from other developments.
Victoria Cross Station	• Pedestrian and cyclist safety. • Pedestrian activity on Miller Street, Berry Street, Denison Avenue. • Impact on bus stops and bus operations. • Impact of heavy vehicle movements on sensitive receivers (residents, schools). • Business and residential access. • Construction traffic from other developments.
Blues Point (not impacted by SYAB or Demolition contracts)	• Community / resident amenity. • Adjacent residential buildings. • Steep grade on approach and departure to site. • Impact on parking and public reserve. • Impact of heavy vehicle movements on sensitive receivers (residents, businesses, schools). • Impact on bus stop and bus services.

Station/Worksite	Key Issues
Barangaroo (not impacted by SYAB or Demolition contracts)	• Impact on Hickson Road carriageway. • Pedestrian and cyclist safety. • Impact on service vehicle access to OPT. • Special Events. • Adjacent construction activity. • Sensitive community. • Construction traffic from other developments. • Impact on parking
Martin Place	• Pedestrian and cyclist safety. • Pedestrian activity in Martin Place, Castlereagh Street, Elizabeth Street, Hunter Street. • Impact on bus stops and bus operations. • Special Events. • Impact on service vehicle parking and car parking. • Construction traffic from other developments.
Pitt Street	• Pedestrian activity in Pitt Street, Castlereagh Street, Bathurst Street and Park Street. • Pedestrian and cyclist safety • Impact on bus stops and bus operations in Park Street. • Special Events. • Impact on service vehicle parking. • Construction traffic from other developments.
Central (not impacted by SYAB or Demolition contracts)	• Pedestrian activity in the Central Station precinct and Eddy Avenue. • Pedestrian and cyclist safety. • Bus and coach operations. • Light rail construction and operation in Eddy Avenue and Chalmers Street. • General precinct traffic congestion. • Impact of heavy vehicle movements on sensitive receivers (residents, schools). • Residential and business access. • Construction traffic from other developments.
Waterloo	• Nearby residential development. • Pedestrian and cyclist safety. • Impact on parking and traffic movements on Botany Road. • Construction traffic from other developments.

Station/Worksite	Key Issues
Marrickville Dive Site	• Managing access to Bedwin Road and Edgeware Road from Edinburgh Road. • Pedestrian and cyclist safety. • Traffic activity for Marrickville Metro shopping centre and surrounding commercial uses. • Construction traffic activity for the Marrickville Metro shopping centre expansion and the surrounding streets. • Construction traffic activity for the WestConnex site in St Peters, particularly with the involvement of May Street, Campbell Street, Bedwin Road & Edgeware Road.

5 Operational Requirements

5.1 Traffic control at worksites

The Contractor must develop and implement Construction Traffic Management Plans to minimise and mitigate traffic impacts, including road safety impacts, caused by the Contractor's activities (Condition E82). In consultation with the TMC, RMS, SCO and relevant local Council, the Contractor must develop, formalise and implement, traffic management, control and operational protocols, procedures, processes, systems and communication between the Contractor and the TMC and SCO. Works within the road reservation will be identified in the CTMP.

This consultation will be initiated through the TTLG.

5.1.1 Policy and responsibilities

Work zones provide for the safe operation of road workers and the safe passage of vehicular and pedestrian traffic. Traffic control devices are provided to warn, instruct and guide road users safely through, around or past work sites on roads and footpaths.

An important aspect is for the planning and staging of the works to ensure that any workers required to work on or near the road are separated from traffic as much as possible. Traffic control at worksites is to be provided in accordance with the latest edition of the RMS' "Guide to Traffic Control at Work Sites" manual and the Sydney Metro Principal Contractor Health and Safety Standard. Australian Standard AS 1742.3 "Manual of uniform traffic control devices – Traffic control for works on roads" is also to be referenced when determining traffic controls and signposting.

It is the responsibility of all personnel engaged on the project and at worksites to ensure that any works carried out on the road are done so in a safe and efficient manner. The contractor will prepare specific Traffic Control Plans (TCP) for all work which will impact on the road and traffic.

TCP's are required to be prepared by a suitably qualified person who holds a current RMS certificate to "Prepare Work Zone Traffic Management Plan".

When temporary or construction speed limits are required, the contractor will be required to make the necessary application to either RMS for classified roads or the local council for unclassified roads. This application will need to be submitted with sufficient time prior to the proposed implementation, to allow for processing and authorisation.

5.1.2 Traffic Control Techniques

There are a number of traffic control methods that can be used at worksites that must be selected in accordance with the hierarchy of controls to ensure safety risks to workers (including traffic controllers) and the public are minimised So Far As Is Reasonably Practicable (SFAIRP). These include:

- Temporary road deviations.
- Linemarking with raised pavement markers to delineate proposed diversion.
- The use of traffic cones, water filled barriers or other physical devices to delineate the required route.
- Directional and information signposting to direct or advise drivers. This can include Variable Message Signs (VMS), directional arrows or static signs.
- Portable traffic signals to control traffic flows if lane closures are required.
- Other traffic control devices as provided in the RMS' Traffic Control at Work Sites

manual.

Refer also to the Sydney Metro Principal Contractor Health and Safety Standard.

For longer term works, where traffic management devices are in place for an extended length of time, regular inspections are to be carried out by the Contractor's Construction Manager. This is to ensure that the controls in place continue to provide safe traffic management. All controls are to comply with the current RMS guidelines.

5.1.3 Approved clothing for work personnel

Any worker working near traffic will be required to wear clothing in accordance with the requirements of Australian Standard AS1742.3 and Sydney Metro Principal Contractor Health and Safety Standard.

5.1.4 Plant and equipment

Any plant used and working near traffic or pedestrians is to be suitably highlighted with physical protection and appropriate warning signs provided to ensure public safety. Refer also to the plant section of the Sydney Metro Principal Contractor Health and Safety Standard.

5.2 Frequency of inspections

For long term, i.e. longer than one shift, traffic management road inspections will be carried out regularly to ensure the safe movement of traffic and the protection of persons and property through and/or around the work site. The required inspections of all temporary traffic control devices are detailed in **Section 5.2.1**.

Inspections will ensure that all signs and devices are properly located, oriented and maintained in an effective condition, and that the layout is satisfactory and not confusing to motorists or pedestrians. Records will be maintained by the contractor of all traffic guidance facilities and any adjustments or changes made to such facilities, together with dates and times the facilities were installed, varied and removed. Inspection reports recording dates and times of inspections of the traffic management facilities are to be recorded on a suitable proforma and made available for inspection.

Incidents are to be reported, investigated and actioned in accordance with the Sydney Metro Principal Contractor Health and Safety Standard.

5.2.1 Inspections of roadwork traffic management schemes

The requirement to undertake inspections of traffic control measures is outlined in Section 6.1 of the RMS' "Traffic Control at Work Sites Manual" and Appendix A of Australian Standard AS 1742.3 "Manual of uniform traffic control devices – Traffic control for works on roads". There are three main types of inspections to be carried out:

- Pre-start and pre-close down inspections of short term traffic control.
- Weekly inspections of long term traffic control.
- Night inspections of long term traffic control.

Appendix E of the "Traffic Control at Work Sites Manual" provides inspection check lists and forms that can be used for all of the inspections whether short term, long term or night. The responsibility and frequency of the inspections required is provided in Section 6.1 of the "Traffic Control at Work Sites Manual".

5.3 Emergency Incident Planning

Incident management planning must be carried out in accordance with the Sydney Metro Principal Contractor Health and Safety Standard, and must include incidents that could occur on roads. An Incident Management Plan for on-road incidents, or incidents that impact on the public transport network should be submitted to the TMC Emergency Transport Operation section for review and comment.

Examples of incidents could include the following:

- Traffic crashes
- Hazardous material spillage
- Power failure
- Terrorist attack
- Flooding
- Fire
- Structural damage to a rail line, building, road tunnel or bridge.

The Incident Management Plan should include procedures such as:

- Duties of workers attending the site
- Procedures for contacting Police, emergency services, back-up assistance from the relevant road authority
- Equipment that is to be ready at all times on potential call-out vehicles[1]

All details of incidents that occur within the area of an approved ROL are to be recorded by the contractor and reported and investigated in accordance with the requirements of the Sydney Metro Principal Contractor Health and Safety Standard.

5.3.1 Accidents/incidents and complaints

The contractor's ROL register will maintain records of traffic accidents and incidents reported at work sites. Any complaints received regarding traffic delays at work sites should be referred to the Principal. The contractor will be required to table the register, upon request, at TCG meetings.

The person in charge of the work site will continue to be responsible for dealing with complaints regarding safety issues. Where action is considered necessary to address the matters of complaint, an appropriate recommendation will be forwarded to the Principal.

5.3.2 Chemical spills and leaks

Information on procedures to be followed and properties of hazardous chemicals are detailed in:

- NSW Environmental Protection Authority (http://www.epa.nsw.gov.au/licensing/Dutytonotify.htm)
- Safe Work NSW codes of practice
- RMS Policy Procedure – "Procedure for Managing Hazardous Chemicals
- Our Contractors' Construction Environmental Management Plans

NSW Fire and Rescue is primarily responsible for rendering safe, and cleaning up after, incidents involving flammable or hazardous substances, vapours, gases or liquid spillage, as well as an actual fire or explosion.

[1] AS1742.3 Appendix B

NSW Fire and Rescue holds detailed information on dangerous goods and hazardous chemicals. Sydney Metro City & Southwest staff and contractors are to be instructed not to approach such spills until NSW Fire and Rescue have declared the site safe. In such cases the contractor will close the roadway at a safe distance until Fire and Rescue arrives and issues appropriate instructions.

5.4 Traffic controllers and temporary traffic signals

The use of traffic controllers and/or temporary traffic signals to control traffic at worksites is to be in accordance with the RMS' Traffic Control at Work Sites Manual and the Sydney Metro Principal Contractor Health and Safety Standard.

Variable Message Signs (VMS) will be used to inform drivers, where necessary, to avoid particular roads or areas where activities associated with Sydney Metro City & Southwest construction would cause disruption. Where these are used it is to be in accordance with documented RMS procedures and guidance.

The placement of temporary VMS is to consider pedestrian safety and disabled access needs when placed on footpaths. A ROL may be required when a portable VMS is proposed to be located in a parking or loading bay.

6 Consultation

Consultation has been carried out on an ongoing basis with Sydney Coordination Office, RMS and TfNSW in the preparation of this Framework document. This has been carried out through a series of meetings and discussions regarding various aspects of the Framework. A revised document was also provided to SCO and RMS in November 2016 for further comments. These comments have also been included.

Consultation has also been undertaken with Council officers for the following Councils:

- Willoughby Council
- Inner West Council
- North Sydney Council
- City of Sydney Council

Meetings were arranged with relevant traffic officers in each of these Councils and a summary of key points of the CTMF were provided. Councils were then asked to review the document and provided comments back to SMDO.

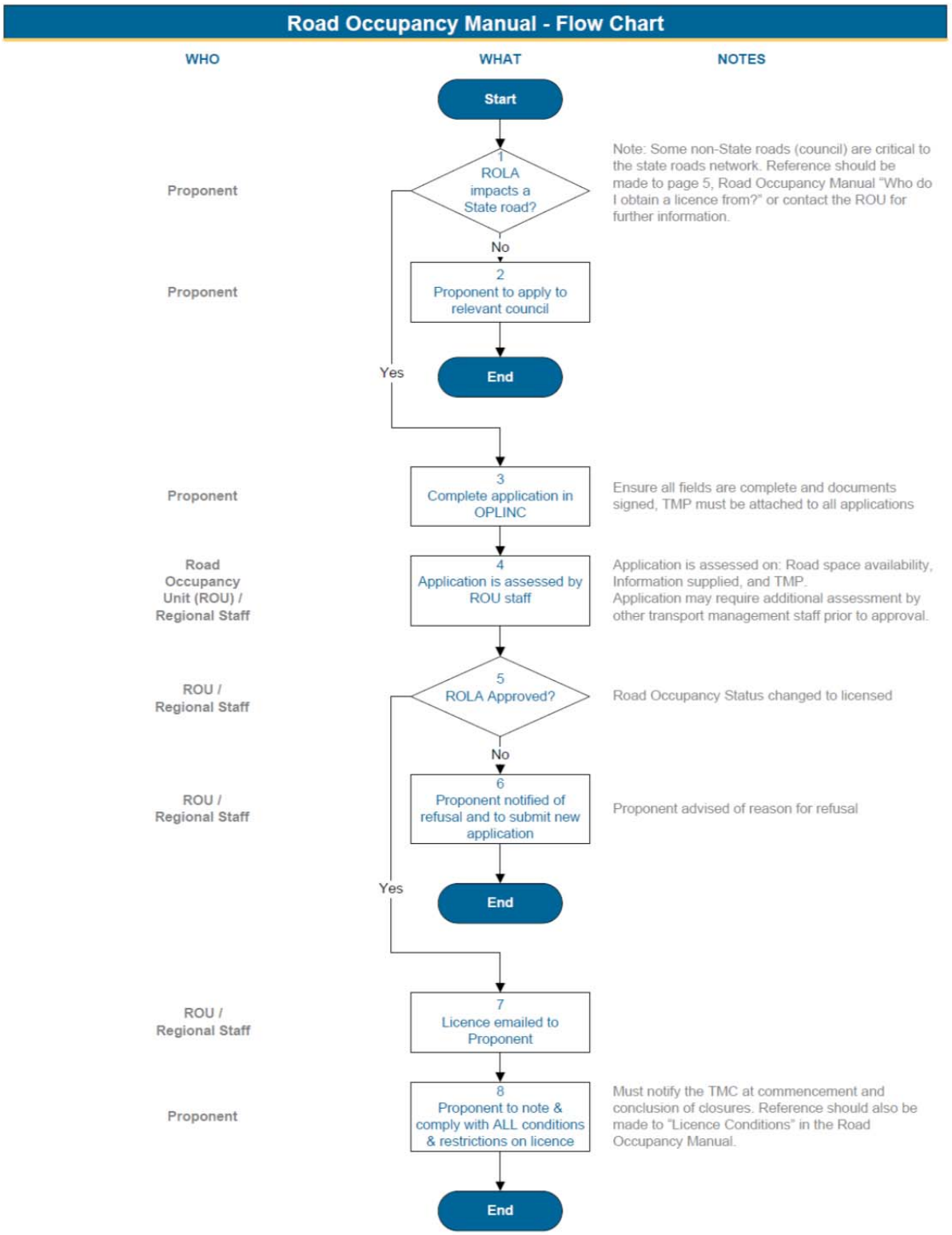
The Barangaroo Development Authority was also consulted in the development of this CTMF.

This CTMF was presented to the first meeting of the City & South West Traffic and Transport Liaison Group held on 16th February 2017.

A summary of the comments and responses from the consultations has been provided to the Department of Planning and Environment.

Appendix A

The Road Occupancy Licensing Process



Appendix B

Extract of SSI Approval and REMMS

The revised *Sydney Metro City and Southwest Construction Noise and Vibration Strategy* must be submitted to the Secretary for approval at least one (1) month before construction commences.

E33 Construction Noise and Vibration Impact Statements must be prepared for each construction site before construction noise and vibration impacts commence and include specific mitigation measures identified through consultation with affected sensitive receivers.

E34 Noise generating works in the vicinity of potentially-affected community, religious, educational institutions and noise and vibration-sensitive businesses and critical working areas (such as theatres, laboratories and operating theatres) must not be timetabled within sensitive periods, unless other reasonable arrangements to the affected institutions are made at no cost to the affected institution or as otherwise approved by the Secretary.

E35 The Proponent must review alternative methods to rock hammering and blasting for excavation as part of the detailed construction planning with a view to adopting methods that minimise impacts on sensitive receivers. Construction Noise and Vibration Impact Statements must be updated for each location or activity to adopt the least impact alternative in any given location unless it can be demonstrated, to the satisfaction of the AA, why it should not be adopted.

Standard Construction Hours

E36 Construction, except as allowed by Condition E48 (excluding cut and cover tunnelling), must only be undertaken during the following standard construction hours:

(a) 7:00am to 6:00pm Mondays to Fridays, inclusive;
(b) 8:00am to 1:00pm Saturdays; and
(c) at no time on Sundays or public holidays.

Respite for Receivers

E37 The Proponent must identify all receivers at Crows Nest, Victoria Cross, Barangaroo, Martin Place, Pitt Street and Central likely to experience internal noise levels greater than $L_{eq(15\ minute)}$ 60 dB(A) inclusive of a 5 dB penalty, if rock breaking or any other annoying activity likely to result in regenerated (ground-borne) noise or a perceptible level of vibration is planned (including works associated with utility adjustments), between 7am – 8pm.

E38 The Proponent must consult with all receivers identified in accordance with Condition E37 with the objective of determining appropriate hours of respite so that construction noise (including ground-borne noise), does not exceed internal noise levels of:

(a) $L_{eq(15\ minute)}$ 60 dB(A) inclusive of a 5 dB penalty if rock breaking or any other annoying activity likely to result in ground-borne noise or a perceptible level of vibration is planned between 7am – 8pm for more than 50 percent of the time; and
(b) $L_{eq(15\ minute)}$ 55 dB(A) inclusive of a 5 dB penalty if rock breaking or any other annoying activity likely to result in ground-borne noise or a perceptible level of vibration is planned between 7am – 8pm for more than 25 percent of the time,

unless an agreement is reached with those receivers. This condition does not apply to noise associated with the cutting surface of a TBM as it passes under receivers.

Note This condition requires that noise levels be less than $L_{eq(15\ minute)}$ 60 dB(A) for at least 6.5 hours between 7am and 8pm, of which at least 3.25 hours must be below $L_{aeq(15\ minute)}$ 55 dB(A). Noise equal to or above $L_{eq(15\ minutes)}$ 60 dB(A) is allowed for the remaining 6.5 hours between 7am and 8pm.

iv. intermittent vibration values measured at the most affected residence are no more than those for human exposure to vibration, specified in Table 2.4 of *Assessing Vibration: a technical guideline* (DEC, 2006); or

(e) where a negotiated agreement has been reached with a substantial majority of sensitive receivers who are within the vicinity of and may be potentially affected by the particular construction, and the noise management levels and/or limits for ground-borne noise and vibration (human comfort) cannot be achieved. All agreements must be in writing and a copy forwarded to the Secretary at least one (1) week before the works commencing; or

(f) construction approved through an **Out of Hours Work Protocol** referred to in Condition E47, provided the relevant council, local residents and other affected stakeholders and sensitive receivers are informed of the timing and duration at least five (5) days and no more than 14 days before the commencement of the works.

E45 On becoming aware of the need for emergency construction in accordance with Condition E44(b), the Proponent must notify the AA, the ER and the EPA (if an EPL applies) of the need for those activities or work. The Proponent must also use best endeavours to notify all affected sensitive receivers of the likely impact and duration of those works.

E46 Notwithstanding Conditions E44 and E48, rock breaking and other particularly annoying activities are not permitted outside of standard construction hours, except at Central, unless the noise management level derived from the *Interim Construction Noise Guideline* can be achieved at sensitive receivers.

Out of Hours Work Protocol

E47 An **Out of Hours Work Protocol** for the assessment, management and approval of work outside of standard construction hours, as defined in Condition E36 of this approval, must be prepared in consultation with the EPA and submitted to the Secretary for approval before construction commences for works not subject to an EPL. The protocol must include:

(a) the identification of low and high risk construction activities;
(b) a risk assessment process in which the AA reviews all proposed out of hours activities and identifies their risk levels;
(c) a process for the endorsement of out of hours activities by the AA and approval by the ER for construction activities deemed to be of:
    i. low environmental risk; or
    ii. high risk where all construction works cease by 9pm.

All other high risk out of hours construction must be submitted to the Secretary for approval unless otherwise approved through an EPL.

The protocol must detail standard assessment, mitigation and notification requirements for high and low risk out of hours works, and detail a standard protocol for referring applications to the Secretary.

24 Hour Construction

E48 Notwithstanding Condition E36 of this approval and subject to Condition E47, the following activities may be undertaken 24 hours per day, seven (7) days per week:

(a) tunnelling and associated support activities (excluding cut and cover tunnelling);
(b) excavation within an acoustic enclosure;
(c) excavation at Central without an acoustic enclosure;
(d) station and tunnel fit out; and
(e) haulage and delivery of spoil and materials.

E68 A copy of the **Site Audit Statement** and **Site Audit Report** must be submitted to the Secretary and Council for information no later than one (1) month before the commencement of operation.

E69 An **Unexpected Contaminated Land and Asbestos Finds Procedure** must be prepared and must be followed should unexpected contaminated land or asbestos be excavated or otherwise discovered during construction.

E70 The **Unexpected Contaminated Land and Asbestos Finds Procedure** must be implemented throughout construction.

SUSTAINABILITY

E71 The proponent must seek to achieve a best practice level of performance for the CSSI using market leading sustainability ratings tools (including a minimum 'Design' and 'As built' rating score of 65 using the Infrastructure Sustainability Council of Australia infrastructure rating tool, or an equivalent level of performance using a demonstrated equivalent rating tool).

E72 The Proponent must prepare a **Sustainability Strategy** to be submitted to the Secretary within six (6) months of the date of this approval, or within another timeframe agreed with the Secretary, which must be implemented throughout design, construction and operation of the CSSI. The Sustainability Strategy must include:

(a) details of the sustainability objectives and targets for the design, delivery and operation of the CSSI;
(b) details of the sustainability initiatives which will be investigated and / or implemented; and
(c) a description of how the strategy will be implemented for the CSSI.

E73 Opportunities to reduce operational greenhouse gas emissions must be investigated during detailed design. The sustainability initiatives identified must be implemented, reviewed and updated regularly throughout design development and construction, and annually during operation.

E74 The Proponent must fully offset the greenhouse gas emissions associated with consumption of electricity during operation of the CSSI.

TRAFFIC, TRANSPORT AND PEDESTRIAN ACCESS

E75 The CSSI must be designed, constructed and operated with the objective of integrating with existing and proposed road and related transport networks and minimising adverse changes to the safety, efficiency and, accessibility of the networks, and facilitate an improved level of service in relation to permanent and operational changes. Detailed design and assessment of related traffic, parking, pedestrian and cycle accessibility impacts and changes shall be undertaken:

(a) in consultation with, and to the reasonable requirements of the Traffic and Transport Liaison Group(s) established under Condition E77;
(b) in consideration of existing and future demand, connectivity (in relation to permanent changes), performance and safety requirements;
(c) to minimise and manage local area traffic impacts;
(d) to ensure access is maintained to property and infrastructure; and
(e) to meet relevant design, engineering and safety guidelines, including Austroads, Australian Standards, and RMS (RTA) requirements.

Copies of civil, structural and traffic signal design plans shall be submitted to the Relevant Road Authority for consultation before the commencement of the relevant works.

E76 Permanent road works, including vehicular access, signalised intersection works, and works relating to pedestrians, cyclists, and public transport users must be subject to safety audits demonstrating consistency with relevant design, engineering and safety standards and guidelines. Safety audits must be prepared in consultation with the Traffic and Transport Liaison Group before the completion and use of the subject infrastructure and must be made available to the Secretary upon request.

Traffic and Transport Liaison Group

E77 The Proponent must establish a Traffic and Transport Liaison Group(s) (TTLGs) to inform traffic and transport management measures during construction and operation of the CSSI. Management measures must be coordinated with and approved by the RMS following endorsement by the Sydney Coordination Office and consultation with the Relevant Roads Authority.

The TTLG must comprise representatives from the Relevant Road Authority(ies) (including the RMS, relevant Councils, and the Barangaroo Delivery Authority as appropriate), transport operators (including bus and taxi operators), emergency services and Port Authority of NSW as required. The TTLG must be consulted on to inform the preparation of the Construction Traffic Management Plan(s) and Interchange Access Plan(s).

E78 The Proponent must undertake supplementary analysis and modelling as required by the TTLG to demonstrate that construction and operational traffic can be managed to minimise disruption to traffic network operations, public including changes to and the management of pedestrian, bicycle and public transport networks transport services, pedestrian and cyclist movements. Revised traffic management measures, must be incorporated into the Construction Traffic Management Plan(s), Interchange Access Plan(s) and Station Design and Precinct Plan(s).

Construction Transport and Access

E79 The Proponent must consult with the Relevant Road Authority regarding the use of any weight restricted road by heavy vehicles.

E80 The Proponent must minimise truck movements during peak periods within commercial centres. Peak periods are 7am to 10am and 4pm to 7pm Monday to Friday.

E81 The Proponent must prepare and implement a Construction Traffic Management Framework (CTMF). The CTMF must be prepared in consultation with TTLG(s) and submitted to the Secretary for approval no later than one (1) month before the commencement of construction (or within any other timeframe agreed with the Secretary). The CTMF will set out the approach to managing issues across the CSSI and include but not be limited to:

(a) construction site access, including the efficient and safe egress and ingress of vehicles, consistent relevant Austroads, Australian Standards and RMS requirements;
(b) the erection and maintenance of hoardings, scaffolds and associated structures on roads;
(c) short and long term lane and road closures including those associated with plant, crane and other operations between the road reservation and construction site;
(d) cumulative construction vehicle management from surrounding developments;
(e) bus stop and associated facilities relocation and service rerouting;
(f) short and long term works zones on roads adjacent to the construction site;
(g) mail zone and associated facilities relocation;
(h) short and long term works within the road reservation;

(i) regulatory, advisory and other signage changes and modifications;
(j) parking management, including on and off street and remote parking and access;
(k) heavy vehicle management, the restriction (unless otherwise approved) of heavy vehicles to certain routes and the minimisation of heavy vehicle traffic in peak traffic periods;
(l) special event management;
(m) the retention and reinstatement of emergency and property access;
(n) the retention of user and passenger safety, including pedestrians, cyclists, public transport users, including at stops and related facilities;
(o) incident response planning around construction worksites; and
(p) monitoring of transport and access related impacts attributable to the CSSI.

E82 Construction Traffic Management Plans (CTMPs), consistent with the CTMF required in Condition E81, must be prepared for each construction site in consultation with the TTLG(s), and submitted to the RMS for approval following Sydney Coordination Office endorsement before construction commences at the relevant construction site.

E83 Where construction results in a worsening of the matters identified in Condition E81(a)-(o), the Proponent must review the measures identified in the CTMPs in consultation with the TTLG(s), as relevant. Any changes to the CTMPs must be submitted to the RMS for approval following Sydney Coordination Office endorsement and implemented.

E84 Notwithstanding the above, the Proponent must investigate opportunities to maximise spoil removal by non-road methods and schedule final track laying as soon as practicable following completion of tunnelling with a view to transporting materials and equipment for station fit-out, systems and commissioning by rail to minimise truck movements in town centres and the Sydney CBD. The findings of the investigation must be reported to the Secretary before commencement and before completion of tunnel spoil generation as relevant. A decision to not adopt spoil haulage or materials delivery by non-road methods must be demonstrated to the satisfaction of the Secretary.

E85 Heavy vehicle haulage must not use local roads unless no feasible alternatives are available.

E86 During construction, measures must be implemented to maintain pedestrian and vehicular access to, and parking in the vicinity of, businesses and affected properties. Alternative pedestrian and vehicular access, and parking arrangements must be developed in consultation with affected businesses. Such arrangements must be outlined in the **Business Management Plan** required in Condition E64 and implemented as required. Adequate signage and directions to businesses must be provided before, and for the duration of, any disruption.

E87 Permanent road works, including vehicular access, signalised intersection works, and works relating to pedestrians, cyclists and public transport users will be subject to safety audits demonstrating consistency with relevant design, engineering and safety standards and guidelines. Safety audits must be included within each relevant CTMP and carried out in consultation with the TTLG before the completion and use of the subject infrastructure and must be made available to the Secretary on request.

E88 Details of haulage routes and heavy vehicle sizes to transport material to and from any construction site must be specified in the **Construction Traffic Management Plan(s)** and be approved by the RMS following endorsement by Sydney Coordination Office and the Relevant Roads Authority.

E89 The Proponent must implement traffic and transport management measures with the aid of a truck marshalling and logistics facility located within close proximity to the Sydney and North Sydney CBDs. The facility must be operational in advance of tunnel spoil generation. Details of the facility must be documented in the **Ancillary Facilities Management Plan** required by Condition A16.

Road Dilapidation

E90 A **Road Dilapidation Report** must be prepared for local roads proposed to be used by heavy vehicles for the purposes of the CSSI before the commencement of use by such vehicles. Copies of the **Road Dilapidation Report** must be provided to the Relevant Council within three (3) weeks of completing the surveys and no later than one (1) month before the use of local roads by heavy vehicles.

E91 If damage to roads occurs as a result of construction of CSSI, the Proponent must either (at the landowner's discretion):

(a) compensate the landowner for the damage so caused. The amount of compensation may be agreed with the landowner; or
(b) rectify the damage so as to restore the road to at least the condition it was before construction commenced as identified in the Road Dilapidation Report(s).

Interchange Access Plans

E92 The Proponent must develop an **Interchange Access Plan** for each station to inform the final design of transport and access facilities and services, including footpaths, cycleways, passenger facilities, parking, traffic and road changes, and integration of public domain and transport initiatives around and at each station. The Interchange Access Plan(s) must consider walking and cycling catchments and take into account:

(a) station access hierarchy consistent with the transport planning principles defined in the EIS;
(b) safe, convenient, efficient and sufficient access to stations and transfer between transport modes (including subterranean connections and the safeguarding of additional entrances in response to land use change and patronage demand);
(c) the maintenance or improvement of pedestrian and cyclists level of service within a justified proximity to stations;
(d) current transport initiatives and plans;
(e) opportunities and constraints presented by existing and proposed transport and access infrastructure and services;
(f) patronage changes resulting from land use, population, employment, transport infrastructure and service changes;
(g) integration with existing and proposed transport infrastructure and services;
(h) pedestrian, cycle, bus, taxi, vehicle and emergency vehicle access and parking infrastructure and service changes;
(i) legislative requirements and applicable guidelines;
(j) safety audits, including but not limited to a review of traffic facility and cycle changes to ensure compliance with Austroads design criteria;
(k) final design, infrastructure, management and service measures and the level of access and service to be achieved for all users; and
(l) the contents of the Interchange Operations and Maintenance Plan (IOMP) and operational management provisions for future operational requirements, including maintenance, security and management responsibilities.

The Interchange Access Plan(s) must be prepared in consultation with the TTLG and the Design Review Panel and must be supported by traffic and transport analysis. Where necessary, consultation must also be undertaken with major landholders adjoining station precincts. The Plan(s) must detail a delivery and implementation program which must be provided to and agreed by the Secretary before commencement of permanent aboveground facilities at any station site.

E93 In developing the Interchange Access Plan(s), the Proponent must consider:

(a) traffic and accessibility design requirements; and
(b) the Station Design and Precinct Plan(s) required by Condition E101.

E94 The Proponent must in consultation with the TTLG review the need and opportunities for lift access between Hickson Road and High Street and which the meets the objective of increasing the patronage catchment to Barangaroo Station and improved community accessibility. The review must be presented in the Interchange Access Plan and the findings implemented by the Proponent.

E95 The Proponent must in consultation with the TTLG review the need and opportunities for a pedestrian and cycle bridge across the rail corridor to replace the Nelson Street Bridge. The review must be presented in the Interchange Access Plan(s) and the findings implemented by the Proponent.

E96 The Interchange Access Plan(s) must be reviewed by a qualified traffic and transport professional(s), independent of the detailed design process for the CSSI, having regard to the requirements of this approval.

Bicycle Infrastructure

E97 The Proponent must provide adequate bicycle infrastructure at stations that form part of the project, and provide adequate areas for future expansion of that infrastructure.

E98 The Proponent must undertake an audit of bicycle patronage at stations and end-of-trip facility adequacy 12 and 36 months following commencement of operation of the project to ensure the level of bicycle parking and end-of-trip facilities available are adequate in terms of both quantity and quality. The audit must be undertaken with the Relevant Council(s), RMS, Bicycle NSW and relevant local bike user groups.

URBAN DESIGN AND VISUAL AMENITY

Visual Amenity

E99 The CSSI must be constructed in a manner that minimises visual impacts of construction sites, including, providing temporary landscaping where appropriate to soften views of the construction sites, minimising light spill, and incorporating architectural treatment and finishes within key elements of temporary structures that reflect the context within which the construction sites are located.

Design Review Panel

E100 The Proponent must establish a Design Review Panel (DRP) to refine design objectives for place making, public realm and urban and heritage integration applicable to the length of the project and provide advice on the application of the objectives to key design elements in relation to place making, architecture, heritage, urban and landscape design and artistic aspects of the CSSI.

The DRP must:

(a) comprise five members who are experts in one of the identified design elements;
(b) include:
    i. the NSW Government Architect as Chair;

11.2 Revised environmental mitigation measures

The list of mitigation measures and performance outcomes presented in Chapter 27 of the Environmental Impact Statement has been revised on the basis of submissions received, the additional assessment work carried out and the preferred infrastructure report. In some cases new measures have been added, while in others, the wording of existing measures has been adjusted.

Table 11-1 provides the revised consolidated environmental mitigation measures. This table supersedes the mitigation measures presented in the Environmental Impact Statement. New mitigation measures or additions to existing mitigation measures are shown in **bold** text, with deletions shown with a ~~strikethrough~~.

Table 11-1 Revised environmental mitigation measures

ID	Mitigation measure	Applicable location(s)[1]
Construction traffic and transport		
T1	Ongoing consultation would be carried out with (as relevant to the location) the CBD Coordination Office, Roads and Maritime Services, Sydney Trains, NSW Trains, **the Port Authority of NSW, Barangaroo Delivery Authority**, local councils, emergency services and bus operators in order to minimise traffic and transport impacts during construction.	All except metro rail tunnels
T2	Road Safety Audits would be carried out at each construction site. Audits would address vehicular access and egress, and pedestrian, cyclist and public transport safety.	All except metro rail tunnels
T3	Directional signage and line marking would be used to direct and guide drivers and pedestrians past construction sites and on the surrounding network. This would be supplemented by Variable Message Signs to advise drivers of potential delays, traffic diversions, speed restrictions, or alternate routes.	All except metro rail tunnels
T4	In the event of a traffic related incident, co-ordination would be carried out with the CBD Coordination Office and / or the Transport Management Centre's Operations Manager.	All except metro rail tunnels
T5	The community would be notified in advance of proposed road and pedestrian network changes through media channels and other appropriate forms of community liaison.	All except metro rail tunnels
T6	Vehicle access to and from construction sites would be managed to ensure pedestrian, cyclist and motorist safety. Depending on the location, this may require manual supervision, physical barriers, temporary traffic signals and modifications to existing signals or, on occasions, police presence.	All except metro rail tunnels

ID	Mitigation measure	Applicable location(s)[1]
T7	Additional enhancements for pedestrian, cyclist and motorist safety in the vicinity of the construction sites would be implemented during construction. This would include measures such as: • Use of speed awareness signs in conjunction with variable message signs near construction sites to provide alerts to drivers • ~~Shared experience~~ **Community** educational events that allow pedestrians, cyclists or motorists to sit in trucks and understand the visibility restrictions of truck drivers, and for truck drivers to understand the visibility from a bicycle; **and a campaign to engage with local schools to educate children about road safety and to encourage visual contact with drivers to ensure they are aware of the presence of children** • Specific construction driver training to understand route constraints, expectations, safety issues, **human error and its relationship with fitness for work and chain of responsibility duties**, and to limit the use of compression braking • **Use of in Vehicle Monitoring Systems (telematics) to monitor vehicle location and driver behaviour** • Safety devices on construction vehicles that warn drivers of the presence of a vulnerable road user located in the vehicles' blind spots and warn the vulnerable road user that a vehicle is about to turn.	All except metro rail tunnels
T8	Access to existing properties and buildings would be maintained in consultation with property owners.	All except metro rail tunnels
T9	All trucks would enter and exit construction sites in a forward gear, where feasible and reasonable.	All except metro rail tunnels
T10	Any relocation of bus stops would be carried out by Transport for NSW in consultation with Roads and Maritime Services, the CBD Coordination Office (for relevant locations), the relevant local council and bus operators. Wayfinding and customer information would be provided to notify customers of relocated bus stops.	All except metro rail tunnels
T11	For special events that require specific traffic measures, those measures would be developed in consultation the CBD Coordination Office (for relevant locations), Roads and Maritime Services, **Barangaroo Delivery Authority (for relevant locations)** and the organisers of the event.	BN, MP, PS, CS
T12	Construction sites would be managed to minimise construction staff parking on surrounding streets. The following measures would be implemented: • Encouraging staff to use public or active transport • Encouraging ride sharing • Provision of alternative parking locations and shuttle bus transfers where feasible and reasonable. **Transport for NSW would work with local councils to minimise adverse impacts of construction on parking and other kerbside use in local streets, such as loading zones, bus zones, taxi zones and coach zones.**	All except metro rail tunnels
T13	Construction site traffic would be managed to minimise movements in the AM and PM peak periods.	All except metro rail tunnels
T14	Construction site traffic immediately around construction sites would be managed to minimise movements through school zones during pick up and drop off times.	All except metro rail tunnels

ID	Mitigation measure	Applicable location(s)[1]
T15	Pedestrian and cyclist access would be maintained at Crows Nest during the temporary closure of Hume Street, and at Martin Place during the temporary partial closure of Martin Place. Wayfinding and customer information would be provided to guide pedestrians and cyclists to alternative routes.	CN, MP
T16	Timing for the temporary closure of the Devonshire Street tunnel would avoid periods of peak pedestrian demand. Wayfinding and customer information would be provided to guide pedestrians to alternative routes.	CS
T17	Consultation would occur with the Harbour Master, Roads and Maritime Services and Sydney Ferries' to ensure shipping channels are maintained during the Sydney Harbour ground improvement works.	GI
T18	During the closure of existing entrances to Martin Place Station, marshalls would be provided during the AM and PM peak periods to direct customers to available access and egress points.	MP
T19	Where existing parking is removed to facilitate construction activities, alternative parking facilities would be provided where feasible and reasonable.	All except metro rail tunnels
T20	Alternative pedestrian routes and property access would be provided where these are affected during the construction of the power supply routes.	PSR
T21	**The potential combined impact of trucks from multiple construction sites would be further considered during the development of Construction Traffic Management Plans.**	**All except metro rail tunnels**
T22	**Where existing footpath routes used by pedestrians and / or cyclists are affected by construction, a condition survey would be carried out to confirm they are suitable for use (eg suitably paved and lit), with any necessary modifications to be carried out in consultation with the relevant local council.**	**All except metro rail tunnels**

HBI Healthy Buildings International Pty Ltd
A.C.N. 003 270 693 A.B.N. 39 003 270 693

Suite 2.06, Level 2
29-31 Solent Circuit
Baulkham Hills NSW 2153

Tel: 61 (02) 9659 5433
e-mail: hbi@hbi.com.au
Web: www.hbi.com.au

Mr Stuart Hodgson
Principal Manager,
Program Sustainability Environment & Planning
Sydney Metro
Transport for NSW
PO Box 588
NORTH RYDE BC NSW 1670

17 March 2017

Ref: 170108_CTMF

Dear Stuart

RE: Endorsement of Construction Traffic Management Framework (CTMF) - Sydney Metro City & Southwest

Thank you for providing the following documents for Environmental Representative (ER) review and endorsement as required by the Condition of Approval E81 of the Sydney Metro City & Southwest project (SSI – 15_7400 January 9 2017).

- Construction Traffic Management Framework (CEMF) Sydney Metro City & Southwest (Revision 4-4 dated 17 March 2017).

The document is specific to the Construction of Sydney Yard Access Bridge & Demolition Works only.

As an approved ER for the Sydney Metro City & Southwest project, I have reviewed and provided comment on earlier versions of this document and consider the referenced version appropriate for submission to the Department of Planning and Environment for their review.

Yours sincerely

Michael Woolley
Environmental Representative – Sydney Metro – City and South West

NSW GOVERNMENT | Planning & Environment

Mr Stuart Hodgson
Principal Manager
Program Sustainability Environment & Planning
Sydney Metro, Transport for NSW
PO Box 588
North Ryde BC NSW 1670

Our ref: SSI 15_7400

Dear Mr Hodgson

Sydney Metro City & Southwest Chatswood to Sydenham (SSI 15_7400)
Construction Traffic Management Framework (Sydney Yard Access Bridge and demolition) under Condition E81.

I refer to your correspondence dated 20 March 2017, submitting the Construction Traffic Management Framework (CTMF) for the Sydney Yard Access Bridge and demolition works under condition E81 for the Secretary's approval. I also note the further revisions to this document, responding to the Department's detailed comments and requirements.

The Department has reviewed the updated CTMF (Rev 4.5 dated 18 April 2017) and is satisfied it addresses the requirements of condition E81 by setting out the approach to managing transport and traffic issues for the Sydney Yard Access Bridge and demolition works. I note that the management of the site-specific issues will be addressed within the relevant Construction Traffic Management Plans (CTMP).

I remind you of the need to ensure the CTMPs are consistent with the CTMF and to consult with the Traffic and Transport Liaison Group and gain Sydney Co-ordination Office's endorsement and RMS's approval of these documents before construction commences at the relevant construction sites.

I understand you will also submit further CTMFs under condition E81 for all other City & Southwest contracts including tunnelling works under the Tunnel and Station Excavation contract.

I also note condition C3 requires a CTMP to be prepared as part of the Construction Environmental Management Plan, and approved by the Secretary under Condition C8 prior to commencement of construction. I understand you intend to clarify this requirement under condition A6, which will require the Department's further consideration.

If you have any further queries or require clarification on this matter, please contact Jonathan Kerr, Infrastructure Management on 9274 6337 or by email jonathan.kerr@planning.nsw.gov.au

Yours sincerely

11/5/17

Stacy Warren
Director Infrastructure Management
as delegate of the Secretary