CONSTRUCTION TRANSPORT, TRAFFIC AND ACCESS MANAGEMENT PLAN

Document and Revision History

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Revisions

Rev	Date	Description	Prepared by	Reviewed by	Approved by
0	01/11/2021	Draft	DJ Lowe	Cam Shepherd	James Renwick
1	23/11/2021	Response to comments	Mira Segaran	Rachael Labruyere	James Renwick
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(a) the environmental performance of the CSSI;
(b) any document or correspondence in relation to the CSSI (including the provision of such documentation or correspondence);
(c) any independent appointment or dismissal made in relation to the CSSI;
(d) any notification given to the Planning Secretary under the terms of this approval;
(e) any audit of the construction or operation of the CSSI; (f) the terms of this approval and compliance with the terms of this approval (including anything required to be done under this approval);
(g) the carrying out of any additional monitoring or mitigation measures; and (h) in respect of ongoing monitoring and management obligations, compliance with an updated or revised version of a guideline, protocol, Australian Standard or policy required to be complied with under this approval.</td><td>Section 2.9</td></tr>
<tr><td>C4</td><td>CEMP Sub-plans must be prepared in consultation with the relevant government agency(ies) and council(s) identified for each CEMP Sub-plan* in Table 3
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<tr><td>C5</td><td>The CEMP Sub-plans must state how:
(a) the environmental performance outcomes identified in the documents listed in Condition A1 as modified by these conditions will be achieved;
(b) the mitigation measures identified in the documents listed in Condition A1 as modified by these conditions will be implemented;
(c) the relevant terms of this approval will be complied with; and
(d) issues requiring management during construction (including cumulative impacts), as identified through ongoing environmental risk analysis, will be managed.</td><td>Section 2.5 and Section 2.6
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Reference	Requirement	Location in document
	stage must not commence until the CEMP and sub-plans for that stage have been approved by the ER	
E47	Before any local road is used by a heavy vehicle for the purposes of construction of the CSSI, a Road Dilapidation Report must be prepared for the road. A copy of the Road Dilapidation Report must be provided to the relevant Council within three (3) weeks of completion of the survey and at least two weeks before the road is used by heavy vehicles associated with the construction of the CSSI.	Section 3.1.5 Appendix 4
E48	The use of local roads must minimise impacts to local traffic, cyclists and pedestrians. Management measures must be incorporated in the Construction Transport, Traffic and Access Management Plan as relevant, and: (a) demonstrate that the use of local roads will not compromise the safety of the public; (b) describe the measures that will be implemented to avoid where practicable the use of local roads past schools, aged care facilities and childcare facilities during peak times for operation.	 Section 5.3 Section 5.4
E49	Closure and relocation of bus stops during construction must be undertaken in consultation with the relevant bus service providers and relevant council(s).	Section 7.1
E50	If damage to roads occurs as a result of construction of the CSSI, the Proponent must either (at the landowner's discretion): (a) compensate the relevant road authority for the damage so caused. The amount of compensation may be agreed with the relevant road authority, but compensation must be paid even if no agreement is reached; or (b) rectify the damage to restore the road to at least the condition it was in before work commenced as identified in the Road Dilapidation Report.	Section 3.1.4 Appendix 4
E51	During work, all reasonably practicable measures must be implemented to maintain pedestrian, cyclist and vehicular access to, and parking in the vicinity of, businesses and affected properties. Where disruption cannot be avoided or minimised, alternative pedestrian, cyclist and vehicular access, and parking arrangements must be developed in consultation with affected businesses and implemented before the disruption. Adequate signage and directions to businesses must be provided before, and for the duration of, any disruption.	Section 6.4
E52	Access to all utilities and properties must be maintained during construction, where practicable, unless otherwise agreed with the relevant utility owner, landowner, or occupier.	Section 5.7
E53	Any property access physically affected by the CSSI during construction must be reinstated to at least an equivalent standard, unless otherwise agreed by the landowner or occupier.	Section 5.7
E54	Safe pedestrian and cyclist access must be maintained around work sites during construction. In circumstances where pedestrian and cyclist access is restricted or removed due to construction, the relevant council(s) must be informed two weeks before any disruption, and alternate routes which comply with the relevant standards must be provided and signposted or controlled before, and for the duration of, any disruption.	Section 6.4
E55	The Proponent must take reasonable steps to coordinate construction traffic impacts with Proponents of other State Significant proposals near the CSSI and	Section 2.9

Reference	Requirement	Location in document
	take reasonable steps to coordinate work to minimise cumulative traffic impacts in consultation with TfNSW and key Stakeholders	
E56	Construction vehicles (including staff vehicles) associated with the CSSI must be managed to minimise parking, idling and queuing on public roads.	Section 5.10
CTT1	Implementation of Construction Transport, Traffic and Access Management Plan (CTTAMP) for the main construction works. As a minimum, the CTTAMP will include: • identification of haulage routes • notification and consultation strategy with public and relevant authorities/stakeholders • special event and emergency services management • parking restrictions • protocol for monitoring cumulative traffic impact • Pre and post-construction surveys of local road pavement conditions to identify any potential damage caused by heavy vehicles, and processes for rectification (as appropriate) • Requirements for post-construction road safety audits. The CTTAMP will also consider cumulative construction impacts and define a suitable management approach. The CTTAMP will not be created for enabling however the relevant mitigation measures will form part of the site EMPs.	This Plan Section 5.8 Section 5.2 and Appendix 3 Section 7.2 and 7.3 Section 5.10 Section 8.2 Section 3.1.4 and Appendix 4 Section 9
CTT2	Provide suitably designed construction site access which will consider: • road design guidelines • visible temporary regulatory, warning and guide signs • use of accredited traffic controllers where appropriate • provision of deceleration lanes at accesses abutting highly trafficked roads	 Section 2.4 Section 5.5 Section 3.2.3 Section 5.10
CTT3	• Administrative controls to limit truck activities during peak periods. • Implement radio communication and designated truck idling areas to minimise impact of truck queuing on public roads. • Temporary traffic controls.	Section 5.5 Section 5.9 Section 5.10
CTT4	• Maximise parking at each site and compound. • Encourage carpooling/cycling/public transport. • Providing buses between off-site parking locations. • Providing shuttle buses between the two main on-site compounds and smaller construction compounds. • Develop a protocol to review the approach to management of worker parking in the event complaints are received relating to workers using on-street parking	Section 5.9 Section 5.10

Reference	Requirement	Location in document
CTT5	• Consultation with service providers to develop alternative service arrangements. • Notification to the general public prior to implementation of service changes. • Changes to services during possessions.	Section 7
CTT6	• Ensure appropriate detours such as maintaining access on at-least one side of the road. • Provide safe access across site gates	Section 5.5 Section 5.9
CTT7	• Manage closures during off-peak periods. • In accordance with the relevant protocols (for example for Road Opening Licences), consult with Transport for NSW, Traffic Management Centre and the Sydney Coordination Office, regarding the management and timing of any proposed temporary road closures. • Select a bus detour route that will minimise impact on punctuality of bus services and minimise public transport accessibility impact on the community. • Temporary turn restrictions at key State controlled intersections to promote the diversion route via State controlled roads would also be considered during detailed design. • Implement suitable traffic management during closures to manage and guide motorists at the approaches and through or around the work sites. • Public information campaigns. • Truck travel time management	Section 7
CNV25	A CTTAMP will be prepared for the project to manage the haul routes and vehicle movements. Where construction routes are along local roads there is potential for impacts at the adjacent residential receivers, depending on the volume of construction traffic. The potential impacts will be managed using the following approaches: • vehicle movements will be away from sensitive receivers and during less sensitive times, where possible • the speed of vehicles will be limited and will avoid the use of engine compression brakes • on-site storage capacity will be maximised to reduce the need for truck movements during sensitive times • heavy vehicles will be restricted from idling near residential receivers	Section 5.5 Section 5.9 Section 5.10

1. Definitions

1.1 Definitions and Abbreviations

Definitions and abbreviations to be applied to the Construction Transport, Traffic and Access Management Plan are listed in Table 1-1 below.

Table 1-1: Definitions and Abbreviations

Term/Abbreviation	Definition
85th percentile	The speed at or below which 85% of vehicles are observed to travel under free-flowing conditions past a nominated point.
AADT	see annual average daily traffic
AGTTM	Austroads Guide to Temporary Traffic Management
adjacent clearance area	The area immediately adjacent to the traffic lane, and typically between the traffic lane and the worksite that should be kept free from features that would be potentially hazardous to errant vehicles.
advance warning area	Area in advance of the worksite where advance warning traffic control devices areerected to warn and inform of changes to traffic conditions ahead and to give roadusers time to adjust their driving behaviour.
advance warning distance	Distance measured between successive signs in the advance warning area and the distance from the beginning of the taper or closure or work area to the first advance sign
annual average daily traffic	The total volume of traffic passing a roadside observation point over the period of acalendar year, divided by the number of days in that year (365 or 366 days).
around the worksite	Methods of hazard elimination, when the entire work area (including all vehicles and plant) is located 6 m or more clear from the nearest edge of a traffic lane.
arterial road	A road that predominantly carries through traffic from one region to another, forming principal avenues of travel for traffic movements. Sub-definitions as follows: • Rural - A general term for the main road carrying mostly long-distance traffic, as distinct from local traffic. Urban - A general term for a main traffic route, but specifically referring to certain streets so designated in a local authority's district scheme.
AS	Australian Standard
AS/NZS	Australian / New Zealand Standard
auxiliary lane	A portion of the roadway adjoining the through traffic lanes, used for speed change or for other purposes supplementary to through traffic movement.
B-double	A combination consisting of a prime mover towing two semitrailers, with the first semitrailer being attached directly to the prime mover by a fifth wheel coupling andthe second semitrailer being mounted on the rear of the first semitrailer by a fifth wheel coupling on the first semitrailer
B-triple	A prime mover towing three semitrailers. The first and second semitrailers are connected to the following semitrailer by a fifth wheel permanently located toward the rear of the semitrailer. Under the Heavy Vehicle National Law, a B-triple is categorised as a road train.
Barrier board	Boards 150 mm to 200 mm in height and not more than 4 m in length. They are mounted on trestles or fixed posts at about 1 m above the pavement. The colour combination used for barrier boards shall be alternate diagonal stripes of black and retroreflective yellow, terminating in yellow at each end.
Barrier line	A pair of longitudinal lines marked on the roadway to prohibit overtaking movement in one or both directions.
Buffer zone	An advance warning area if speed on the approach to a temporary speed zone is more than 30 km/h higher than the temporary speed limit and needs to be reduced instages.
Built-up area	In relation to a length of road, means an area in which either of the following is present

	for a distance of at least 500 metres, for the whole of the road: buildings, notover 100 metres apart on land next to the road and/or street lights not over 100 metres apart (see *urban road)* or, if the length of road is shorter than 500 metres.
Centreline	The line which defines the axis or alignment of the centre of a road or other work. • In relation to any portion of a roadway not marked with a flush median –a dotted or solid line or lines of paint or raised studs (or any combination of those lines or studs) intended to separate opposing traffic. • In relation to any portion of a roadway marked with a flush median –the longitudinal white line that forms the left side of the median as viewed by a driver facing forward. • In relation to an unmarked roadway – the inferred line down the longitudinal centre of the roadway
Chicane	The lateral movement of traffic from one or more lanes onto another alignment beforea shift back toward the original road alignment but not necessarily into the original lane or lanes. Typically applied to reduce the speed of traffic.
CJP	Customer Journey Planning, Transport for NSW
Closure	The physical area from which the road users are to be excluded. This includes but is not limited to shoulder closures, lane closures and road closures
Competent person	A person who has, through a combination of training, qualification and experience, acquired knowledge and skills enabling that person to correctly perform a specified task.
Construction traffic management plan	A document describing all essential traffic management matters associated with roadworks or works on roads. This includes risk assessment, traffic demand and accommodation, traffic routing and control and provision for vulnerable road usersand special vehicles such as buses, trams or over-dimensional vehicles
Containment fence	Physical barrier sufficient to provide separation between the travelled path, or paths used by cyclists and pedestrians, from the work area, but not as rigid as to become a hazard if struck by vehicles, or to act as a safety barrier.
Contractor	A person, organisation or company responsible for implementation of an activity on or affecting a road. Examples include but are not limited to construction and maintenance crews, utility companies, surveyors, filming crews and event management.
Contraflow	Traffic flow in a direction opposite to the normal flow, where two-way flow is maintained at all times.
CTMP	see traffic management plan
CTTAMP	Construction Transport Traffic Access Management Plan
Detour	A temporary, alternative route to guide road users around a worksite operation, most commonly during temporary closure of a road or path.
Divided road	A road with separate roadways for traffic travelling in opposite directions.
Dividing line	A road marking formed by a line, or two parallel lines, whether broken or continuous, designed to indicate the parts of the road to be used by vehicles travelling in opposite directions.
Dynamic deflection	The largest transverse deflection of a road safety barrier system during an actual crash or during a full-scale impact test (i.e. the amount the road safety barrier deflects from its initial position during impact).
Emergency services	An entity that has a statutory responsibility to respond to an emergency and includes the following: a) an ambulance service b) a fire brigade, including a volunteer fire brigade c) a police force or police service a disaster or emergency organisation of the Commonwealth or a State or Territory.
Gore	A triangular area where two roads either meet or split.
Hazard (roadside)	Any object or feature located between the edge of a traffic lane and the road reserve boundary, or within a median, that could cause significant personal injury (including fatal injury) to road users when impacted by an errant vehicle.
Intersection	The place at which two or more roads meet or cross.
Lane line	A line (usually painted), other than the centreline, that divides adjacent traffic lanes

	travelling in the same direction. This line may be raised delineating devices.
Long term	The description which applies when a traffic guidance scheme is required to operate both day and night and may be left unattended.
Median	A strip of road, not normally intended for use by traffic, which separates carriageways for traffic in opposite directions. Usually formed by painted lines, kerbed and paved areas, grassed areas, etc.
Mobile work	Work that entails vehicles moving progressively along the roadway at speeds significantly lower than other traffic, with all traffic control devices being either vehicle mounted or regularly moved along the road.
Motorway	A divided highway, freeway, expressway, controlled access highway etc. for through traffic with no access for traffic between interchanges and with grade separation at some interchanges. Certain activities may be restricted or prohibited by legislative provision.
Multilane	Two or more running lanes in one direction.
Off-peak period	The periods that have low demand volumes of traffic during the day (see *peakperiod)*.
Offset speed zone	Temporary speed zones which result in speed limits which are different for each direction of travel at a particular location.
Open road area	Roadside development less frequent than that specified for a built-up area.
Past the worksite	Methods of hazard control, when the entire work area (including all vehicles and plant) is located within 6 m from the nearest edge of a traffic lane.
Peak period	The period that has the highest demand volume of traffic and/or number of passengers during the day (peak hour, peak half hour, etc.) (see *off-peak period)*.
permanent speed limit	The maximum legal speed limit for a specific section of road indicated by permanent speed limit signs. These signs are in place 24 hours a day, seven days a week and have been implemented after a speed limit review has been carried out.
portable traffic control device	An approved portable device used to control traffic to enhance the safety and protection of road users and road workers at the worksite, specifically an option to improve safety for traffic controllers. Portable traffic controller devices may include PTSS or boom barriers.
portable traffic signal systems	An approved portable traffic signal device allowing traffic controllers to perform their roles at a safe distance from traffic in high risk environments.
primary sign	The first sign closest to the worksite, work area or hazard. This sign is followed by repeater signs placed further from the worksite, work area or hazard.
PTCD	see portable traffic control device
PTSS	see portable traffic signal systems
road reverse	An area of land between the legal road boundaries, usually a fence line to fence line. This typically includes the roadway, footpaths, other access ways and unpaved areas, which allow the passage of road users. The road reserve also includes an airspace of six metre directly above the road surface
road train	A combination, other than a B-double, consisting of a motor vehicle towing at leasttwo trailers, excluding any converter dolly supporting a semitrailer.
road user	Any driver, rider, passenger or pedestrian using the road.
roadway	Any one part of the width of a road devoted particularly to the use of vehicles,inclusive of shoulders and auxiliary lanes.
running lane	The portion of the roadway allotted for the use of a single line of vehicles. Cyclists operating in these lanes are considered vehicles.
rural road	A general term for the road carrying mostly long-distance traffic, as distinct from local traffic and located in open road areas.
safety buffer	The unoccupied space between the additional warning area and work area which allows for an errant vehicle to pull up before reaching the work area.
safe work method statement	A document which identifies the type of work being undertaken, the risks, the hazards and controls to be implemented to eliminate the risk.
short term (traffic control)	Description that applies when a traffic guidance scheme is required only while work personnel are in attendance and is generally limited to the duration of a single work shift.

shoulder	A sealed or unsealed part of the road outside the edge line, or inferred edge line,which is trafficable, adjacent to the traffic lane and flush with the surface of the pavement.
shuttle flow	Where a portion of the roadway is closed so that a single lane is used alternately by traffic from opposite directions. It is one-way flow with one direction first, then the other. This is used where insufficient width is available for maintaining two-way flow at all times.
sight distance	The distance, measured along the road over which visibility occurs between a driver or rider and an object or between two drivers at specific heights above the roadway in their lane of travel.
speed	Distance travelled per unit of time (km per hour).
speed of traffic (traffic speed)	The posted speed limit at a location when being adhered to by the majority of road users (see *85th percentile*). This can be checked by travelling in the stream of vehicles and comparing to the posted speed limit. If the speed of the majority of vehicles are travelling significantly slower or faster thanthe posted speed limit (±10 km/h), apply this speed limit when making any decisions regarding design.
static works	All works which are greater in scope and duration than can be handled by short term, low impact methods or mobile works and are contained within a fixed area.
swept path	The area bounded by lines traced by the extremities of the bodywork of a vehiclewhile turning.
SWMS	see safe work method statement
taper	A straight or smoothly curved row of delineation devices used to shift traffic laterally, e.g. from a lane to the shoulder.
TCAWS	The traffic control at work sites manual Version 6.0 (TfNSW)
temporary speed limit	A speed limit that is applied on some sections of road as a result of roadworks, school zones or other variable speed limits which are in place to suit driving and travel conditions. These are not permanent speed limits.
termination area	Where road users have passed the work area and normal traffic conditions resume.
TGS	see traffic guidance schemes
through the worksite	Methods of hazard separation by stopping all road user's movement for short periods when workers need to occupy the roadway.
TMA	see truck mounted attenuator
traffic controller	A competent person whose duty it is to control traffic at a worksite
traffic control device	Any traffic sign, road marking, traffic signal, or other device, placed or erected under public authority for the purpose of regulating, directing, warning or guiding traffic.
traffic guidance schemes	An arrangement of temporary traffic control devices to warn traffic and guide it around, through or past a worksite or temporary hazard.
traffic speed	see speed of traffic
TfNSW	Transport for NSW
TMC	Transport Management Centre
travalled path	That part of the roadway which is made available to vehicles and which may consist of one of more running lanes.
truck mounted attenuator	A safety device designed to reduce the severity of collision that should be fitted to slow moving or stationary work vehicles which are exposed to potential impact frombehind by approaching traffic.
two-way roadway	A roadway having running lanes allotted for use by traffic in opposing directions.
undivided road	A road without a median (see divided road).
unsealed road	A road that does not have a hard or smooth surface. Unsealed road surfaces include gravel, sand or dirt.
variable message sign	Variable message signs can be changed to display information messages to alertdrivers of on-road incidents on the road ahead. They are also used to warn road users about weather conditions and other important information.
vehicles per day	The number of vehicles observed passing a point in both directions on a road for 24

	hours.
vehicles per hour	The number of vehicles observed passing a point in both directions on a road for one hour.
VMS	see variable message sign
vpd	see vehicles per day
vph	see vehicles per hour
vulnerable road user	Pedestrians, cyclists, motorcyclists.
work area	Area where maintenance or construction work is being done.
worksite	An area which includes the work area(s) and any additional length of road required for advance signing, tapers, side-tracks or other areas needed for associated purposes.

2 Introduction

2.1 Context

This Construction Transport, Traffic and Access CEMP Sub-Plan (CTTAMP) forms part of the Construction Environmental Management Plan (CEMP) for the construction of the Botany Rail Duplication (BRD) Project.

The CCTAMP has been developed prepared to outline and describe how John Holland will comply with the NSW Minister for Planning's conditions of approval SSI-9714 (CoA), environmental documents and client specifications. Additionally, it outlines how John Holland will minimise traffic risks and achieve beneficial traffic management outcomes on the Project by providing a structured approach to ensure appropriate controls are implemented.

Implementing the CEMP and sub-plans (including the CTTAMP) effectively will ensure that the Project meets the requirements of the Minister's CoA, Revised Environmental Mitigation Measures and the Projects other environmental performance requirements.

2.2 Background and project description

The Project comprises a new second track within the existing Botany Line rail corridor between Mascot and Botany over a distance of approximately three kilometers. Works will include construction of the new track, track realignment (slewing) and upgrading, construction of new rail crossovers, bridgeworks at Mill Stream, Southern Cross Drive, O'Riordan Street and Robey Street and construction of new embankment and retaining structures.

Further details on construction activities are provided in Section 2.2 of the CEMP.

2.3 Scope of the Sub-Plan

The CTTAMP provides a framework for procedures and techniques to ensure that John Holland can manage construction of the Project whilst keeping existing roads open for safe use by the general public. This CTTAMP has been developed to satisfy the following aspects of the John Holland traffic arrangements during construction including:

- Measures to manage traffic flows through and surrounding the construction site, including regulatory and direction signposting, line marking and variable message signs
- Identify any mitigation measures to improve the efficiency of traffic conditions
- Account for both local and regional traffic impacts.

John Holland will manage traffic during construction, particularly identifying the location, nature and duration of work activities, the impact on the roadway and all road users, and the control strategies implemented to mitigate these impacts.

2.4 Legislative policy and strategy

Legislation and regulations of relevance to this CTTAMP are:

- *Roads Act 1993* – Section 138 requires that a person obtain the consent of the appropriate Roads Authority for the erection of a structure, or the carrying out of a work in, on or over a public road, or the digging up or disturbance of the surface of a public road. If the applicant is a Public Authority, the Roads Authority must consult with the applicant before deciding whether or not to grant consent or concurrence.
- Transport for NSW (TfNSW) has the power, under the *Roads Act 1993* – Division 3 - Section 62 to take

Roads Authority powers from relevant local councils. This power may be exercised by TfNSW for the duration of the Works.

All traffic and transport management associated with John Holland's activities will comply with the following:

- TfNSW Traffic Control at Work Sites Manual Ver 6.0
- AS 1742.3 Manual of uniform traffic control devices - Traffic control for works on roads
- Austroads: Guide to Traffic Management - Part 2: Traffic Theory.

2.5 Objectives

Motorists, cyclists and pedestrians expect a high level of safety and service in using existing road infrastructure. This requires efficient, effective and reliable traffic management strategies to be put in place. The overarching strategic objectives of this CTTAMP are to:

- Achieve high and uninterrupted traffic throughout
- Minimise reduction of existing speed zones
- Ensure reliable travel times
- Provide clear information to allow motorists to make appropriate decisions in relation to their journey.

Provide safe routes for pedestrians and cyclists. These objectives will be achieved by:

- Strategic advance planning
- Ensuring all road users are considered during all stages of the project
- Implementation of traffic management plans that minimise traffic disruption for the shortest possibleduration
- Providing a high level of comfort to users
- Ensuring a smooth traffic flow
- Minimising the number of conflicts and unclear information that may cause incidents
- continuously monitoring the traffic and anticipating incidents that are likely to occur (e.g. traffic congestion).

2.6 Targets and environmental performance outcomes

The road safety and traffic and transport management targets that will be adopted by John Holland include:

- No increase in roadwork related crashes during construction
- Minimise traffic impacts to maintain safe and efficient operation of the road network
- Minimise impact on the local community and environment.

The following performance outcomes relevant to Traffic Management (as identified in Chapter 24.4 Compilation of performance outcomes of the EIS) are detailed in Table 2.1 below.

Table 2.1 - Traffic management performance outcomes (construction)

Desired performance outcome	Target	How addressed
Minimise impacts on the local and regional network during	• Develop Traffic Strategies aligned to the relevant Traffic Guidance Schemes	Section 3.1 Section 6.3

Desired performance outcome	Target	How addressed
construction	(TGSs)	
Maintain motorist, pedestrian and cyclist safety	• Notification/signage to be implemented to alert all type of road users of works being undertaken • No increase in pedestrian/cyclist crashes reported to Police	Section 6.4
Maintain safe access to properties	• Development and implementation of site/activity specific Construction Traffic Plans • Access to properties to be maintained at all times	Section 3.1.2 Section 5.7

2.7 Quality assurance and review

This CTTAMP will be updated by the Traffic Coordinator in response to any incidents or traffic disruptions arising from its work. Additional details of the quality processes and procedures to be employed by John Holland are found within the*BRD-JHG-PM-0000-MPL-12005 Quality Management Plan.* This document will be consulted to ensure qualityis maintained throughout the planning and construction stages of the Project. Appendix 2 (Quality Policy Statement) outlines the John Holland Quality Policy Statement authorised by the Chief Executive Officer.

2.8 Approval

This CTTAMP will be reviewed and by the approved Environmental Representative (ER) in accordance with CoA C8. Construction will not commence until the CEMP and all CEMP Sub-Plans (including this CTTAMP) have been approved by the ER and will be implemented for the duration of construction.

2.9 Consultation

This CTTAMP has been provided to Bayside Council for consultation in accordance with CoA C4 Table 3 and updated following receipt of comments.

In accordance with CoA A5, the evidence of consultation has been included in Appendix E of the CEMP and will be provided to the Planning Secretary for information (upon request). Details of comments related to the CTTAMP are presented in Appendix 3 of this plan.

2.9.1 Cumulative traffic impact

Ongoing consultation will include regular coordination with State significant developments, TfNSW, key stakeholders, infrastructure projects and other construction works being undertaken within 200 meters (m) of the Project. This consultation will be undertaken with the aim or coordinating works to manage cumulative traffic impacts in accordance with CoA E55 and C5(d).

A Gateway-BRD centralized project coordination meeting has been established and held fortnightly to discuss Safety, Design, Program etc. including cumulative impacts. Smaller working groups (such as a Traffic Working Group) will be established on an as needed basis for specialised areas to assess and/or manage direct impacts as well as potential construction fatigue on the surrounding community from both projects. Where required, working groups may determine the need for cumulative traffic monitoring for haulage routes. In these circumstances a protocol will be established including monitoring methodology, location, responsibilities and timing for the monitoring. Traffic predictions and gate access counts will be provided by all organisations to supplement monitoring data.

3 Management approach

3.1 Structure of documentation

This CTTAMP is part of a suite of plans that collectively outline how the Project will be managed to ensure all work undertaken by John Holland meets the contract objectives and requirements.

Other sub-plans which interface with the CTTAMP include:

- Construction Traffic Management Plan (CTMP)
- Traffic Guidance Schemes (TGS)
- Vehicle Movement Plan (VMP)
- Pedestrian Movement Plan (PMP)
- Traffic Incident Management Plan (TIMP)
- Traffic Sequencing Plan (TSP)
- Construction Sequencing Plans (CSP).

The relationship of the CTTAMP, its associated CTMP and other relevant documents is shown in the Figure 3-1.

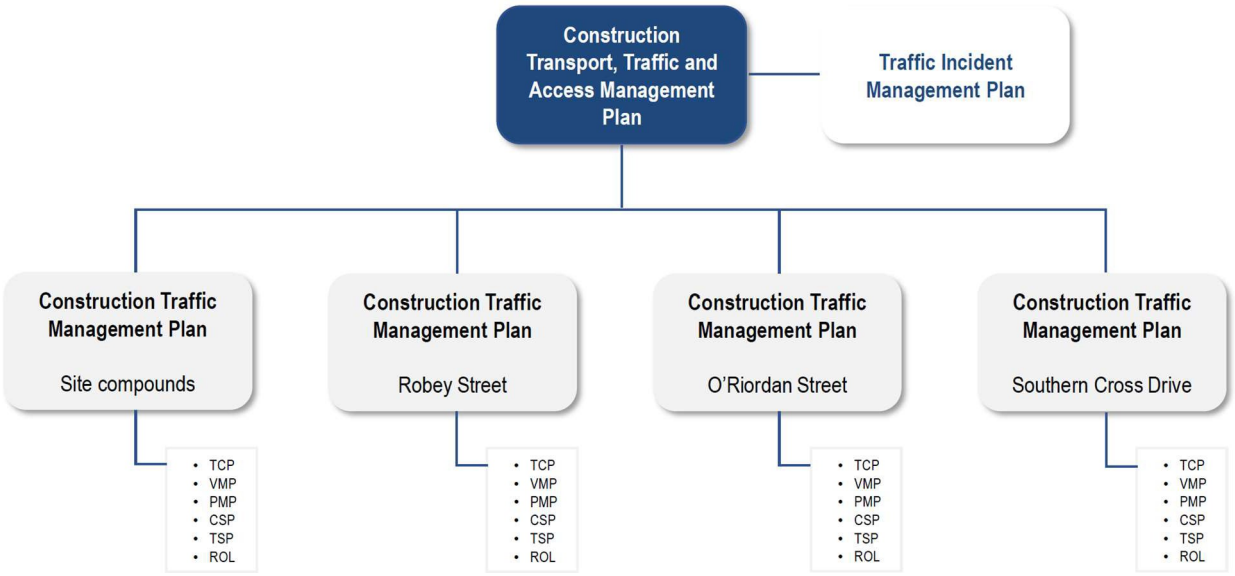


Figure 3.1: CTTAMP context

3.1.1 Construction traffic plans

The CTPs are the drawings describing the planning & sequencing of the construction activities and are groupedinto work zones. These drawings set the foundation for the development of detailed Construction Traffic Management Plans and their associated TGSs and Road Occupancy Licence (ROL) applications.

3.1.2 Construction traffic management plans

Prior to the commencement of substantial construction, a detailed CTMP will be developed for each section of the Project. These will be derived from the CTTAMP and the Construction Sequencing Plans.

The CTMP also include any associated ROL applications and speed zone authorisations supporting the CTMPs that require submission to Transport for NSW for consideration and approval. TheCTMPs will also contain detailed drawings describing the individual TGSs.

The structure of the CTMP will be based on the following elements:

- Proposed Construction and Traffic Sequencing Plans including the time periods during which each stage will be in operation
- TGS, including provision for cyclists and any specific traffic control arrangementsassociated with the conditions of approval of the ROL
- Vehicle Movement Plans showing the preferred travel paths for vehicles to enter, leave or cross through the traffic stream
- Pedestrian Movement Plans showing the allocated travel paths for workers or pedestrians around or through the work site.
- Provision of access to adjoining properties and side roads affected by the construction
- Copies of any ROL and approvals from relevant authorities obtained
- Design drawing for any temporary roadways and detours
- Names and contract details of all personnel
- Impacts on existing traffic
- Lighting along all main roads to the site
- Safe access for all pedestrians
- Access to and from constructions sites
- Monitoring, review and amendment mechanisms.

3.1.3 Temporary roadways design and drawings

If temporary new roadways and detours, or adjustments to existing lane configurations and road geometry, are required as part of the traffic management, they will be designed in accordance with the relevant design standards. These design standards will also apply where existing or previously unused roadways, including road shoulders, are proposed as temporary roadways.

John Holland has engaged a road designer, Turnbull Engineering Pty Ltd, who has in excess of 5 years recent experience in designing roads to TfNSW standards, to prepare the temporary roadway design drawings.

Road geometry will be designed in accordance with AGRD “Austroads Guide to Road Design”and associated TfNSW Supplements.

3.1.4 Condition surveys

Pre and post construction road condition surveys will be conducted for local road pavement conditions to identify any potential damage caused by heavy vehicles. The pre-construction inspections will document the existing condition of the infrastructure and typically note the location of all visible damage and/or defects observed by the inspector. The post construction survey will record any changes to the infrastructure at construction completion.

In accordance with CoA A50, if damage to roads occurs as a result of construction, the following will either occur (at the landowner’s discretion):

- Compensate the relevant road authority for the damage so caused. The amount of compensation will be agreed with the relevant road authority, but compensation must be paid even if no agreement is reached; or

- Rectify the damage to restore the road to at least the condition it was in before work commenced as identified in the Road Dilapidation Report.

The Road Dilapidation Report will be provided to Council within three weeks of completion of the survey and a minimum of two weeks prior to the road being used by heavy vehicles associated with construction. Appendix 4 outlines the Road Dilapidation Survey methodology.

3.2 Organisation and responsibilities

All personnel employed by John Holland will perform their duties in accordance with the requirements of this Plan and in compliance with John Holland's manuals and procedures and any specific Project instructions.

3.2.1 Traffic Coordinator

John Holland will engage a full-time Traffic Coordinator. Their responsibilities are:

- Minimum of 5 years' recent experience in traffic management on road construction sites of equivalent complexity to the Project
- Qualified, as a minimum in the TfNSW "Prepare Work Zone Traffic Management Plan" *(Prepare Work Zone Traffic Management Plan)* course
- Ensure approved traffic management measures are implemented and maintained in accordance with the approved plans
- Carry out regular inspections of the traffic control measures to ensure that they are effective
- Amend and update any plans, as required, to ensure that they remain current as the work progresses
- Identify situations where traffic congestion, or unsafe conditions for vehicles, cyclists, pedestrians and workers, are occurring and provide recommendations for improvement
- Maintain current copies of all plans, ROLs and Speed Zone Authorisations (SZAs), and control their distribution
- Liaise with the TfNSW and other authorities such as TMC, NSW Police, Sydney Airport and Bayside Council on traffic management matters for the site
- Facilitate traffic awareness and give toolbox talks to site personnel.

3.2.2 General Superintendent

The General Superintendent will undertake the operational aspects of road safety and traffic management activities during construction. General Superintendent will be available when the Traffic Coordinator is not. Their responsibilities are:

- Monitor and inspect the daily operations of traffic management activities of the Project, including road user delays
- Monitor the short and long term traffic management operations and devices of the Project and create relevant reports.
- Work with the Construction Team with corrective actions from inspections and observations
- Provide supervision and guidance to short term traffic control Subcontractor
- Take a 'first response' role to unplanned incidents and take relevant, safe and legal action at incident sites
- Operate under the direction of the lead Emergency Service Agency at incident sites
- Ensure short term traffic control subcontractor has the relevant ROL, TGS and SZA approval on-site

- Regularly inspect and action any issues in short term traffic control, systems, paperwork or credentials.

3.2.3 Traffic controllers

It is John Holland's policy that work zones provide for the safe operation of road workers and the safe passage of vehicular and pedestrian traffic. Traffic controllers (and traffic control devices) are used to warn, instruct and guide road users safely through, around or past work sites on roads including footpaths. John Holland will ensure that all persons who are required to perform the duties of a traffic controller undertake the relevant training package(s) with a licensed training provider and are examined and certified as competent to perform their respective traffic controller duties.

It is the responsibility of all John Holland personnel to ensure that road works are carried out in a safe and efficient manner. John Holland will prepare specific TGSs for all work which involves any obstruction whatsoever to traffic. TGSs will be prepared in accordance with the requirements set out in Clause 2.6 of RMS QA Specification G10 *Traffic Management*.

4 Risk assessment

Management of risk is central to John Holland's approach to construction transport, traffic and access management. A road safety risk assessment shall be conducted for every activity undertaken on a road work site and reflected in each TGS implemented to warn / guide / direct road users throughor past a work site or temporary hazard each shift. This is essential to determine:

- The presence of risk
- The source of the risk (for example, from traffic, or from worksite activities)
- The subject and potential impact of the risk (for example, does the risk originate from traffic and potentially impact on workers)
- The risk treatments required.

4.1 Considerations

The best practice for delivering optimal safety levels is achieved by referring to the basics and working through each category of risk. When identifying risks, open questions such as how, why, when and where should be asked to find the source of the problem and how to mitigate it.

As a minimum John Holland will consider the following categories when assessing the risk involved with these works. This is not an exhaustive list and other site-specific risk considerations are shown in Table 4-1 below.

4.1.1 Safety of road users

Risks associated with road users include:

- React unsafely when surprised by changed road environment
- Restricted sight lines
- Hazards created by work equipment and debris.

Safe traffic guidance and management should:

- Alert all type of road users of works being undertaken
- Consider driver behaviour and make allowance for human error and errant vehicles.

4.1.2 Vulnerable road users

Vulnerable road users have different and special considerations compared to those of general road users. Consider pedestrians, including school children and road users with impaired vision, mobility or cognitive limitations.

4.1.3 Safety of road workers

Worksite safety considerations should include:

- Maintenance of acceptable clearance distances from traffic
- Appropriate training for all workers and compliance of appropriate work methods and safety requirements.

Risks for workers include:

- Complacency as a result of frequency of activities
- Level of training provided
- Maintaining appropriate separation of tasks, including to lookout persons, such as being requested to undertake additional tasks
- Higher risk exposure when undertaking short term low impact works

- Time constraints associated with the short-term nature of works
- Night work considerations
- Work pressures (time, quantities, quality).

All workers shall:

- Sign the SWMS prepared for that site and contribute to the risk assessment
- Immediately report any unsafe conditions
- Take reasonable care for his or her own personal safety and the safety of all road users
- Consider any requirements specific to night-time works
- Take reasonable care that his or her acts or omissions do not adversely affect the health and safety of others
- Comply with any reasonable instruction that is given in relation to health and safety
- Cooperate with reasonable policy or procedures relating to WH&S
- Adorn PPE before entering the worksite.

4.1.4 Site conditions

Consideration relating to the impact of the road and roadside environment should include:

- Road category and traffic volumes relative to the time of day and day of the week
- Allowance for unexpected changes to traffic volumes
- Traffic profile (e.g. the proportion of over-dimensional vehicles in the traffic stream)
- Posted speed limit
- Sight distances
- Road features (e.g. sealed, condition of seal, unsealed, available lanes, shoulder widths, intersections, railway crossings, bridges etc.)
- Access control. At each point on the road system where vehicles have access to adjacent property, there is the potential for conflict and crashes.
- Lighting
- Where possible, source current site information including thorough on-site inspection, photos or videos
- Drainage management.
- Reinstatement of property access, road and pavement surfaces to an equivalent standard following construction (unless agreed by the landowner or occupier).

4.1.5 Parked vehicles

Vehicles parked adjacent to the road, including the work vehicle, affect safety in several ways:

- As physical obstructions that can be collided with
- As obstructions that cause sudden braking and nose-to-tail crashes
- As obstructions that deflect vehicles into adjacent vehicle paths
- As hazards to passing vehicles (including bicycles) from opening doors
- As obstructions that hide pedestrians
- As obstructions that block visibility at intersections and access points

- Vehicles parked on the road shoulder are likely to force cyclists into traffic lanes

4.1.6 Work vehicles

The work vehicle is one of the primary alert methods for approaching traffic. Considerations include:

- Placement of the vehicle
- Ensuring it does not impact visibility for road users (including vulnerable road users).
- There are considerations associated with work vehicles to minimise risks posed to road workers and road users. These include:
- Does it block pedestrian or cycle paths?
- Night-time considerations
- Sight distance to the lookout person and workers
- Access to and departure from the worksite, indicated by use of flashing lights.

4.1.7 Environmental conditions

Issues associated with adverse weather conditions and the environment should be identified in the TGS and include appropriate contingency plans. For example, when adverse weather conditions affect visibility of traffic control devices or the worksite it may benecessary to stop work and clear the worksite of all road workers in the interest of safety.

In some cases, it may also be necessary to clear the road of all obstructions caused by the works if this can be done safely. A decision on the need to clear the road will be based on the consideration of all prevailing circumstances, which may include:

- Type of adverse weather condition (snow, frost, fog, rain, wind)
- The complexity of worksite
- Traffic volumes
- Road surface
- Time of day
- Appropriate lighting
- Sun glare or areas of shade.

4.2 Treatment options

The hierarchy of control is most suitable when considering linear traffic movements related to the work site but may not be appropriate when considering other impacted parties such as public transport providers and adjoining property owners and occupiers. In such instances, practical consideration and identification of the most appropriate, safe and cost-effective options for risk treatment is required.

4.2.1 Value and cost

John Holland will identify and consider as many treatment options as possible during the CTMP development stage, as these can be more easily implemented and at a lower cost than options considered when later developing TGS for road occupancy approval immediately prior to the practical commencement of works.

John Holland will consider new and innovative treatments, where appropriate. The types of innovations that are specifically investigated include those that:

- Improve the safety of workers and the public

- Improve the cost effectiveness of the works
- Allow the works to be undertaken more efficiently.

4.2.2 Benefit

When evaluating treatment options, John Holland has considered:

- Severity of the risk/s mitigated by that option
- Likelihood of the risk/s mitigated by that option
- Knowledge of that risk
- Perceived benefit of the option
- The nature of the works
- Additional risks which may be created by the treatment option
- The practicality of the option proposed
- The cost of removing or mitigating that risk.

Consideration will all also be given to prioritising the safety of workers and road users, while minimising the delay to traffic and costs associated with treatments.

Table 4-1: Risk considerations and treatments

Identified Risk	Controls – Possible Risk Reduction Techniques
Proximity of works to traffic – collision of public vehicle, pedestrian or cyclist with construction vehicle, plant or object Local access to existing/adjoining land Multiple traffic rearrangements confusing motorists Vehicle strikes worker at road works	• Install appropriate traffic control devices • Separation of pedestrians from workforce • Stage construction works and use traffic controllers to maintain access to existing properties. Investigate and consult with property owners about possible alternatives access provisions • Appropriate advance signage and advertising to be utilised warning motorists of impending traffic switches, including provision of VMS • Appropriate temporary signs and delineation installed • Separate workers from traffic with appropriate controls for the speed environment • Reduce speed and implement strategies to restrict lanes and speeds to allow clear zones from work areas • Perform work activities in accordance with individual work risk assessment and specified control measures • TGS to be designed and installed in accordance with TCAWS
Public Transport Emergency Vehicle access limited Construction vehicles impacting the	• Consult public transport operators with regard to proposed changes to bus stop arrangements • Install temporary signage at impacted bus stops informing public transport users of changes to bus services and new stop locations and routes • Consultation with emergency services

Identified Risk	Controls – Possible Risk Reduction Techniques
surrounding road network. E.g. truck parking outside the work area on nearby streets. Communicating traffic changes in a timely manner to TfNSW and the public.	• Compulsory site inductions shall include details that truck drivers must comply • Consider alternate routes where available • Plan traffic routes to avoid local roads, schools, aged care facilities and childcare facilities where practicable • Consider suitable haulage times and routes • Monitored by traffic management audits and inspections. • Establish regular traffic meetings with CJP and other stakeholders and submit traffic and / or community notifications • Use Variable Message Signs to advise traffic changes a week ahead of the implementation date.
Management of speed environment and motorist compliance with work zone traffic control. Safe site access and egress of construction vehicles, including heavy vehicles.	• Work with TMC and NSW Police Service to enhance enforcement of traffic laws in work zones • Use ITS devices (e.g. radar speed signs) and improve visibility of signs (red highlight boarders around speed signs) in work zones to reinforce the posted speed • Reduced speed zones to be kept to a minimum • Road work signage to be in accordance with TGS and installed and maintained to the required standards • All proposed site entrance/exit to existing roadways will be developed using Austroads and RPDM design requirements, certified by RPEQ and audited by Road Safety Auditor.

4.3 Traffic management risk assessment workshop

John Holland will conduct a Traffic Management Risk Assessment Workshop to identify and address the risks associated with traffic management, road safety and other road network issues specific to the work site. The content of the workshop may include the following:

- Contract requirements
- CTMPs
- Planning for traffic switches
- Safety barriers and other devices
- Delineation, signage and guidance to motorists
- Temporary lighting
- Road Safety Audits
- Knowledge and training requirements
- Traffic incident response arrangements.

Participants should include the Traffic Coordinator, Construction Site Manager, and other road works site management staff, the temporary works road designer personnel involved in preparing CTMP's, any other persons involved in reviewing/road safety auditing of the CTMP's, TfNSW, TMC, emergency services, the Police, STA Sydney buses, Bayside Council representatives and Sydney Airport landside traffic management representatives.

John Holland will undertake consultation with key stakeholders and develop an initial Traffic Management Risk Register, which forms part of this CTTAMP. An initial Risk Assessment Workshop will then be conducted following development and submission of the CTTAMP, which will be coordinated with the "Airport Operations Group" traffic management liaison committee. Other required participants will be invited to the Workshop with the "Airport Operations Group".

The Traffic Management Risk Register will be produced during the Risk Assessment Workshop.

Additional consultation with relevant stakeholders, and minor Risk Assessment Workshops, may be coordinated during delivery of the Project to cover the progressive submission of CTMP's or change management, to identify and address the potential road safety and traffic management risks with new stages of work or changes in design, site conditions, construction methodology or other change management. The Traffic Management Risk Register will be updated following additional workshops and consultation.

The Risk Register is a live document and shall be updated as required and tracked separately with progressive submissions of the CTMP's.

5 Traffic management strategy and planning

5.1 Background

Construction activities have the potential to disrupt existing traffic patterns in the surrounding areas. Minimisation, and where possible, elimination of disruption through effective traffic management techniques in accordance with the strategic objectives is fundamental to the overall success of the project.

John Holland will carefully plan and stage construction activities to minimise delays and disruption to traffic on Robey Street, O'Riordan Street and Southern Cross Drive. Furthermore, the Port Botany Rail Line is a major freight transport link and disruptions to rail operations outside of planned Track Possession periods will be avoided.

Priority will be given to providing adequate guidance to drivers, pedestrians and cyclists, consulting authorities and the community prior to commencement of the work. Priority will also be given to responding appropriately to issues and events as they arise during the construction works.

Disruption to the road network will be minimised through the following:

- Directional signage and line marking to direct and guide drivers and pedestrians past work sites and on the surrounding network. This will be supplemented by permanent and portable Variable Message Signs (VMS) to advise drivers of potential delays, traffic diversion, speed restrictions, alternate routes etc.
- Public notification of proposed traffic changes by newspaper, radio, internet site, and community liaison
- Co-ordination with the Transport Management Centre (TMC) in the event of incidents or undue congestion
- Management of pedestrian and vehicular access to worksites to ensure safe entry and exit procedures. Depending on the location, this may require manual supervision, physical barriers, temporary traffic signals or modification to existing signals
- Maintenance of access to existing properties, which may require temporary crossovers.

5.2 Communications with the community

The construction of the Project is an important issue for affected landowners, local communities living and working in the vicinity of the proposed works and road users affected by construction activity and road realignments. Accordingly, John Holland is committed to ensuring that all interested and affected parties have the opportunity to understand the nature of the proposed works, to express their comments and to have their concerns and issues understood and taken into consideration during delivery of the BRD works.

Community notification must be undertaken by John Holland to advise the affected public and road users of theproposed changes to traffic flow, vehicle, pedestrian and bicycle movements and arrangements for control of traffic on roads in accordance with the requirements SWTC.

The Community and Stakeholder Engagement Management Plan (CSEMP) for the Project has been developed to address issues of importance to the community and major stakeholders that need to be considered during the construction process and to ensure John Holland establishes an environment of genuine commitment and cooperation between the project team, its stakeholders and the wider community.

5.2.1 Traffic and transport communication

The main objectives of the CSEMP are to provide a plan that:

- Provides an overview of the local community and stakeholders
- Describes the engagement strategy and approach for the project
- Identifies the project's community members, impacted property owners and key stakeholders, their potential issues and some key messages to be used in communicating with them
- Provides an overview of the communication tools and techniques to be used during the various phases of the project.

John Holland will undertake ongoing consultation with the community to ensure that information is provided that assists in minimising disruption or inconvenience. John Holland will also establish a project specific 24-hour contact information line to field stakeholder enquiries during the works. Additional details are found in *BRD-JHG-PM-0000-MPL-12015 (rev 3) Community and Stakeholder Engagement Management Plan* (CSEMP).

5.2.2 Roadworks information

John Holland's Community Liaison Representative (CLR) will be responsible for ensuring a system is in place to inform TfNSW, the public, Bayside Council, ARTC, Sydney Airport Corporation Limited (SACL), Police and other emergency services each time changes are made to traffic arrangements. Advice will include information about upcoming traffic switches, anticipated delays to traffic, extended times of work, or any likely major disruptions.

5.3 Safety and amenity of road users and the public

The Quality Plans ensure that the completed road works and associated infrastructure is in accordance with the design. Road Safety Audits will be carried out through the construction process and prior to opening new sections of road to traffic (refer to Section 9).

A safe road environment incorporates numerous design principles, good all-weather night and day delineation, adequate surface skid resistance and a roadside free of unforgiving hazards. It includes the various safety needs of vehicles, road users and operations of road staff.

Comfortable and safe driving and riding occurs when motorists are operating well below a stressful processing and decision-making rate and above a minimum level of mental arousal. These aspects are critical to the development and maintenance of a safe road environment.

The following safe road environment features are incorporated into the specific traffic management procedures as far as possible:

- **warn** the driver of any substandard unusual features
- **inform** the driver of conditions to be encountered
- **guide** the driver through unusual sections
- **control** the driver's passage through conflict points or sections

- **forgive** the driver's errant or inappropriate behaviour.

Optimum values for design parameters that are compatible with terrain or other prevailing constraints will be maximised. Advance information and warning will be used to strengthen the delineation of the road. Driver information overload generated by too many road signs, conflicting messages or a lack of delineation will be avoided.

5.4 Minimisation of impacts on traffic flows

Site Traffic Management Plans will be progressively developed, refined, audited and amended as required during the progression of the works to facilitate the safe and efficient movement of traffic through and around all intersections, construction zones and local road networks impacted by the work.

The passage of trucks servicing the project is not expected to adversely affect existing road networks or the access of other vehicles to the network. Regular review of the usage of local roads by construction vehicles will be carried out, and adjustments made to the TGS as required. This will include locations associated with vehicle passage, maneuvering of vehicles and site access points. These areas are expected to have the most impact.

Traffic routes will be planned to avoid local roads during peak operational times as well as schools, aged care facilities and childcare facilities where practicable. Details of the proposed traffic routes will be contained within the specific TMP for a site. Where local roads cannot be avoided, the TMP will include details demonstrating the use of a specific local road/roads will not compromise the safety of the public and all mitigation measures have been considered.

Temporary traffic lanes on roads must, as a minimum, be 3.5m wide or unless otherwise agreed and complywith the requirements of all relevant Authorities.

5.4.1 CTT management strategy

John Holland will monitor queue lengths at all times when traffic is manually stopped to facilitate construction activities on Robey Street, O'Riordan Street and Southern Cross Drive and/or on the entry and/or exit to local roads.

The construction traffic program has been developed such that the existing lane configurations of all affected roads within the Port Botany Rail Duplication have generally been maintained, however, there will be specific activities which require additional lane closures and full road closures. These lane and road closures will generally be undertaken during periods of lower traffic volumes, however, John Holland will continuously monitor traffic queue lengths to prevent queues 100 m longer than existing queues forming on Robey Street, O'Riordan Street and Southern Cross Drive. In the event that such a situation arises, traffic management arrangements and/or construction activities will be changed to allow the queues to clear.

Where necessary, supplementary advanced signage including variable message signs where appropriate, will be provided to assist in the management of queues.

5.5 Traffic control devices

A key feature is the need to carefully plan the sequencing of the work so that workers and traffic are separated as far as possible. Traffic control at work sites will be in accordance with latest edition of the TfNSW's Guide to Traffic Control at Work Sites, which is based on the Australian Standard AS 1742.3.

5.5.1 Safety barriers

Where traffic control devices include safety barriers, the safety barriers must:

- Comply with the appropriate TfNSW Technical Direction and the Technical Manual for Traffic control atwork sites
- Be offset a minimum of 0.5m from the edge of the nearest adjacent traffic lane.

5.5.2 Advance warning, detour and directional signage

As part of the traffic strategies to be implemented on the arterial roads and also the less significant areas of local traffic impact, the importance of adequate and proper signage advising and directing traffic remains high. Traffic movements and routes (including detours if required) will be determined considering the location of sensitive receivers, timing of use, number of vehicles and alternative availability. Where practicable, vehicle movements will be managed to avoid sensitive receivers during out of hours periods when there are low background/existing traffic levels.

Appropriate signposting will be installed to permit easy and safe passage of vehicles, pedestrians and cyclists, including users of all public transport facilities to access their facilities of choice with minimal disruption.

Signposting covers information, regulatory, warning and guide signs as defined in national and TfNSW standards. All these classes of sign contribute to road safety. Regulatory signs can prohibit dangerous traffic movements, warning signs can give advance notice of road hazards ahead and guide signs can make the driving task easierand safer.

Safety principles for signs are:

- Before approval is given for a new sign a demonstrated need should be established
- All signs should convey a clear message to all users under all conditions
- Sign support structure should not create a safety hazard in itself.

All signs will be manufactured and erected in accordance with Australian Standards AS1742, AS1742.1 to 1742.13, AS1743 and AS1744.

5.5.3 Portable variable message signs

Portable VMS' will be placed strategically on major roads leading to the project for the duration of the works unless otherwise approved by TfNSW.

Project VMS' will be provided facing traffic approaching the various Work sites subject to suitable locations for installation and maintenance access. A VMS Strategy Plan will be developed for each CTMP and will be provided to TfNSW for approval.
Locations of Project VMS' will be proposed and are to be approved by Customer Journey Planning (CJP).Additional VMS will be placed if required as part of a CTMP or at locations directed by CJP. John Holland will perform daily checks to ensure that all VMS' are operating. Any faulty VMS will be repaired or replaced within four hours of fault detection.

A number of criteria will need to be satisfied to ensure that each VMS site delivers the full range of available services, can be easily delivered, safely located and protected, is practical and safe to maintain and is cost effective. These include:

- Physical location (level ground, road reserve, drainage etc)
- Ability to minimise the effect on the environment
- Ability to be effectively used for incident management to divert traffic in the event of a road closure
- Visibility
- Safety of access (construction, servicing, maintenance)
- Located to maximise message benefits

Technical Direction; *TDT 2005/02 Guidelines for the location and placement of Variable Message Signs* will be used to ensure compliance with the installation and maintenance requirements.

5.6 Obstacle limitation surface

The location of the site near the Sydney Kingsford Smith Airport requires all construction activities to be compliant with the requirements of SACL, in particular the Obstacle Limitation Surface(OLS). There is potential for the construction to impact the OLS of the airport's east-west runway.

Encroachment within the OLS is governed by the *Airspace Operations Act 1996*, and works that have the potential to encroach require prior approval from SACL. John Holland will observe the following procedures for all construction activities potentially within the Sydney Airport OLS.

5.6.1 Activities below the OLS

An application to SACL will be submitted for all activities below the OLS, even if there is no proposed intrusion. The submission will outline proposed works, duration, plant and equipment and control to be implemented to prevent intrusions into the OLS.

5.6.2 Activities during airport curfew

John Holland will seek approval from SACL before commencing any construction activities up to a nominal five metre intrusion into the OLS during the SACL curfew (currently 11pm to 6am). Rolling weekly updatedapplications will be provided, detailing the expected construction activities that could intrude into the OLS duringthe curfew hours.

5.6.3 Activities outside of airport curfew

John Holland will seek approval from SACL before commencing any constriction activities that may intrude up to five metres into the OLS outside of curfew hours. Ongoing contact with Sydney Airport Operations will be maintained.

5.6.4 Activities more than five metres into OLS

An application to SACL for controlled activity will be submitted for construction activities which could intrude more than five metres into the OLS. Applications will be submitted at least three months prior to the date of the proposed intrusion.

5.7 Access to adjacent properties

Access to all utilities and properties will be maintained during construction (where practicable) unless otherwise agreed with the utility owner, landowner or occupier. Local Councils, Agencies (water, electricity, gas, telecommunications) and existing billboard owners will bepermitted access to their infrastructure on Site after

consultation with the Project and after completing a Project Induction.

Existing property access points will be maintained, where practicable. Where this cannot be achieved, an alternative temporary access will be provided.

John Holland will ensure that safe and convenient passage for vehicles, pedestrians, and cyclists to and from side roads and property accesses connecting to the road network will be maintained at all times. Alternative access provisions will only be undertaken in consultation with, and to the satisfaction of, the relevant local government authority. Alternative provisions will always be made available before side roads or accesses are affected by the work in progress.

Any property access physically impacted during construction will be reinstated to at least an equivalent standard, unless otherwise agreed by the landowner or occupier.

5.8 Haulage routes

Designated access routes for construction and spoil vehicles will be along the arterial road network where practicable. Details of all routes used for access and haulage during construction will be developed in consultation with the relevant local government authority and detailed in the appropriate section specific CTMP.

Spoil haulage routes will be developed in a format such that a suite of individual instructions and maps are provided to contract operators for all points of origin to respective destinations and return. In addition, layover areas will be nominated should vehicles need to 'store' prior to arriving at the sites. Approximate travel times in morning, evening and off peaks will be developed for each route as a guide to operators and also assist in more consistent and uniform arrival rates at each site.

5.8.1 Development of haulage and delivery routes

Haul and delivery truck routes to and from construction sites will be developed to minimise impacts to local streets and maximise use of state and regional roads by using, where possible, Higher Mass Limit (HML) routes as outlined by TfNSW as part of their Intelligent Access Program (IAP) and the approved TfNSW Restricted Access Vehicle (RAV) routes.

Haulage routes have been identified within the EIS Technical Paper 1, should the Project determined haulage routes differ from those identified, John Holland will work with ARTC to obtain the relevant planning approvals prior to the planned construction dates/use of the haulage routes.

The 'Spoil' sites are those sites to which spoil generated by the Project is sent and these sites will be confirmed as part of the Environmental Approval and subject to any Development Application or any other relevant approvals. Delivery and haul route development will use the RAV, HML, and any requirements of TMC and TfNSW however limited to the extent that not all points of origin and destination can fall within these requirements.

5.8.2 Haulage and delivery operations

Hauling and delivery will occur within approved construction periods and as per any agreements made, with relevant authorities, for hauling outside normal construction periods. If haulage or delivery routes are subject to change, John Holland will ensure that TfNSW, TMC, Council and Motorway Operators are informed.

5.9 Site security, access, and signage

Vehicles involved in the Work must only enter, operate within or exit from a worksite in a manner which does not endanger the public and under suitably designed and appropriate traffic control measures. John Holland will provide suitable intersections or points of access for vehicles entering or leaving the Construction Site and at locations where the traffic volumes are increased as a result of the Works. The intersection and access treatments must comply with the requirements of all relevant Authorities.

Vehicle and pedestrian access to and from each compound and work site, including the locations of entries, exits, turning restrictions, slip lanes, traffic lights, signage and the like will be established in line with the requirements of the Traffic Control at Worksites Manual and in consultation with the TfNSW, the TMC, and Council.

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

- Safety of travelling public
- Safety of construction workers and equipment
- Impact on local communities in terms of safety, noise and road damage
- Ease of access for emergency vehicles
- Site security.

The worksites and depots will have appropriate arrangements to discourage entry without approval and minimise vandalism. All access points to fenced compounds and depots will have lockable gates. Appropriate information signs will be provided at work sites to identify John Holland and contact persons. Security fencing, flood lighting and a security system to restrict public access to site areas will be provided.

John Holland will also arrange for Project signs to be erected at each end of the Project describing the work, the key companies involved, the cost and the source of funding.

The maintenance of access arrangements will be detailed in CTMPs and TGSs,where required.

5.10 Traffic movements

Where work requirements necessitate temporary speed limits, John Holland's Construction Manager will review and approve all SZAs before the temporary speed limit is intended to be implemented. John Holland will then arrange for the supply and erection of appropriate temporary speed zoning signs. Following erection of the signs, arrangements will be made to cover the signs when the speed zones are not in use.

Construction vehicle movements to and from site and throughout the road network include the following activities:

- Delivery of materials, plant and equipment to site/s
- Delivery of concrete from batching plant/s to site location/s
- Regular trips by construction personnel in work vehicles, trucks and utes.

All drivers employed on the Works, whether direct employees or not, have a responsibility to drive safely, and comply with NSW road regulations, the Australian Road Rules and any other directives issued by John Holland. Vehicle speeds will be limited to avoid the requirement to use engine compression breaking. A Construction Vehicle Driver Code of Conduct will be created, similar to Table 5-1.

Table 5-1: Example Driver Code of Conduct

	Code of Conduct
Purpose and Objectives	This Heavy Vehicle Driver Code of Conduct aims to minimise the impacts of construction traffic on transport networks and adjoining properties. The purpose of this Code is to clearly define and detail acceptable behaviour for all heavy vehicle drivers operating in connection with the Works including John Holland, materials supply and subcontract drivers.
Responsibilities of Drivers	• Drivers are to follow ALL rules and regulations required by law including: a) Hold a current and appropriate licence for the vehicle they are operating b) Comply with speed limits on all roads c) Obeying posted (road) load limits d) Comply with all road works speed limits e) Obey construction traffic signs and devices. • Drivers are to practise safe driving and behaviour which includes, but is not limited to: a) Driving in a manner that is appropriate with road and weather conditions b) Not operating any machines whilst suffering from fatigue or under the influence of drugs and/or alcohol. • Drivers must behave in a professional manner at all times. No yelling at others. • Drivers must adhere to routes nominated by John Holland for each specific construction activity and they must not use roads if their weight is over the posted load limit. • Routes passing schools and childcare centres should be avoided where reasonably practicable during school zone periods (08:00-09:30 and 14:30 – 16:00). These locations and times would be identified and confirmed by John Holland during planning of the work and communicated to all drivers. • Drivers should only park or wait in approved roadside lay-bys or hard shoulders as directed by John Holland (these would be agreed with the RMS and Local Councils). Do not queue at worksite gates. • Drivers are to arrive and depart from Project construction sites during approved hours, 07:00 – 18:00 Monday to Friday and 08:00-13:00 on Saturday, unless alternate approvals are gained by John Holland. Drivers would be turned away if they arrive outside of approved hours. Storage facilities will be provided on-site to reduce the need for truck movements during sensitive periods. • No vehicle idling on-site (vehicles to be turned off when not in use).

	Code of Conduct
	• Drivers parking are to engage the park brake and leave the vehicle in gear. Never leave the vehicle with the engine running. Drivers leaving their vehicle must wear appropriate PPE (site standard). • Vehicles must not transfer dirt or debris onto public roads. If any materials are deposited on the roads, then the John Holland Supervisor must be contacted immediately. • Covering truck loads is mandatory and, where required, tailgates must be swept clean before leaving site. • If approached by individuals with enquiries about the Works, drivers are not to engage with the individual beyond providing them with the community information line number. • As a courtesy to individuals who may be impacted by driver behaviour, drivers would: c) Not use compression braking where noise is likely to adversely impact on residents d) Ensure that there is no littering e) Remain calm and courteous when in contact with other members of the public f) Maintain trucks in good working order and a clean and tidy condition g) Not block residential driveways or any other access points

5.10.1 Vehicle movements within site

There are a range of hazards for vehicles on site, including rough surfaces, low clearance, other larger plant and existing infrastructure. Of equal importance is the safety of unprotected construction personnel working within the work site. For each stage of work John Holland will ensure that:

- Regular toolbox meetings to discuss on-site vehicle movements and changes to work areas
- Site plant is fitted with flashing yellow lights, atonal reversing alarms (‘quackers’), horns and two-way radios
- Access tracks are clearly defined and sign posted
- Pedestrian tracks and crossing points are defined and sign posted
- Warning signs or traffic controls are installed on the approach to hazards or conflict points;
- Consideration will be given to reducing on-site speed limits.

5.10.2 Site access

The most hazardous movement for construction vehicles occurs when entering or exiting site. To provide safe entry and exit to the work site from safe access points, John Holland will:

- Keep the number of access points to a minimum
- Ensure new construction access points be designed to minimise impacts so far as practicable, on existing intersections, traffic facilities or traffic generating developments
- Only install access points that are visible and have adequate sight distance
- Design intersections and access points in accordance with Austroads *Guide to Road Design Part 4: Intersection and Crossings (where suitable site availability for access points)*
- Ensure intersection configuration has capacity to accommodate traffic generated by construction.

- Where practicable separate pedestrians from site access points
- Security fences and gates maintain sight lines and enable vehicles to park clear of adjacent travel lanes
- Ensure access points are visible to approaching traffic and signposted accordingly.

The Austroads *Guide to Traffic Engineering* and the TfNSW's *Road Design Guide* provide guidance on design of intersections and access points.

Short term traffic control may be required from time to time to facilitate short-term major haulage and the movement of over-dimension vehicles particularly during site establishment. Temporary traffic controls that may be installed include:

- Truck warning signs in advance of access points (in line with TCAWs)
- Traffic controllers at access points to facilitate entry and exit movements.

Project offices and site access points will be sign posted on the approaches and at the access with a unique identification number. These signs sizes depend on available site working width, clearance from traffic, the space available around existing signage, driveway sight distance, and traffic signals at each location.

The Main Compound and Ancillary Compound locations have been nominated by the Principal. John Holland have designed access points at the best available locations within the site constraints. Access (gate) locations are detailed in the CTMP's.

Access to construction sites including entry and exit locations will generally be left in / left out arrangements. Construction traffic will only enter and leave the road network in the traffic flow direction of the adjacent lane and must not make no U-turns across live traffic roads.

Due to the nature of the work, site constraints, permanent design details, requirement to maintain existing lane capacity of adjacent roads, and vehicle movements required to be from Qantas Drive, Joyce Drive, and Botany Road only, provision of deceleration and acceleration lanes for entry and exit locations for road work is not possible. Construction vehicles will need to accelerate and decelerate in the traffic lane and there will be impacts on the free flow of traffic. Road works speed reductions, trucks and other signage will be implemented to warn motorists of trucks turning. Alternative access points where possible will be consulted with the relevant stakeholders and provided on alternative progressive CTMP's and diagram submissions and adopted subject to approval.

Access points will be detailed in CTMP's and appropriately sign posted on the approaches and at the access with a unique identification number.

The sign numbering will be based on work zone identification as per the examples shown the figure below. The first letter of the sign will designate the work zone, followed by a sequential gate number starting at 1 followed by a lowercase letter indicating the traffic flow direction. This will clearly define the roadway, sequence of gate, and approach direction (traffic flow direction) that the driver needs to take for left turn entry movement.

Gate signage will nominally be 900mm x 900mm, where practicable, but site conditions will determine if different size signs are possible. The sign orientation/shape will depend on the available space and clearances at each location. Sign sizes will be indicated on the construction diagrams.

5.10.3 Workforce parking and access

Due to the site constraints, there will be limited room for making parking available on site for staff and work force.

Onsite parking will be limited to critical staff, supervisors and key trade workforce vehicles necessary to undertake works. Onsite parking areas shall be identified on the compound and work site plans, delineated, and appropriately separated from construction traffic.

Offsite parking will be limited (where practicable) with alternative travel options such as public transport identified and a route to work compound via designated pedestrian paths planned. In the event of complaint relating to use of on-street/offsite parking a parking protocol(s) will be developed to review the approach and management of parking arrangements. The protocol(s) will be specific to the location reported in the complaint and managed on a case by case basis.

Some of the worksites are isolated by infrastructure including operational traffic roads with no signalised pedestrian crossings or pedestrian footpath connectivity with compounds, in particular Southern Cross Drive central pier works. Access to these locations will only be via vehicle, and workforce will be carpooled or bussed to the work zones, except where the certain TGS provides for safe access under an appropriate traffic control plan.

5.10.4 Modal shift strategy

Workers will be encouraged to use alternative modes of transport. Relevant public transport information is available for workers to access the public transport network.

6 Safeguards and mitigation measures

6.1 Managing risks and approvals

John Holland will manage the risks associated with traffic management by ensuring that no activity commences on site that has an effect on traffic without an approved ROL. The Construction Manager will ensure that all John Holland staff are aware of the requirements of this CTTAMP and that work on site occurs in accordance with the relevant CTMP, TGS and associated ROL.

The Construction Manager will identify the risks and develop rectification strategies (if required) for traffic safety and management by using some or all of the following measures:

- Surveillance and monitoring of processes (confirming safety assessments and plans)
- Training and evaluation of competency of personnel (including inductions)
- Assessment and inspection of equipment or controls (i.e. field safety audits)
- Auditing of system and process (i.e. document and process audits)
- Independent review or verification by third party.

6.2 Road occupancy licences

A ROL authorises the occupation of a portion of the road that would normally be available to traffic. Except in the case of an unplanned incident, or when directed by the Police or other Emergency Services, a ROL must be obtained for any work which:

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

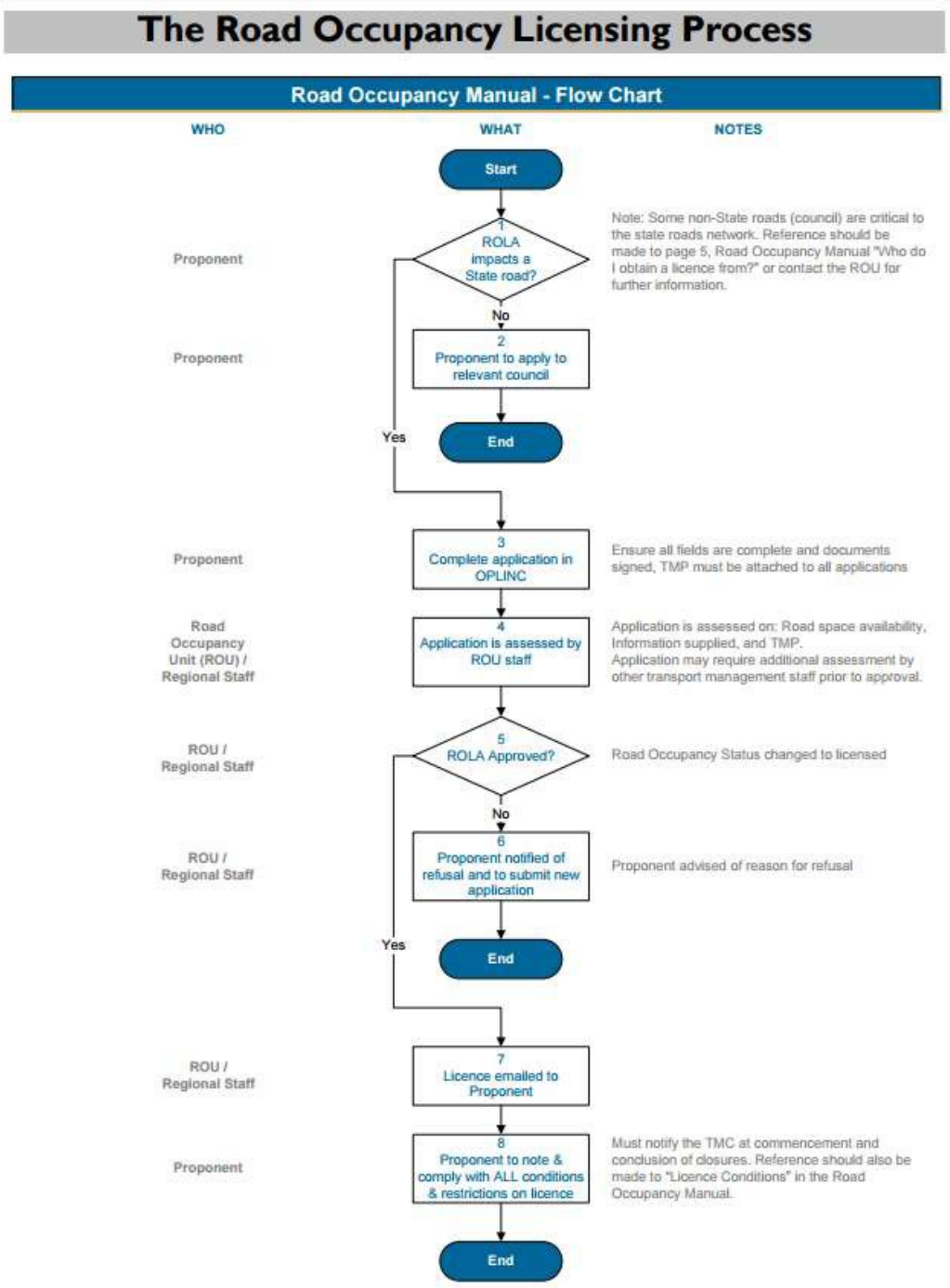
6.2.1 Application and content

The ROL application should be submitted online to the TMC. The application will be assessed by the TMC and contain sufficient information to enable a proper assessment of the application. If insufficient information is provided, the assessment of the application for ROL is likely to be delayed and may be rejected.

Application for a ROL can be made online via TMC's Online Planned Incident System (OPLINC). The website includes notes and guidelines for the applicant.

6.2.2 Approval process

The flow chart shown in Figure 6-1 details the process for the submission of ROL's by John Holland to TMC. The TMC will determine if an ROL can be approved based on the information supplied and the expected impact on traffic flows and vehicle and site worker safety. If the ROL can be granted, appropriate conditions of consent will be determined. The ROL applicant will be advised of the outcome of the ROL application and the conditions under which the ROL must operate.



Source: TMC's Road Occupancy Manual, 2015

Figure 6.1: ROL approvals process

6.2.3 Implementation

John Holland will comply with the TMC's procedure in applying for ROL's. The Construction Traffic Management Plan for each section of the work provides greater detail of individual TGSand ROL requirements. ROLs and supporting TGSs will also include applications to TfNSW for any required Speed Zone Authorisations (SZA).

After the granting of the ROL, it will be the responsibility of John Holland to ensure that the works are carried out safely and in accordance with applicable legislation, regulations, Australian Standards and TfNSW specifications and procedures.

Implementation of the TGS submitted with the ROL will be the responsibility of the Traffic Control Site Manager or delegate. Prior to the commencement of any changes to the existing traffic arrangements, a toolbox meeting of all involved is to be held, with the nature of the changed arrangements and procedures for their implementation being discussed.

6.3 Traffic guidance schemes

6.3.1 Preparation and implementation of TGS

All TGS to be used during the construction activity will be developed in accordance with Australian Standard 1742.3 and the TfNSW's Guide to Traffic Control at Worksites by a suitably qualified person. A TGS can only be prepared by a person who has undertaken and passed the TfNSW's "Traffic Control at Worksites Manual" training course and holds a current certification.

Copies of any TGS approved by relevant Authorities that set out specific traffic and transport management arrangements to be implemented at specific locations during the construction of the Project Works and Temporary Works must be issued to the ARTC Project Manager and the Project Verifier.

6.3.2 Inspection of TGS

The requirement to inspect traffic control is stipulated in Section 6 of the TfNSW's *Guide to Traffic Control at Worksites* and Appendix A of Australian Standard 1742.3. There are three main types of inspection:

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

The checklist in the TfNSW's Traffic Control at Worksites manual is generic and can be used for all three types of inspection whether short term, long term or night. The responsibility and frequency of inspections is outlined in TfNSW's *Guide to Traffic Control at Worksites* and is summarised in Table 6-1.

Table 6.1: TGS inspections

Inspection	Responsibility	Frequency
Pre-start and pre-finish	Traffic Supervisor (Contractor)	Daily
Weekly audit	Traffic Engineer (John Holland)	Twice a week
Night audit	Traffic Engineer (John Holland)	Once a week
Pre-opening inspections	Traffic Foreman, Traffic Engineer (John Holland)	Prior to opening any new temporary roadwork site of major adjustment

6.4 Vehicle and pedestrian movement

Safe pedestrian and John Holland will plan and execute the Works to ensure safe cycling conditions are maintained at all timesduring their activities. Temporary or modified provisions for bicycles must comply with the requirements of relevant Authorities. Safe cyclist access will be maintained around worksites and compounds during constructions. Where construction works may impact or restrict cyclist access or movement Bayside Council will be informed a minimum of two weeks prior to the disruption. Alternative cycle routes will be implemented and signposted for the duration of the disruption.

John Holland will plan and execute the Works to ensure safe pedestrian conditions are maintained at all times during their activities. Temporary or modified provisions for pedestrians must comply with the requirements of relevant Authorities. Safe pedestrian access will be maintained around worksites and compounds during constructions. Where construction works may impact or restrict pedestrian access or movement Bayside Council will be informed a minimum of two weeks prior to the disruption. Alternative pedestrian routes will be implemented and signposted for the duration of the disruption.

John Holland will obtain approval from relevant authorities prior to implementing any changes to traffic flow, vehicle, pedestrian, public transport and bicycle movements or adjustments to arrangements for control of traffic on roads and footpaths. An occupancy licence must be obtained from relevant Authorities for all road and footpath occupancies, detours and closures.

Where applicable, a VMP and PMP will be submitted along with the TGS. The VMP will show the travel paths for work vehicles accessing and egressing to and from the work site and into the traffic stream. The PMP will show the travel paths for all pedestrians and workers and the signs and devices to be implemented.

6.5 Maintenance

John Holland will ensure that all roads within the work site and identified in the CTMPs will be routinely maintained and suitable for traffic to use. The maintenance will include the repair of potholes, clearing of storm water drain blockages and removing any type of debris from the roadway. Routine maintenance will be carried out on the following:

- All existing roadways from which access to the sites is obtained
- Any temporary roadways and detours implemented during construction.

6.6 Traffic coordination meetings

Monthly traffic coordination meetings will occur (where required) with TfNSW and representatives from TMC, the Police, Bayside Council and Sydney Airport. John Holland will provide appropriate personnel and technical experts to attend the Traffic Coordination Group meetings and Traffic and Transport Liaison Group meetings, as required and requested by the ARTC Project Manager. Agenda items for these meetings may include:

- Actions from previous meetings
- Review of adequacy and effectiveness of existing traffic management measures
- Proposed actions to address identified issues and concerns
- Complaints received
- Traffic incidents that may have occurred and any near misses
- Planned construction activities

- Discussion on proposed traffic management arrangements.

The meetings are proposed to be scheduled in coordination with the “Airport Operations Group” traffic management liaison group meetings. Minutes of the meeting will be prepared and issued to all attendees.

7 Maintaining network performance

The CTMPs developed for each zone will synchronise road works and coordinate with adjacent projects such as Gateway Stages 1 & 3 to optimise the efficiency of multiple works sites whilst minimising the exposure of residents and road users to construction activities in their proximity.

An intelligent synchronised programme will reduce the number of road occupations, minimising the impact on the road network. Stakeholders, including road users, residents and businesses will remain informed of any pending changes which may impact them with concise, timely and targeted notifications.

Best practice control measures will be implemented to maintain the level of service at all intersections and mid-blocks throughout the project works. This strategy combines contemporary road safety and traffic management principles to ensure the safety and amenity of all road users and the public.

John Holland will apply the following key road safety and transport principles to ensure the safety and amenity ofall road users:

- Residents, businesses and properties within the project boundaries will always have access through or around the works
- Ensuring potentially affected pedestrians, cyclists, road users, landowners and businesses are identified during the design and construction planning phase
- Isolating work areas from traffic flows, through appropriate site planning, choice of construction methodologies and clear delineation of worksites that comply with TfNSW requirements, Australian Standards and Council bylaws
- Maximise working opportunity on the roads. Works will be sequenced so that the works can be carried out isolated from live traffic as much as feasibly possible
- Implement traffic control operations that effectively warn, inform and guide road users which minimise delays taking into consideration traffic volumes including times of the day, seasonal traffic and impacts from school traffic
- Minimise driver confusion by ensuring clear and concise TGS and by using existing and new communication networks to advise commuters and the public of upcoming changes on the road network, where applicable
- Effective planning of all construction vehicle movements including the provision of safe access and egress points at the interfaces with the existing road network
- Limit obstructions and restrictions on the existing road network, and when necessary provide alternate routes to maintain access for the local community and businesses
- Enforce a monitoring regime to measure and respond to the impacts of traffic changes and any identified road user or public safety issues.

7.1 Public transport

JH will minimise disruption to the current level of bus services. Local bus service companies will continue to be consulted during the construction period to minimise disruption to services.

John Holland may temporarily close bus stops during construction to facilitate the safe operation of the Works. Before implementing any such closure, John Holland will ensure:

- A temporary bus stop area is provided within 100 m walking distance of the existing bus stop (where feasible and reasonable)
- The temporary stop has comparable capacity and is on the same route and in the same direction of the

closed bus stop.

- Relevant bus service providers and Bayside Council are consulted prior to the closure and/or relocation.

All bus stops temporarily removed or relocated during construction of the Works will be reinstated in 'pre-work' manner providing the same accessibility and functionality.

7.2 Emergency services

Police, ambulance and fire and rescue access will not be impeded by the works.

7.3 Planning

John Holland will carefully consider the signing of the worksite, no matter how brief the occupation of the site may be. This should include:

- Protection of workers
- Provision of adequate warning of changes in surface condition, and the presence of personnel or plant engaged in work on the road
- Adequate instruction of road users and their safe guidance through, around or past the worksite, and
- Safe access and egress to and from the worksite.

John Holland will observe the following basic principles when planning to conduct work on a road:

- Signs and devices shall be appropriate to the conditions at the worksite and shall be used in accordance with TCAWS, unless a risk assessment by a competent person indicates that an alternative arrangement is satisfactory
- Signs and devices shall be erected and displayed before work commences at a worksite
- Signs and devices shall be regularly checked and maintained in a satisfactory condition
- Signs and devices shall be removed from a worksite as soon as practicable. However, appropriate signs should remain in place until all work (including loose stone removal and line marking following bituminous surfacing) has been completed
- Records shall be kept of all work's signing and delineation at roadway or part-roadway closures.

7.3.1 Planned events

During construction, John Holland will give special consideration to, and transport planning will be undertaken to address, the road user needs during special events, including long weekends, Christmas, Easter and school holidays.

7.3.2 Unplanned events

When any unplanned closure of a lane, shoulder or footpath or a restriction in the flow of pedestrians, cyclists, public transport services or traffic occurs, John Holland will immediately advise the ARTC Project Manager andthe relevant Authorities of the nature of the closure or restriction and of the schedule for reopening of the lanes,shoulders or footpaths. John Holland will take all required measures to open the lanes, shoulders or footpaths as quickly as possible.

A Traffic Incident Management Plan (TIMP) has been prepared and includes the following details:

- Nomination of a site-specific contract person to deal with traffic congestion issues when notified by TfNSW personnel or New South Wales Police

- Outline of traffic control measures to be implemented if required due to an incident
- Outline of plant and equipment available on site for emergency situations
- Details of authorities to contact due to an incident occurring
- Emergency procedures for minor and major accidents.

In the event of an incident, processes and procedures outlined in TIMP will be adhered to.

8 Monitor and review

To monitor the effects of the construction activity on affected roads and the surrounding network John Holland will utilise field staff and traffic control Subcontractors. Their objective will be to detect and report any unsafe traffic conditions, incidents and unusual congestion.

The surveillance staff will be regularly briefed on all changes implemented in the surrounding road network and the seasonal variations expected in traffic flows. As per the communications protocol, these staff will immediately report issues to the Project Manager.

Communication is an important part of traffic operations, for both planned and unplanned incidents. John Holland field resources will report all incidents or issues to the Project Manager immediately.

8.1 Internal oversight

John Holland will undertake regular inspections to ensure the safety of all road users during the implementation of this CTMP in compliance with Table 8-1 below.

Table 8.1: Inspection / audit processes

Inspection / audit	Process
A record of each TGS every shift: • After initial set-up • After any changes • During the shift before pack-up	Sign Checklist (TC Company) from each shift by the Shift Supervisor.
A record of the Daily Routine Tasks preformed at all TGS set-ups will be made on thisform each shift by the Shift Supervisor	Weekly overview of all construction works facilitated by short term TGS for the projectOne audit for all TGS implemented at the time of the Audit
Weekly overview of all construction works facilitated by short term TGS for the projectOne audit for all TGS implemented at the time of the Audit	Form A Daily Routine Tasks (Attached in Appendix 1 - Forms) Form B Audit – Traffic Guidance (Attached in Appendix 1 - Forms)
During implementation of TMP's using short term lane closures.	Form C, Audit - Traffic Management (Attached in Appendix 1 - Forms)
The Traffic Coordinator and a Client Representative will jointly conduct an audit using of all project-wide Traffic Management strategies at least once every calendar month.	Form C, Audit - Traffic Management Form J, TIS Review Checklist
If a road incident occurs within the boundaries of an approved TGS, the ShiftSupervisor should record details of the incident in Form D, and ensure that all obligations detailed in the Traffic Incident Management Plan are met	Form D, Incident Summary Report (Attached in Appendix 1 -Forms)

8.2 Record keeping

Appendix A of AS1742.3 requires all John Holland supervisory personnel engaged in the implementation of TGS, keep the daily records and checklists.

Daily records of the sign arrangement, or traffic guidance scheme should be kept in a diary or in work sheets. Special attention should be given to recording the installation, alteration and removal of all regulatory signs and devices, including speed restriction signs. For short-term construction or maintenance work, reference to the diagram number(s) in TCAWS, which generally applies to the layout used, or to a documented procedure, will usually be sufficient. The records should include the hours of operation and surface condition of the road. Any significant changes or additions to, the signs and devices included in the relevant diagram(s) should also be noted.

In the case of crashes, either witnessed or reported, involving the public or from which legal proceedings might arise, the actual type, size and location of signs and devices in use at the time of the accident should be recorded, and the sign arrangement photographed for subsequent reporting. Details of the actual width and condition of the travelled path and weather conditions should also be recorded.

8.2.1 Daily Routine Tasks

John Holland will use Form A to check that the following daily routine tasks are performed to ensure overall safety and smooth operation of a traffic guidance scheme. Supervisory personnel will establish a daily routine, allocating specific tasks to workers and supervisors, so that:

- Loss of production time is minimised
- Plant operations are not disrupted
- Signing at all times is adequate for the safety of workers and traffic, and
- The surface of the travelled path is maintained in a satisfactory condition.

8.2.2 Implementation of TGS

John Holland will maintain records of:

- All TGS, including dates and times the schemes were erected and removed
- Any adjustments made to such schemes
- Inspections during the shift.

All documentation will be maintained in regard to all TGS and any modifications to them, along with dates, times and reasons for their inclusion and exclusion. The documentation will be filed and kept onsite for the duration of the Project.

8.2.3 Incidents

This information may be critical should legal proceedings result from a crash on site. In such cases, John Holland may be requested to provide details of signs and devices erected at worksites long since completed and many years in the past, which could not be accurately answered unless these details are recorded and kept.

8.3 Corrective actions

Deficiencies identified during audits and site inspections will be discussed with relevant construction units and/or Traffic Team Field resources. Where possible, John Holland will aim to rectify the deficiency immediately.

Audit results requiring follow-up actions will be raised as either an observation or a non-conformance. Any

identified actions will be assessed against a safety matrix to nominate the probable consequence and likelihood of any risk identified. High risks issues will be addressed immediately.

Any proposed changes to current TGS's will be initiated by the Traffic Control Contractor after consultation with construction personnel. Corrective actions will be undertaken at the next available safe opportunity. Interim risk management will be implemented if necessary and may include warning utility, VMS messaging and public broadcasts in consultation with the Community and Stakeholder Management representative.

8.4 Preventative actions

The Project Manager will regularly analyse and review the following data to determine trends:

- Results of incident and crash investigations
- Incident, near miss and observation reports
- Daily Inspection Checklists
- Results of traffic flow monitoring
- Feedback from DTMR or Council meetings and other meetings with external agencies
- Changes to legislation
- Industry reports.

The Project Manager will then recommend and implement the scope and timing of preventive action to be taken to reverse negative trends or prevent a recurrence of undesirable outcomes. All preventive actions will be closely monitored to determine their effectiveness including any requirements for additional measures.

9 Road Safety Audits

9.1 Purpose and benefits

A Road Safety Audit Process is a formal procedure for checking the design, implementation and operation of road works from a safety perspective. The establishment of quality systems provides the philosophy underpinning the Road Safety Audit 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.

The benefits of road safety audits are that:

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

9.2 Roads Safety Audits of Traffic Management Plans

Prior to any CTMP's initial implementation, and whenever significant changes are made to the CTMP, road safety audits will be undertaken on the CTMPs prepared for the Project. The audit team at minimum will comprise of a lead auditor with Level 3 certification and a second auditor with a Level 2 or higher certification, and must be listed on the NSW Centre for Road Safety's Register of Road Safety Auditors.
All roads safety audits of CTMPs will be undertaken in accordance with the NSW Centre for Road Safety Publication *Guidelines for Road Safety Audit Practices* and Austroads *Guide to Road Safety Part 6: Road Safety Audit*.

9.3 Road Safety Audits of the Site

Road safety audits of the Site will also be undertaken during the following stages:

9.3.1 Pre-Road opening stage

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

9.3.2 Post-Road opening stage

Within 24hrs of a traffic switch onto a temporary roadway, detour or final opening, a road safety audit will be undertaken of the effectiveness and visibility of the implemented traffic control measures at both daytime and night time.

9.3.3 Road Safety Audit of temporary work

John Holland will undertake regular safety walks of work zones to ensure all worksite safety arrangements are in place. These audits will be conducted by the Traffic Control Site Manager and will be additional to the daily inspections by site staff. Particular attention will be given to OH&S guidelines, work areas adjacent to the road, movement of construction traffic, vehicle speeds, and all warning devices/systems.

Appendix 1 – Forms

FORM A
WORKS ON ROAD – Daily Checklist

Must be completed daily by the John Holland Site Supervisor.

Day: **Date:** **Time:**

1	**Site Details**			
1.1	Work Location:			
1.2	Nature of Works:			
2	**Traffic Controller Operation**		**Yes**	**No**
2.1	TC Licences / Cards on hand?	Failure to produce TC qualification on request is a breach of safety	☐	☐
2.2	Are TC appropriately positioned for day/night activities?		☐	☐
2.3	Is the sight distance to approaching traffic adequate?		☐	☐
2.4	Do TCs have a clear escape route?		☐	☐
2.5	Has provision been made to prevent end of queue accidents?		☐	☐
2.6	Are signs associated with the TCs, in place and appropriately displayed and covered or removed when not required?		☐	☐

3	**Workplace Safety in Road / Lane Closure Operation**	**N/A**	**Yes**	**No**
3.1	TGS (on hand) represents actual implementation on site?	☐	☐	☐
3.2	Has a Sign Checklist (or similar) been commenced / completed?	☐	☐	☐
3.3	Is the TGS installed correctly (AS1742 Part 3 compliant)?	☐	☐	☐
3.4	Is the TGS relevant for the works in progress?	☐	☐	☐
3.5	Has a permit / licence to occupy the road been issued and is it being complied with?	☐	☐	☐
3.6	Are the safe clearances in place between workers and approaching traffic?	☐	☐	☐
3.7	Are all JH **Worker PPE** Requirements adhered to?	☐	☐	☐
3.8	Are all JH **Site Vehicle** requirements adhered to?	☐	☐	☐
3.9	Are all JH **Plant** requirements adhered to?	☐	☐	☐
3.10	Are all JH **Communication** requirements adhered to (UHF protocols etc.)?	☐	☐	☐
4	**Miscellaneous**			
4.1	Is there emergency vehicle access through the work area?	☐	☐	☐
4.2	Is there allowance for large vehicles, particularly over-size vehicles?	☐	☐	☐
4.3	Are safe thoroughfare facilities provided for all Vulnerable Road Users?	☐	☐	☐
5	**Actions**			

Check by: **Signature:**

FORM B

AUDIT - Traffic Guidance

This Form conforms with AGTTM Part 10, Appendix A and AS1742.3. A 'Suitably Qualified' person shall audit a TGS on the first occasion it is deployed and weekly thereafter. All 'No' responses must be addressed immediately on site and recorded in 'Actions' field at bottom of this Audit.

Location:		Date:	
		Time:	

1	Auditor Details		Yes	No
1.1	Name:			
1.2	Position:			
1.3	Are you currently qualified in this State to audit Traffic Guidance Schemes?		☐	☐
2	**Record Keeping & Daily Routine Tasks**	**N/A**	**Yes**	**No**
2.1	Has a TGS been prepared (sighted)?	☐	☐	☐
2.2	Is the plan endorsed by a 'suitably qualified person'?	☐	☐	☐
2.3	Has a Permit / Licence been issued by the Road Authority?	☐	☐	☐
2.4	Is the Permit / Memorandum / Licence on site?	☐	☐	☐
2.5	Is the Site Supervisor doing Daily Routine checks (Form A)?	☐	☐	☐
2.6	Is the TC Team Leader doing sign checks and recording times?	☐	☐	☐
3	**Speed Reductions**			
3.1	Are speed reductions made in compliance with the Permit?	☐	☐	☐
3.2	Are advance speed reduction signs placed appropriately?	☐	☐	☐
3.3	Are the speed signs the correct size, spacing and height?	☐	☐	☐
3.4	Have conflicting speed signs been covered?	☐	☐	☐
3.5	Are repeater signs installed if required?	☐	☐	☐
3.6	At the end of the work zone has the pre-existing speed limit been reinstated?	☐	☐	☐
4	**Traffic Controllers**			
4.1	Is a qualified TC on site during all working hours?	☐	☐	☐
4.2	Is all PPE being worn?	☐	☐	☐
4.3	Are the traffic controllers managing traffic effectively?	☐	☐	☐
4.4	Are communications between traffic controllers effective and appropriate?	☐	☐	☐
4.5	Is the correct number of traffic controllers being used on site?	☐	☐	☐
4.6	Do traffic controllers have safe sight distances to approaching traffic?	☐	☐	☐
4.7	Do traffic controllers have a clear escape route?	☐	☐	☐
4.8	Are traffic controllers facing their threat (approaching traffic)?	☐	☐	☐
4.9	Has provision been made to prevent 'end of queue' crashes?	☐	☐	☐
4.10	Are traffic controllers given breaks during the shift?	☐	☐	☐

5	Signs and Devices	N/A	Yes	No
5.1	**General**			☐
5.1.1	Are signs and devices set out in accordance with the TGS?	☐	☐	☐
5.1.2	Are side roads adequately signed?	☐	☐	☐
5.1.3	Are there fences, cones and bollards in place to guide pedestrian around the site where vehicles operate in close proximity?	☐	☐	☐
5.1.4	Are all signs and devices in good condition?	☐	☐	☐
5.1.5	Are the signs clearly visible and not affected (e.g. by other signs, plant items, vegetation, shade, light, glare)?	☐	☐	☐
5.1.6	Are sign faces retro-reflective for night-time works?	☐	☐	☐
5.1.7	Are signs displayed on frangible mounts?	☐	☐	☐
5.2	**Barrier Boards, Bollards, Traffic Cones**			☐
5.2.1	Are barrier boards installed perpendicular to approaching traffic?	☐	☐	☐
5.2.2	Are barrier boards at correct height and spacing on two legs weighted to reduce wind movement?	☐	☐	☐
5.2.3	Are barrier boards orientated to display downward black slash pointing to the safe driven path (away from hazard to safety)?	☐	☐	☐
5.2.4	Are traffic cones and bollards correctly positioned to delineate work areas?	☐	☐	☐
5.3	**Flashing Arrow Signs (FAS)**			☐
5.3.1	Are FAS located correctly?	☐	☐	☐
5.3.2	Do FAS and Lane Status signs corroborate the alignment changes?	☐	☐	☐
5.4	**Portable Traffic Signals**			☐
5.4.1	Has approval been obtained for the portable traffic signals?	☐	☐	☐
5.4.2	Are they preceded by a PREPARE TO STOP (T1-18) sign?	☐	☐	☐
5.4.3	Is the current mode of operation in balance with traffic demand?	☐	☐	☐
5.4.4	What is the maximum observed delay time of queues under stop condition?	☐	minutes	
5.5	**Variable Message Signs**			☐
5.5.1	Does the use of variable message signs comply with the TGS?	☐	☐	☐
5.5.2	Are VMS positioned safely?	☐	☐	☐
5.5.3	Are displayed messages visible to approaching traffic?	☐	☐	☐
6	**Road User Interface**			
6.1	**Cyclists, Pedestrians and Disabled**			☐
6.1.1	Do controls prevent access to all work areas by members of the public?	☐	☐	☐
6.1.2	Can cyclists and pedestrians safely traverse the site?	☐	☐	☐
6.1.3	Are footpaths and shared paths clear of signs?	☐	☐	☐
6.1.4	Have warning signs been provided for pedestrians and cyclists?	☐	☐	☐
6.1.5	Can cycles, wheelchairs and prams traverse temporary paths?	☐	☐	☐
6.2	**Provision for Hours of Darkness**			☐
6.2.1	Are suitable lamps provided in compliance with AS 1742.3 Section 3.11?	☐	☐	☐

6.2.2	Are all lamps operational and effective in darkness?	☐	☐	☐
6.2.3	Are all workers, including traffic controllers, wearing reflective clothing?	☐	☐	☐
6.3	**End of Queue**			☐
6.3.1	Has an assessment of expected queue length been undertaken / documented and adequately managed?			
	• around road bends	☐	☐	☐
	• at intersections	☐	☐	☐
	• over crests	☐	☐	☐
6.4	**Workers on Foot**			☐
6.4.1	Have workers working within ed/briefed/tool-boxed on requirements of AGTTM?	☐	☐	☐
6.4.2	Where workers working within the revolving plant, are satisfactory risk controls in place?	☐	☐	☐
6.4.3	Are spotters being used near reversing plant or delivery vehicles?	☐	☐	☐
6.5	**Vehicle Management Plan (VMP)**			☐
6.5.1	Has a VMP been approved and provided?	☐	☐	☐
6.5.2	Have egress and ingress at the site been safely provided?	☐	☐	☐
6.5.3	Has off-line acceleration and deceleration space been provided?	☐	☐	☐
6.5.4	Are U turns being undertaken safely, related to sight distances?	☐	☐	☐
6.5.5	Are reversing movements undertaken safely with regards to sight distances?	☐	☐	☐
6.5.6	Are signs provided for stockpile sites etc as required?	☐	☐	☐
6.5.7	Are median crossovers being used correctly with regards to sight distances?	☐	☐	☐
6.5.8	Are delivery vehicles required to report to a designated location/person? Is it happening on site?	☐	☐	☐
7	**Miscellaneous**	**N/A**	**Yes**	**No**
7.1	Are all requirements met for intermittent work?	☐	☐	☐
7.2	Where a spotter is used, are all requirements being met?	☐	☐	☐
7.3	Are all requirements met for mobile works?	☐	☐	☐
7.4	Is plant that travels to/from the work site at speeds 20km/hr below the speed limit, properly escorted (AS 1742.3 and AGTTM Part 4)?	☐	☐	☐
7.5	Have provisions been made for emergency vehicle access through the work area?	☐	☐	☐

Actions / Additional Comments:

Auditor Name:	**Position:**	**Signature:**

FORM C
AUDIT - Traffic Management

This Form conforms with AGTTM Part 8, Appendix B2. This audit shall be conducted for long term set-ups by suitably a qualified 'Traffic Management SME'.

Location:		**Date:**	
		Time:	

1	**Auditors Details**		**Yes**	**No**
1.1	Name:			
1.2	Position:			
1.3	Are you currently qualified in this State to audit Traffic Guidance Schemes?		☐	☐
1.4	Do you have min. 5 yrs experience developing long-term Traffic Management Strategies?		☐	☐
1.5	Are you a qualified Road Safety Auditor (not essential, but preferred)?		☐	☐
2	**Traffic Management Plan (TMP)**	**N/A**	**Yes**	**No**
2.1	Has a written TMP document with scale drawings been prepared?	☐	☐	☐
2.3	Has the TMP been endorsed by a suitably qualified traffic professional?	☐	☐	☐
2.3	Does the work require complex traffic and/or high-risk arrangements?	☐	☐	☐
2.4	Have these arrangements been designed through a TTM process?	☐	☐	☐
2.5	Has that TTM design been 'Issued for Construction'?	☐	☐	☐
3	**Approval to Proceed**			
3.1	Has the Road Authority approved / accepted the TMP?	☐	☐	☐
3.2	Have all other required approvals been obtained (e.g. heritage, environmental, community)?	☐	☐	☐
4	**General Conditions of Approval**			
4.1	Are there restrictions on working hours?	☐	☐	☐
4.2	Are these work hours being adhered to?	☐	☐	☐
4.3	Does the TMP require communication of traffic changes to the public?	☐	☐	☐
4.4	Are the communication requirements being followed (i.e. VMS)?	☐	☐	☐
4.5	Does the TMP require liaison with other Government Agencies (i.e. TMC, Police, Emergency Services)?	☐	☐	☐
4.6	Are the liaison requirements being followed?	☐	☐	☐
4.8	Does the TMP require a Road Safety Audit post implementation of each temporary traffic or pedestrian measure?	☐	☐	☐
4.9	Has the Road Safety Audit been conducted?	☐	☐	☐
5	**Record Keeping**			
5.1	Are records of this TMP document, approval by relevant authorities, pre and post implementation audits being kept for future reference?	☐	☐	☐

5.2	Is the operation of this TMP being monitored and inspected daily by a John Holland representative?	☐	☐	☐
5.3	Is this Audit Checklist being performed weekly during the operation of the TMP by a suitably qualified person?	☐	☐	☐
5.4	Is a copy of this Audit Checklist being provided to relevant internal and external stakeholders as required by the Contract?	☐	☐	☐
5.5	Is this original Audit Checklist being kept for future reference?	☐	☐	☐
6	**Personnel**			
6.1	Are workers on site at the time of this Audit?	☐	☐	☐
6.2	Is high visibility clothing being worn in accordance with AS 1742.3 Section 3.16.5, particularly where people are working adjacent to vehicles and traffic routes?	☐	☐	☐
6.3	Are Traffic Controllers working on site at time of Audit?	☐	☐	☐
6.4	Do all Traffic Controllers hold the relevant traffic controller qualifications for the role they are performing?	☐	☐	☐
6.5	Are the Traffic Controllers managing traffic effectively, particularly at site access and egress locations?	☐	☐	☐
6.6	Are communications between Traffic Controllers and site traffic effective and appropriate?	☐	☐	☐
7	**Traffic Signs, Devices and Layout**			
7.1	**Compliance with the written TMP document and plans**			
7.1.1	Are signs and devices set out in accordance with the approved TMP?	☐	☐	☐
7.1.2	Is there appropriate pedestrian exclusion control implemented where work traffic and foot traffic intersect (i.e. barriers, bollards, fencing, cones and guardrail)?	☐	☐	☐
7.1.3	Are chainage locations nominated for Sign, Device and Pavement marking locations in TMP document replicated on site?	☐	☐	☐
7.1.4	If not, has the relevant TMP long term drawing been amended to reflect the reason for variation?	☐	☐	☐
7.1.5	Has the amended drawing and sign / device location been approved by the relevant authorities and filed for future reference?	☐	☐	☐
7.2	**Presentation of Signs and Devices**			☐
7.2.1	Are all signs and devices installed in compliance with safe road design principles (AUSTROADS, AS 1742 and specific Road Authority guidelines)?	☐	☐	☐
7.2.2	Are the signs clearly visible and not affected (e.g. by other signs, plant items, vegetation, shade, light, glare)?	☐	☐	☐
7.2.3	Are sign faces compliant with AS 1742.3 and have Class 1 retro-reflective material?	☐	☐	☐
7.2.4	Are signs of the correct size for the speed conditions?	☐	☐	☐
7.2.5	Are signs installed within the 'Clear Zone' erected on frangible posts, on break away mounts or protected by an approved barrier treatment?			
7.3	**Temporary Speed Limits**			☐

7.3.1	Have speed limit signs been separately approved by the relevant Road Authority for long term use in this TMP?	☐	☐	☐
7.3.2	Are signs erected at the correct height, alignment and position?	☐	☐	☐
7.3.3	Are signs given the correct sight distance (min 2.5 x D metres, D = permanent speed limit)?	☐	☐	☐
7.3.4	Are regulatory / speed signs duplicated where required (dual lane carriageways or greater)?	☐	☐	☐
7.3.5	Are speed limit repeater signs installed at appropriate travel time intervals?	☐	☐	☐
7.4	**Portable Traffic Signals**			☐
7.4.1	Are portable traffic signals in use at time of audit?	☐	☐	☐
7.4.2	Has approval been obtained for the portable traffic signals?	☐	☐	☐
7.4.3	Are they preceded by a PREPARE TO STOP (T1-18) sign?	☐	☐	☐
7.4.4	Is the current mode of operation in balance with traffic demand?	☐	☐	☐
7.4.5	What is the maximum observed delay time of queues under stop condition?		☐	minutes
7.4.6	Is the maximum observed delay time appropriate?	☐	☐	☐
7.4.7	Are back of queues cleared before losing sight of the traffic signals?	☐	☐	☐
7.5	**Use of Variable Message Signs**			☐
7.5.1	Are variable message signs in use?	☐	☐	☐
7.5.2	Has the Road Authority approved the message content, location and timing of these displays?	☐	☐	☐
7.5.3	Does the use of variable message signs comply with this approval?	☐	☐	☐
7.5.5	Are portable VMS trailers (non-frangible) positioned outside the 'Clear Zone' or protected by an existing or temporary barrier treatment?	☐	☐	☐
7.5.6	Are the displayed messages clearly visible to approaching traffic 2.5 seconds ahead?	☐	☐	☐
7.6	**Pavement Marking, Configuration and Standard**			☐
7.6.1	Has a new road alignment been implemented by this TMP?	☐	☐	☐
7.6.2	Are chainage locations nominated for pavement marking alterations in TMP document replicated on site?	☐	☐	☐
7.6.3	Are lane widths adequate on site for the safe thoroughfare of traffic?	☐	☐	☐
7.6.4	Is the line marking clear and obvious to all road users?	☐	☐	☐
7.6.5	Are redundant lines from the previous configuration completely removed or obscured to remove alignment ambiguity?	☐	☐	☐
7.6.6	Is the line marking clearly visible at night (Glass beads)?	☐	☐	☐
7.6.7	Is the road surface clean and adequate for all road users (motorcycles, cyclists and caravans)?	☐	☐	☐
7.6.8	Is the pavement free of ponding area's and high- flow channels which may affect traction (aquaplaning)?	☐	☐	☐
7.7	**Barrier Boards and Bollards**			☐
7.7.1	Are wide shoulders occupied with barrier boards and / or bollards?	☐	☐	☐

7.7.2	Are barrier boards and bollards suitably anchored to negate collapse in high winds?	☐	☐	☐
7.7.3	Are minimum shoulder clearances provided between Barrier Boards / Bollards and the driven path?	☐	☐	☐
8	**Safety Barrier Systems**			
8.1	**Installation**			☐
8.1.1	Does this TMP deploy a temporary Safety Barrier System?	☐	☐	☐
8.1.2	Are chainage locations nominated for Barriers in the TMP document replicated on site?	☐	☐	☐
8.1.3	Are the barriers of an approved type for the purpose and located and assembled correctly (TL rating appropriate)?	☐	☐	☐
8.1.4	Are steel and concrete barrier blunt ends properly protected (tapered at 1:15 to terminate outside the 'Clear Zone' or attached to an approved crash end terminal)?	☐	☐	☐
8.1.5	Are CET's un-damaged and in full working condition?	☐	☐	☐
8.1.6	Is the barrier and CET installation AS 3845 complaint?	☐	☐	☐
8.1.7	Are Plastic Water-Filled Barriers (PWFB) filled with a minimum 350 litres of water each (desirable – 500 litres)?	☐	☐	☐
8.1.8	Are water height indicators and drainage taps serviceable on all PFWB's?	☐	☐	☐
8.2	**Operational Effectiveness**			☐
8.2.1	Are there more than one barrier type connected in one system of barriers?	☐	☐	☐
8.2.2	Are barrier connections compliant with Manufacturers Guidelines?	☐	☐	☐
8.2.3	Are the specified advance and departure terminal anchor lengths installed either side of the Length of Need (LON)?	☐	☐	☐
8.2.4	Are barrier mounted delineators positioned correctly, clean and clearly visible to approach traffic?	☐	☐	☐
8.2.5	Is the face of the barrier smooth without protrusions or blunt ends exposed?	☐	☐	☐
8.2.6	Are there any units in damaged condition (cracked, concrete chunks missing etc..)?	☐	☐	☐
8.2.7	Are the barriers regularly inspected as part of a surveillance program pursuant to AS/NZS 3845?	☐	☐	☐
8.2.8	Is the barrier system correctly located with respect to traffic clearances, kerb and channel locations?	☐	☐	☐
8.2.9	Are all barrier attachments authorised (sign brackets, fencing, steel poles, anti-gawk screens)?	☐	☐	☐
8.2.10	Are minimum shoulder widths (AS1742.3) provided and clearly delineated between the driven path and face of barrier?	☐	☐	☐
8.2.11	Do the barriers provide for adequate drainage of water?	☐	☐	☐
8.2.12	Are the specified dynamic deflection exclusion distances provided behind the barrier to protect workers?	☐	☐	☐
8.2.13	Are all PFWB's maintaining a minimum 350 litres of water content?	☐	☐	☐

8.3	**Removal**			☐
8.3.1	Is there a SWMS for the safe removal of the barrier system?	☐	☐	☐
8.3.2	Has all residual debris been cleared from the pavement after removal?	☐	☐	☐
9	**Managing Vulnerable Road User Groups**			
9.1	**Cyclists, Pedestrians and Disabled**			☐
9.1.1	Are the identified controls in place to prevent unauthorised access to all work areas by members of the public?	☐	☐	☐
9.1.2	Are pedestrian and cycle paths through the new alignment clearly delineated and exclusive of the work area?	☐	☐	☐
9.1.3	Are footpaths and cycle lanes compliant with AUSTROADS specifications?	☐	☐	☐
9.1.4	Are chainage locations nominated for new pedestrian paths and cycle routes in the TMP document replicated on site?	☐	☐	☐
9.1.5	Have advance warning and guidance signs been provided for pedestrians and cyclists?	☐	☐	☐
9.1.6	Can cyclists, wheelchairs and prams traverse the new paths, in particular ramps between road crossings and paths?	☐	☐	☐
9.1.7	Are all necessary pedestrian connections maintained at intersections?	☐	☐	☐
9.1.8	Are Traffic Controllers used to guide / assist pedestrians and disabled persons across site gates or through 'pinch-points'?	☐	☐	☐
9.1.9	Are these Traffic Controllers performing this role in a manner which reflects the Lendlease core values?	☐	☐	☐
9.2	**Private Properties**			☐
9.2.1	Are any private residences or business properties impacted by the implementation of this TMP?	☐	☐	☐
9.2.2	Are the access provisions of the approved TMP being executed on site?	☐	☐	☐
9.2.3	Are any temporary alternative access arrangements deployed and working effectively?	☐	☐	☐
9.3	**Public Transport Providers**			☐
9.3.1	Are any bus facilities or access to train stations impacted by the implementation of this TMP?	☐	☐	☐
9.3.2	Are the access provisions of the approved TMP being executed on site?	☐	☐	☐
9.3.3	Are temporary bus stops installed and working efficiently?	☐	☐	☐
9.3.4	Are the temporary access arrangements of these bus stops meeting the requirements of bus patrons?	☐	☐	☐
9.3.5	Are temporary bus shelters, J-poles suitably located to meet the needs of patrons and bus drivers?	☐	☐	☐
9.3.6	Are 'Ad-Shell' type bus stops still clearly visible to passing traffic?	☐	☐	☐
10	**Provision for Hours of Darkness**			
10.1	Has the TMP been inspected in reduced light conditions?	☐	☐	☐
10.2	Are all alignments, signs and devices clearly visible to road users at night?	☐	☐	☐

FORM G – Traffic Management Plan

10.3	Is suitable illumination provided at conflict points (site gates, pedestrian crossings) in compliance with AUSTROADS?			
10.4	Are all lamps operational and effective in darkness?	☐	☐	☐
10.5	Are these lights properly aligned to avoid driver confusion and distraction?	☐	☐	☐
11	**Road Maintenance & Dilapidation**			
11.1	**Potholes & Delamination of Pavement**			
11.1.1	Are there any potholes in the road surface (≥30mm deep)?	☐	☐	☐
11.1.2	Are there any potholes / trip hazards on pedestrian paths (≥10mm deep)?	☐	☐	☐
11.2	**Isolated depressions or bumps**			
11.2.1	Is there a fault within the pedestrian zone/crossing or cycle way (≥40mm)	☐	☐	☐
11.2.2	Is there a fault in any other road use area (≥75mm)	☐	☐	☐
11.2.3	Is there an 'Abrupt Fault' – longitudinal rate of change on the road surface (≥20mm)	☐	☐	☐
11.2.4	Is there any water ponding?	☐	☐	☐
11.3	**Shoving (Lateral movements)**			
11.3.1	Is there a fault within the pedestrian zone/crossing or cycle way (≥30mm)	☐	☐	☐
11.3.2	Is there a fault in any other road use area (≥30mm)	☐	☐	☐
11.3.3	Is there an 'Abrupt Fault' – lateral rate of change on the road surface (≥50mm)	☐	☐	☐
11.3.4	Is there any water ponding (≥0.5m² area)	☐	☐	☐
11.4	**Discontinuity in Surface Levels (other than concrete joints)**			
11.4.1	Is there any transverse discontinuity of surface levels (≥20mm)?	☐	☐	☐
11.4.2	Is there any longitudinal discontinuity of surface levels (≥30mm)?	☐	☐	☐
11.5	**Edge Breaks**			
11.5.1	Is there any edge breaking which extends into traffic lanes, cycleway or walkway (within 200mm)	☐	☐	☐
11.6	**Surface Faults**			
11.6.1	Are there any bleeding areas picking up on vehicle tyres which may be hazardous to traffic?	☐	☐	☐
11.6.2	Is the surface broken – basecourse visible	☐	☐	☐
11.6.3	Are there any areas of bleeding (20m² area)	☐	☐	☐
11.6.4	Is the seal stripping - 30% stone loss (≥20m² area)	☐	☐	☐
11.7	**Concrete Slab Instability**			
11.7.1	Is there a step at a transverse or longitudinal joint (≥20mm)?	☐	☐	☐
11.7.2	Is there any settlement or heaving of the slab (≥30mm)?	☐	☐	☐
11.7.3	Is there any noticeable movement of the slab under vehicle load?	☐	☐	☐
11.7.4	Is there any spalling or loss of sealant in longitudinal or transverse joints (opening ≥30mm)?	☐	☐	☐

	Are there any lengths of sealant loss or incompressible material present (≥1m long)?	☐	☐	☐
11.8	**Vegetation Control**			
11.8.1	Is there any grass, weed or other vegetation present in verges, shoulders, medians and traffic islands (≥200mm in height)?			
11.8.2	Are visible sight lines available and clear of vegetative obstruction (min 150m) on approach to Intersections, Sign Faces, Traffic Signals or Non-Pavement delineators?	☐	☐	☐
11.8.3	Are there any dying or broken limbs of trees in danger of imminent collapse over roads, cycleways and paths?	☐	☐	☐
11.9	**Drainage**			
11.9.1	Are there any differential levels between grate/id and abutting pavement surface (≥25mm)?			
11.9.2	Are there any differential levels or rocking relative to when grate/lid is under vehicle load (≥25mm)?			
11.9.3	Are there any missing, damaged or collapsed grate/lids or grids?			
11	**Miscellaneous**			
11.1	Are safe access / egress points to the work area provided?	☐	☐	☐
11.2	Are deliveries complying with the site VMP?	☐	☐	☐

Actions / Additional Comments:

Auditor Name:	Position:	Signature:	Date:

Close-Out Name	Position:	Signature:	Date:

FORM D

Traffic Incident Summary

This Form conforms with AGTTM Form B.11. It is a summary for all incidents on-roads. 'Major' incidents with serious damage or injury, detailed reports and witness versions should be attached. Projects may amend this document to address specific site and client requirements.

Project Name:		***Incident Ref No.:***	
Date of Incident:		***Time of Incident:***	

Reported by:

Type of Incident:

☐ Minor Crash ☐ Major Crash - ***Submit Major Incident Report***
(Attach sketch plan for all crashes - page 2)
☐ Breakdown ☐ Debris / Litter ☐ Abandonned Vehicle ☐ TMA Strike
☐ Other: _____ Crash Type (DCA Code): _____

Location of Incident: (direction of travel; lane; zone and landmark. eg. Bridge, Gate, Cross Street)

☐ NB ☐ SB ☐ EB ☐ WB ☐ L Shoulder ☐ SL ☐ FL ☐ R Shoulder
☐ Zone 1 ☐ Local Road – _____
☐ Zone 2
☐ Zone 3 ☐ Main Road – _____
☐ Zone 4

Brief Description of Incident (including work being undertaken):

Operation Type:

Long Term (TTM)	TGS Static	TGS Mobile	Shoulder

Vehicle(s) Description:

	Type of Vehicle	Model	Rego	Colour
1				
2				
3				
4				

Notifications:

☐ TMC/other _____ hrs ☐ Project Rep/ other _____ hrs
☐ SMS Broadcast sent (major incidents only) ☐ Not required

Weather Conditions:

☐ Wet ☐ Dry/Fine ☐ Light Rain ☐ Heavy Rain

Injuries (if any):

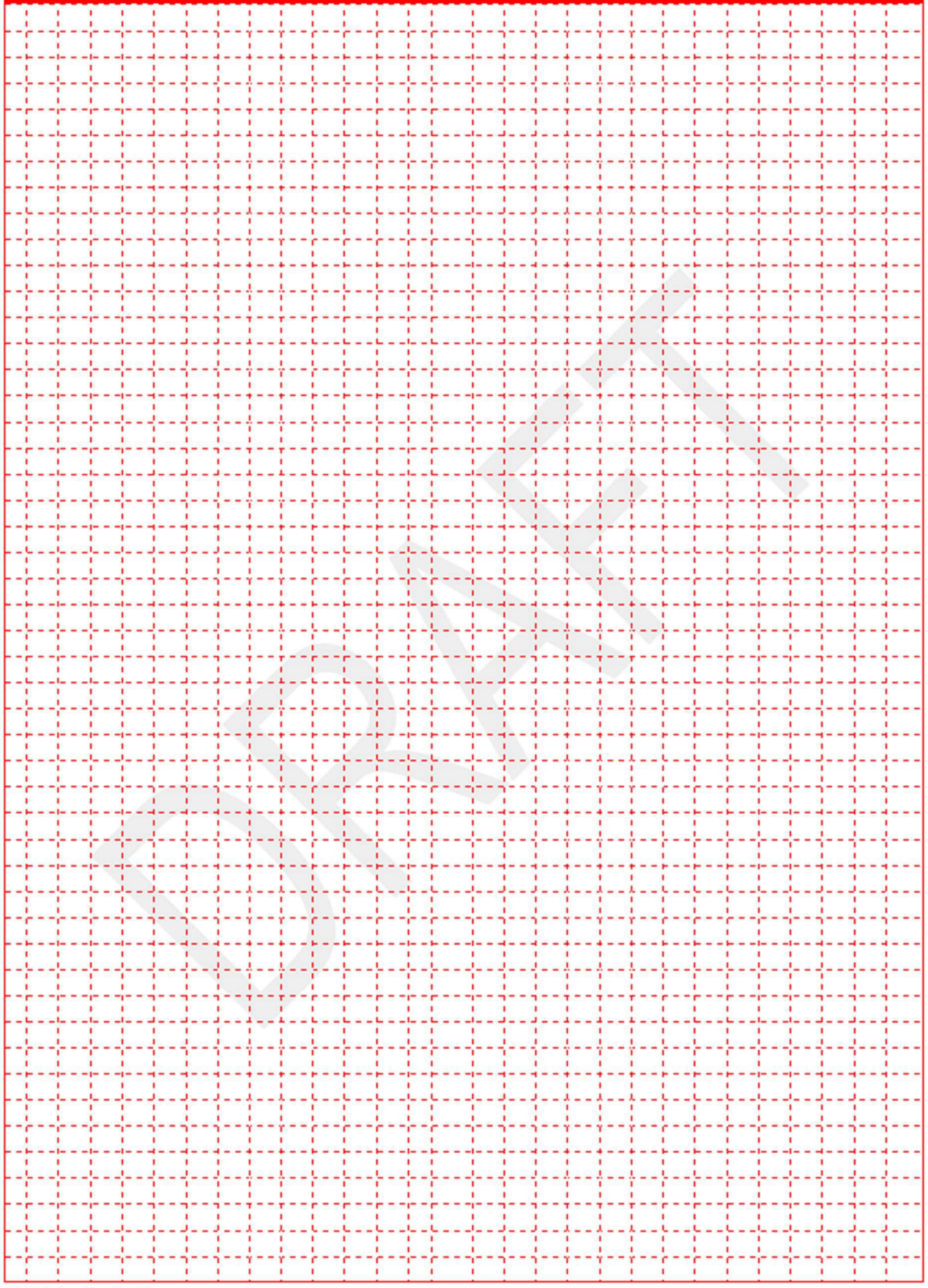
☐ Property Only ☐ Treated at Scene ☐ Taken to Hospital ☐ Fatal
☐ Other: _____
No. of People Injured (total): _____ Road Users: _____ Road Workers: _____

Emergency Services Attending:

☐ Police _____ ☐ Ambulance ☐ Fire
☐ TMC ☐ Tow Truck ☐ Traffic Guidance ☐ Other: _____

Time Incident Cleared:	_____ hrs	***Attachments:*** *(photos / location plan etc)*	☐ Yes ☐ No

Crash Diagram



Appendix 2 – Quality Policy Statement

JOHN HOLLAND

QUALITY POLICY

UP FOR THE CHALLENGE OF IMPROVING LIVES

OUR COMMITMENT

John Holland is committed to an environment in which our people are motivated to continually improve the efficiency and effectiveness of our products, services and processes within the Quality Management System.

OUR APPROACH

John Holland aims to be an integral part of our customers' and stakeholder' success through the consistent implementation of an effective Quality Management System.

Caring

We care deeply about what we do and how it affects customers and stakeholders by:

- Delivering quality products and services by managing our risks and opportunities through planning and design
- Basing our decisions on facts and analysis of data gathered from measurements such as product, process and system characteristics
- Driving organisational learning through the identification, reporting, investigation and resolution of non-conformances and taking action to correct and prevent recurrence
- Complying with relevant legal obligations, customer requirements and standards relevant to Quality Management System

Empowering

We gain trust through actions by:

- Empowering our people, partners and subcontractors to speak up about poor quality
- Encouraging collaboration between all employees and quality representatives
- Driving accountability to ensure everyone is responsible for quality outputs
- Establishing standards of performance, measurable objectives and targets to ensure successful implementation of our Quality Management System

Imaginative

We push the boundaries by:

- Focusing on continual learning and improvement by reviewing performance, capturing and sharing lessons learnt and celebrating our successes
- Constantly exploring innovation by introducing new technologies and emerging management practices
- Having a transparent critical risk management process that helps us to continuously identify opportunities and improvements to our systems and processes

Future-focused

We're in it for the long, long term by:

- Meeting our legislative, customer and other mandatory requirements
- Establishing and maintaining an effective Quality Management System

Joe Barr
Chief Executive Officer
June 2020

Appendix 3 – Consultation Register

Agency	Comment	JH Response
Bayside Council	While most construction access to the trainline will be via the State Roads in Mascot and Botany before undertaking any access through local streets it would be necessary to obtain an Access Permit from Council.	All approvals and permits will be implemented as per the requirements of the SSI-9714 CoA
	Prior to commencing works in any local streets undertake a dilapidation survey of the streets and forward a copy to Council.	Dilapidation surveys will be carried out prior to use by heavy vehicle, as per CoA E47 and detailed in Appendix 4 of the CTTAMP.
	Prior to implementing the temporary closures of Robey Street and O'Riordan Street for the 2 new bridges submit to Council's Traffic Committee with any proposed detours in the Mascot Area. Eg King Street and High Street Mascot.	Specific TMP's will be produced detailing the requirements associated with the closures of Robey Street and O'Riordan Street including details of consultation with Council prior to implementation of detours.
	As this Project will be underway at the same time as the Gateway Project ensure regular consultation is maintained at all times with both Projects to ensure traffic gridlock does not occur with major works being undertaken at the same time.	Details of consultation with Gateway are included in Section 2.9.1 of this CTTAMP.
	Regularly liaise with Sydney Airport (SACL) to ensure they have no upcoming works which may affect the BRD Project.	Details of liaison with SACL is included in Section 5.2.2 of this CTTAMP.
	Currently TfNSW is undertaking a Major Upgrade of Mascot Station which has affected traffic flows in Bourke Street and outside 166 & 200 O'Riordan Street. This Project is ongoing and will not be completed until Q1 2023. Therefore regularly liaise with TfNSW to ensure they have no upcoming works which may affect the BRD Project.	Details of consultation with TfNSW are included in Section 2.9 of this CTTAMP
	There are numerous Commercial Businesses in the Mascot and Botany Areas which service the Airport. Some of these services operate 24 hours per day so it is essential works on the BRD Project do not affect these local businesses.	Details of liaison with SACL is included in Section 5.2.2 of this CTTAMP.

	Parking is a premium particularly around the Mascot Area so please ensure Workers do not overflow the local streets and remove parking normally used by the Local Residents and Businesses	Details of workforce parking arrangements and restrictions are included in Section 5.10.3 of this CTTAMP
	With the Hotels particularly around the Mascot Area some Hotel Guests walk to the Domestic Terminal along O'Riordan Street and Robey Street. Ensure these pedestrian accessways are maintained at all times.	Details of access arrangements are included in Sections 5.7 and 5.9 of this CTTAMP
	If the works require cranes please note approval is required for such cranes from Sydney Airport (SACL) as they will come up on the Airport Radar.	Details of working arrangements within the OLS are included in Section 5.6 of this CTTAMP
	Prior to undertaking any works on Public Utility Services outside the Rail Boundary notify Council of such works and how they will be managed to minimise the impacts on traffic and pedestrians in the local roads.	Details of access arrangements are included in Sections 5.7 and 5.9 of this CTTAMP
	There are a number of local streets in the Mascot and Botany Areas deemed 3T limited streets. If heavy construction trucks use these streets the drivers will be fined by Council's Rangers.	Details of Haulage Routes are included in Section 5.8 of this CTTAMP and the relevant TMP. Details of the haulage routes will be provided to Council as part of the Road Dilapidation Report as a minimum two weeks prior to use of the road.
	Submit to Council the proposed haulage routes through the area.	Details of Haulage Routes are included in Section 5.8 of this CTTAMP and the relevant TMP. Details of the haulage routes will be provided to Council as part of the Road Dilapidation Report as a minimum two weeks prior to use of the road.

Appendix 4 – Road Dilapidation

DILAPIDATION METHODOLOGY

1 Owner/Occupier Letter of Invitation

Land Surveys shall utilise an address database and generate a *Unique Property Identifier*. This will allow properties to be identified, responses tracked and will facilitate document management and control.

2 Survey Booking System

Invitation letters will detail information on how to book a Property Condition Survey. Land Surveys will provide a dedicated 1300 telephone number and/or online booking service to enable owners to schedule the surveys in at their convenience.

Scheduling of surveys and resources will be contingent upon receiving a 'yes' through this process. As outlined in the flow chart, a 'no reply' or 'Reply NO' will be recorded for completeness.

3 Field Data Acquisition

Land Surveys shall utilise a mobile GIS data capture platform to acquire photographs and/or 360 imagery.

4 Property Condition Survey

Observed defects shall be captured via a GIS data platform, digital camera or 360 camera.

Captured data will be uploaded to cloud storage once completed to ensure data is not lost. This data will then be stored in a secure database.

5 Road Infrastructure Condition Survey

The assessor shall endeavour to conduct all road and footpath inspections at a time convenient to the public. Inspections may be undertaken via a GIS data platform, digital camera, high definition digital video footage or 360-degree spherical camera. This data will then be stored in a secure database.

6 Dilapidation Survey Status & Report

A live spreadsheet containing property details, notes, date of scheduled appointment, survey completion date and URL link to the pdf report or 360 imagery shall be supplied at the start of the project and updated regularly.

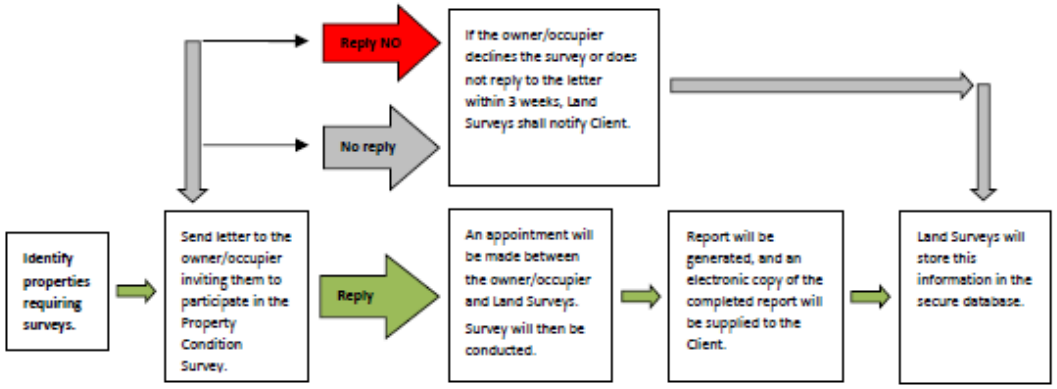


Figure 1 - Property Condition Survey Workflow