



APPENDIX B1

Construction Traffic and Access Management Plan

Woolgoolga to Halfway Creek

Pacific Highway Upgrade

APRIL 2015

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Glossary / Abbreviations

CEMP	Construction Environmental Management Plan
CoA	Condition of approval
DP&I	Former NSW Department of Planning and Infrastructure (now DP&E)
DP&E	NSW Department of Planning and Environment
EIS	Woolgoolga to Ballina Pacific Highway Upgrade Environmental Impact Statement (December, 2012)
EPA	NSW Environment Protection Authority
EP&A Act	<i>NSW Environmental Planning and Assessment Act 1979</i>
EWMS	Environmental Work Method Statement
Minister, the	NSW Minister for Planning
NPW Act	<i>NSW National Parks and Wildlife Act 1974</i>
OEH	NSW Office of Environment and Heritage
OHL Y	OHL York Joint Venture
PoEO Act	<i>NSW Protection of the Environment Operations Act 1997</i>
Project, the	Woolgoolga to Halfway Creek
Secretary	Secretary of the Department of Planning and Environment
SPIR	Woolgoolga to Ballina Pacific Highway Upgrade Submissions Preferred Infrastructure Report (November, 2013)
SZA	Speed Zones Authorisations
SWMS	Safe Work Method Statement
ROL	Road Occupancy Licence
RMS	NSW Roads and Maritime Services
TAMP	Traffic and Access Management Plan
TMP	Traffic Management Plan
TMC	Traffic Management Centre
TCWS	Traffic Control at Work Sites Manual
TSP	Traffic Staging Plans
VMP	Vehicle Movement Plan
VMS	Variable Messages Sign

1 Minister's Conditions of Approval

The CoA relevant to this Plan are listed in Table 1.

Table 1 Conditions of Approval relevant to the Traffic and Access Management Plan

B15	<p>Construction activities associated with the SSI shall be undertaken during the following standard construction hours:</p> <p>(a) 7:00am to 6:00pm Monday to Friday, inclusive; and</p> <p>(b) 8:00am to 5:00pm Saturday; and</p> <p>(c) at no time on Sunday or public holidays</p>	2.11
B16	<p>Construction works outside the standard construction hours may be undertaken in the following circumstances:</p> <p>a) construction works that generate noise that is:</p> <p style="padding-left: 20px;">(i) no more than 5 dB(A) above rating background level at any residence in accordance with the <i>Interim Construction Noise Guideline</i> (DECC, 2009); and</p> <p style="padding-left: 20px;">(ii) no more than the noise management levels specified in Table 3 of the <i>Interim Construction Noise Guideline</i> (DECC, 2009) at other sensitive receivers; or</p> <p>b) for the delivery of materials required outside the standard construction hours by the NSW Police Force or other authorities for safety reasons; or</p> <p>c) where it is required in an emergency to avoid the loss of lives, property and/or to prevent environment harm; or</p> <p>d) between 6:00am and 7:00am and 6:00pm and 7:00pm Monday to Friday (except public holidays) in sparsely populated areas (these construction hours may be reviewed and/or revoked by the Secretary in consultation with the EPA in the case of unresolved noise complaints); or</p> <p>e) low noise impact activities and work between:</p> <p style="padding-left: 20px;">(iii) 6:00am and 7:00am Monday to Friday; and/or</p> <p style="padding-left: 20px;">(iv) 6:00pm and 7:00pm Monday to Friday; or</p> <p>f) works approved through an EPL; or</p> <p>g) works approved by a Construction Environment Management Plan or Construction Noise and Vibration Management Plan for the SSI.</p>	2.11
B18	<p>Construction activities resulting in impulsive or tonal noise emission (such as rock breaking, rock hammering, pile driving) shall only be undertaken:</p>	2.11

CoA No.	Condition Requirements	Document Reference
	<p>(a) between the hours of 8:00am to 5:00pm Monday to Friday;</p> <p>(b) between the hours of 8:00am to 1:00pm Saturday; and</p> <p>(c) In continuous blocks not exceeding three hours each with a minimum respite from those activities and works of not less than one hour between each block.</p> <p>For the purposes of this condition 'continuous' includes any period during which there is less than one hour respite between ceasing and recommencing any of the work the subject of this condition.</p> <p>The works subject to this condition may be undertaken in sparsely populated areas within the standard construction hours.</p>	
B21	<p>Blasting associated with the SSI shall only be undertaken during the following hours:</p> <p>(a) 9:00am to 5:00pm, Monday to Friday, inclusive;</p> <p>(b) 9:00am to 1:00pm on Saturday; and</p> <p>(c) At no time on Sunday or public holidays.</p> <p>Blasting outside the above hours and in accordance with the standard construction hours where:</p> <p>(i) no sensitive receivers in sparsely populated areas would be impacted by blasting; or</p> <p>(ii) an agreement has been made with receivers within 200m of the blast zone to permit blasting in accordance with the standard construction hours.</p> <p>This condition does not apply in the event of a direction from the NSW Police Force or other relevant authority for the safety or emergency reasons to avoid loss of life, property loss and/or to prevent environmental harm.</p>	2.11
B56	<p>The SSI shall be designed with the objective of minimising adverse changes to existing access arrangements and services for other transport modes and, where feasible and reasonable, facilitate an improved level of access and service to other transport modes comparable to or better than the existing situation</p>	4.6.3
B57	<p>Safe pedestrian and cyclist access through or around worksites shall be maintained during construction. In circumstances where pedestrian and cyclist access is restricted due to construction activities, a satisfactory alternate route shall be provided and signposted.</p>	5.4
B58	<p>Construction vehicles (including staff vehicles) associated with the SSI shall be managed to:</p> <p>(a) minimising parking or queuing on public roads;</p> <p>(b) minimise idling and queuing in local residential streets</p>	4,4.2,4.3, 4.4, 5.5

CoA No.	Condition Requirements	Document Reference
	<p>where practicable;</p> <p>(c) minimise the use of local roads (through residential streets and town centres) to gain access to construction sites and compounds; and</p> <p>(d) adhere to the nominated haulage routes identified in the Construction Traffic Management Plan</p>	
B59	<p>In relation to new or modified local road, parking, pedestrian and cycle infrastructure, the SSI shall, where feasible and reasonable, be designed:</p> <p>(a) in consultation with the relevant council;</p> <p>(b) take into consideration existing and future demand, road safety and traffic network impacts;</p> <p>(c) to meet relevant design, engineering and safety guidelines, including Austroads Guide to Traffic Engineering Practice; and</p> <p>be certified by an appropriately qualified person that has considered the above matters.</p>	4.6.4, 5.8
B62	<p>Unencumbered access to private property shall be maintained during construction unless otherwise agreed with the landowner in advance. A landowner's access that is physically affected by the SSI shall be reinstated to at least an equivalent standard, in consultation with the landowner.</p>	4.6.2
B63	<p>The Applicant shall, in consultation with relevant landowners, construct the SSI in a manner that minimises intrusion and disruption to agricultural operations/activities in surrounding properties (eg. stock access, access to farm dams etc), unless otherwise agreed by the landowner.</p>	4.6.2
B65	<p>Where the SSI traverses a state forest, the Applicant shall, in consultation with the NSW Forestry Corporation, ensure that construction does not unduly disrupt existing forestry activities, access for firefighting and access for the other activities within the state forests, unless otherwise agreed by the NSW Forestry Corporation.</p>	4.6.6
B66	<p>The SSI shall be constructed in a manner that minimises dust emissions from the site, including wind-blown and traffic generated dust and tracking of material onto public roads. All activities on the site shall be undertaken with the objective of preventing visible emissions of dust from the site. Should such visible dust emissions occur at any time, the Applicant shall identify and implement all feasible and reasonable dust mitigation measures, including cessation of relevant works, as appropriate, such that emissions of visible dust cease.</p>	5.5
C1	<p>Issues that shall be addressed through the Community Communication Strategy include (but are not necessarily limited to):</p>	6

CoA No.	Condition Requirements	Document Reference
	(i) traffic management (including property access, pedestrian access)	
D19	<p>Upon determining the haulage route(s) for construction vehicles associated with the SSI, and prior to construction, an independent and qualified expert shall prepare a Road Dilapidation Report. The Report shall assess the current condition of the road and describe mechanisms to restore any damage that may result due to its use by traffic and transport related to the construction of the SSI. The Report shall be submitted to the relevant council for review prior to the commencement of haulage.</p> <p>Following completion of construction, a subsequent Report shall be prepared to assess any damage to the road that may have resulted from the construction of the SSI.</p> <p>Measures undertaken to restore or reinstate roads affected by the SSI shall be undertaken in a timely manner, in accordance with the reasonable requirements of the relevant council, and at the full expense of the Applicant.</p>	4.5.1
D26 (b)	<p>a Construction Traffic and Access Management Plan to manage construction traffic and access impacts of the SSI. The Plan shall be developed in consultation with the relevant council and shall include, but not necessarily be limited to:</p> <ul style="list-style-type: none"> (i) identification of construction traffic routes and construction traffic volumes (including heavy vehicle/spoil haulage) on these routes; (ii) details of vehicle movements for construction sites and site compounds including parking, dedicated vehicle turning areas, and ingress and egress points; (iii) identification of construction impacts that could result in disruption of traffic, public transport, pedestrian and cycle access, property access, including details of oversize load movements; (iv) details of management measures to minimise traffic impacts, including temporary road work traffic control measures, onsite vehicle queuing and parking areas and management measures to minimise peak time congestion and measures to ensure safe pedestrian and cycle access; (v) details of measures to manage traffic movements, parking, loading and unloading at ancillary facilities during out-of-hours work; (vi) a response plan which sets out a proposed response to any traffic, construction or other incident; and (vii) mechanisms for the monitoring, review and amendment of this plan. 	<p>This plan</p> <p>Appendix B</p> <p>4.1</p> <p>4.6.3 & 5.4</p> <p>3.2.4</p> <p>2.11</p> <p>5.9.8</p> <p>2.7</p>

CoA No.	Condition Requirements	Document Reference
Sapphire to Woolgoolga CoA Mod 6 2.17 (Arrawarra Rest Area)	<p>Standard construction hours for the duration of construction are –</p> <p>a) 7:00am to 6:00pm Mondays to Fridays, inclusive; and</p> <p>b) 8:00am to 1pm Saturdays; and</p> <p>c) at no time on Sunday's or Public Holidays</p>	2.11

2 Introduction

The Woolgoolga to Halfway Creek section of the Woolgoolga to Ballina Pacific Highway Upgrade is approximately 17 kilometres long extending from and including the Arrawarra rest area (about six kilometres north of Woolgoolga) to northern end of the completed Halfway Creek upgrade just south of Lemon Tree Road, Halfway Creek. The Arrawarra rest area was previously included within the Sapphire to Woolgoolga project. The rest area design facilitates the future development of the site as a highway service centre and provides separate parking areas for trucks, stock and refrigerated trucks, light vehicles and buses/cars with trailers.

Between Arrawarra Beach Road and Eggins Drive, the project will duplicate the existing highway for approximately 1.6 kilometres. A northbound carriageway will be constructed on the western side of the existing highway adjacent to Wedding Bells State Forest and the existing highway will become the new southbound carriageway.

Between Eggins Drive and Range Road, the Project will deviate about 600 metres to the west of the existing highway through the Corindi River floodplain. The project will rejoin the existing highway just before Range Road. The deviation will be approximately 7.7 kilometres long and will take the highway further away from Corindi and Corindi Beach. The Corindi Access Road will also be adjusted to provide access for private properties.

Access to the project will be via two at-grade intersections located between the main line and local roads/auxiliary lanes and two grade separated interchanges located at Arrawarra Beach Road (constructed as part of the Sapphire to Woolgoolga Upgrade recently completed) and Range Road, Dirty Creek. There are also two at-grade connections to private properties. Three bridges on the main carriageway will be provided across Corindi Creek, Corindi floodplain and Cassons Creek.

The project includes the 2.5 kilometre section of the recently completed upgrade at Halfway Creek. No changes will be required to the main carriageways at Halfway Creek. However, this section will require the inclusion of u-turn facilities to service Grays Road and Rediger Close which are both local roads.

The Project Team recognise that the local and national perception of our ability to construct the project in a professional manner may hinge on the success of the traffic management strategies and implementations. Accordingly the OHL shall devote suitable managerial and technical resources with the full support of the Project Director and Senior Management.

2.1 Purpose of this TAMP

This Traffic and Access Management Plan (TAMP) is a sub-plan of the Construction Environmental Plan (CEMP) which has been prepared to comply with the Minister for Planning and Infrastructure's Conditions of Approval for the Woolgoolga to Ballina project.

The purpose of this TAMP is to demonstrate how the OHL York Joint Venture (OHLY) will comply with the traffic management and safety objectives and contractual requirements for the Pacific Highway Upgrade Woolgoolga to Halfway Creek project to the satisfaction of the Roads and Maritime Services (RMS) and all other relevant stakeholders and authorities.

This TAMP provides a structured approach to the management of traffic and road safety issues during the construction of the project. Implementing this TAMP effectively will ensure that the project team meets regulatory and policy requirements in a systematic manner and continually improves its performance.

The OHLY acknowledges the effective management of traffic and the safety of road users is paramount to the successful implementation of day-to-day activities during the construction of this project. This TAMP seeks to ensure the certainty of the delivery of the prescribed road user requirements including the provision of a safe road environment, minimising impacts on the road network and maintaining access for all road users and the local community.

This TAMP has been prepared as a requirement of, and in accordance with the Minister's Conditions of Approval (CoA) D26(b).

2.2 Plan Objectives

The traffic management principles to be applied by the OHLY on this project will ensure:

- The provision of a safe environment for road users and workers.
- The overall impact on road users will be kept to a minimum.
- Access is maintained for the local community, transport operators and commercial developments.
- Road users and local communities are regularly informed in relation to changed traffic conditions.

This plan has been developed in accordance with these principles, with the primary objective of promoting the continuous, safe and efficient movement of road users through the project corridor. The TAMP and the additional Traffic Management Plans (TMP's) that will be developed for each specific traffic stage of the project works will aim to:

- Ensure all road users are given consideration during all phases of the project works;
- Maximise the safety for the workers, by isolating work areas from traffic flows, applying low exposure work methods, through the installation of appropriate traffic control; and providing education to the construction workforce;
- Provide a safe environment for all road users through the installation of a high standard of traffic controls, which effectively warn, inform, guide and that comply with the best practice, RMS requirements and the Australian Standards;

- Plan and stage all works effectively to avoid road occupancy where possible and minimise conflict points on the existing road network;
- Implement traffic control operations that minimise delays to road users taking into consideration traffic volumes including peak times of the day and seasonal traffic;
- Minimise driver confusion by ensuring clear and concise traffic management schemes;
- Effectively plan all construction vehicle movements including the provision of safe ingress and egress points at the interfaces with the existing road network.
- Limit obstructions and restrictions on the existing road network, and when required provide alternate routes to maintain access for the local community, transport operators including over-dimension load movements and local businesses;
- Proactively support the RMS and emergency services unplanned incident management strategies, through incident detection, communication, initial response and sharing of resources;
- Effectively communicate changed traffic conditions with key stakeholders including the community, road authorities, Police, local councils, emergency service agencies and transport operators.
- Satisfy the key requirements related to traffic, transport and access contained within the Environmental Assessment and CoA.
- Ensure that no one is injured on the project and there is no property damage.
- Actively monitor traffic impacts related to the construction works.
- Maximise the value and outcomes of traffic monitoring activities so that the information can be applied to the planning and implementation of traffic control plans.
- Ensure compliance with relevant specifications and the RMS – Traffic Control at Work Sites (TCWS) Manual.
- Meet the Program/Schedule and have the opening completion by January 2017.
- Deliver a high standard of community engagement and awareness during the construction works.

2.3 Project Overview and Contractual Requirements

The TAMP describes the approach and procedures to be adopted to comply with the requirements of the following principal project documents listed below:

- The Project Contract.
- The Environmental Assessment and CoA.
- The RMS G10 Traffic Management Specification.
- The RMS Road Occupancy Licence.

In addition, the requirements of the following documents shall be satisfied:

- Relevant Australian Standards for traffic management practices.
- The RMS Traffic Control at Work Sites Manual.
- Relevant AUSTROADS Guidelines.
- Relevant RMS Technical Directions and Guidelines.
- Pacific Highway Road User Delay Management Strategy.
- Project policies and procedures.

The traffic management and road safety principles, strategies and measures detailed in this plan will also address the requirements of relevant key authorities and stakeholders.

The strategies identified in this TAMP will specifically address the following:

- Traffic management objectives.
- Risk Management.
- Organisation, roles and responsibilities.
- Traffic Management processes.
- Construction activities and potential road network impacts.
- The implementation of traffic management controls and measures to be applied.
- Conducting traffic control inspections, audits and monitoring.
- Stakeholders and the community consultation process.
- Reporting requirements.

2.4 Plan Relationship

This TAMP operates as the master document in a set of plans, drawings and instructions dealing with the safe and effective management of traffic during the design, construction and maintenance phases of the project. The TAMP also interfaces with other associated plans produced as part of the overall Project Management System.

The following documents and associated operational procedures are integrated with and are referenced from the TAMP:

- Traffic Management Plan sub-plan(s).
- Construction Staging Drawing(s).
- Temporary Works Drawing(s).
- Traffic Control Plans (TCPs).
- Vehicle Movement Plans (VMPs).
- Traffic instructions.
- Safe Work Method Statements (SWMS).

The relationship between the TAMP and the related project management documents are shown in Figure 1.

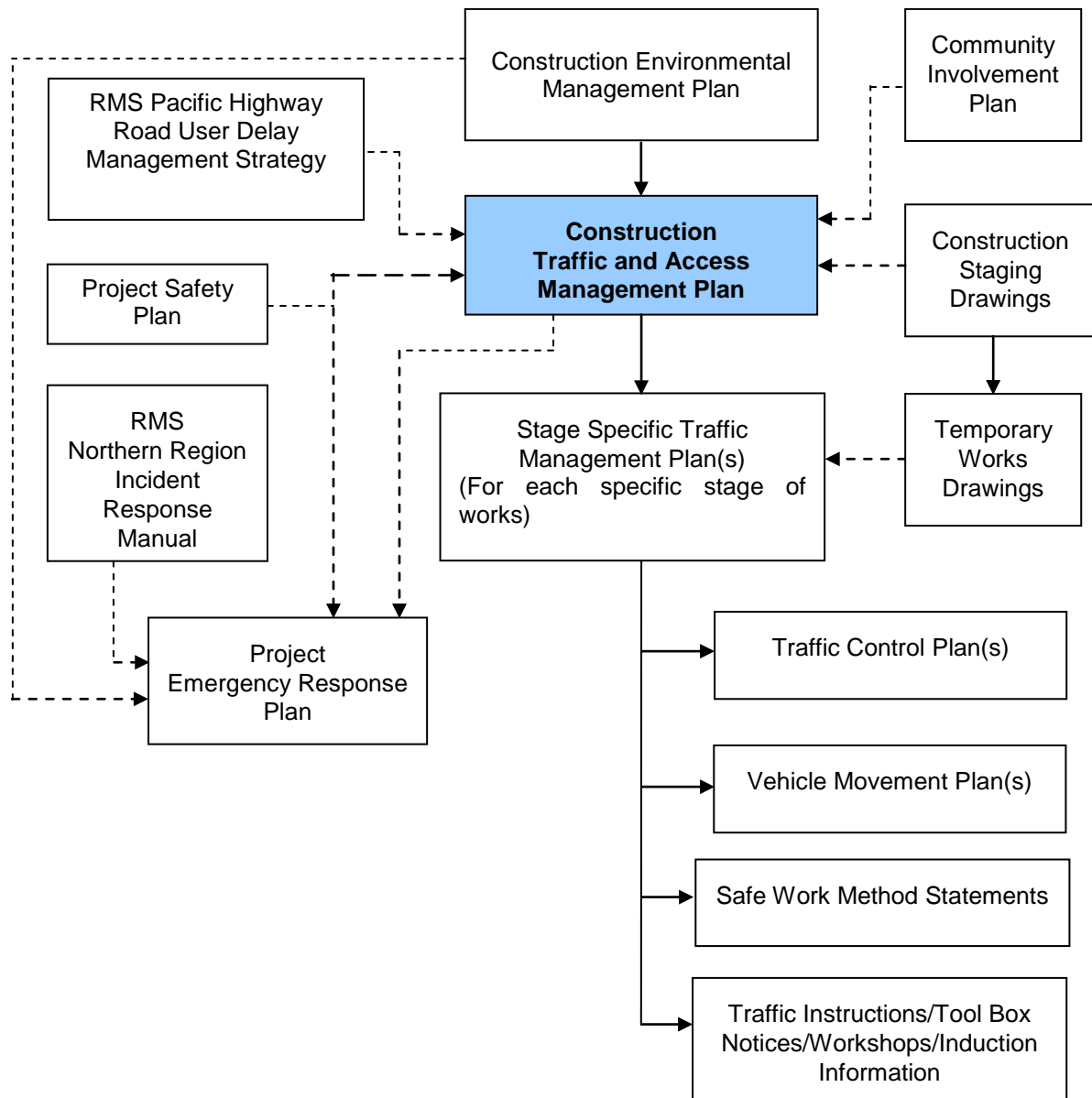


Figure 1 Plan Relationship

2.5 Consultation

Extensive consultation for the Project commenced during the route selection phase and continued during the environmental impact assessment of the concept design. The primary objective of consultation was to keep stakeholders well informed and involved during each stage of Project development.

Further consultation with relevant stakeholders and government authorities has continued through the development of the CEMP and associated plans. Those consulted include:

- NSW Environment Protection Authority.
- NSW Department of Primary Industries – Fisheries Conservation and Aquaculture.
- NSW Office of Environment and Heritage.
- Clarence Valley Council.
- Coffs Harbour City Council.
- NSW Office of Water.
- Commonwealth Department of the Environment.

Consultation will continue throughout the project with relevant stakeholders and government authorities, applicable to Stage One – Woolgoolga to Halfway Creek. The outcomes of the consultation will be documented where relevant in subsequent revisions of the TAMP.

2.6 Plan Distribution

This TAMP is available to all personnel and sub-contractors via the Project document control management system. An electronic copy can be found on the Project website.

The document is uncontrolled when printed. One controlled hard copy of the TAMP and supporting documentation will be maintained by the Traffic Manager at the Project Office.

Registered copies will be distributed to:

- Project Manager.
- Construction Manager.
- Environmental Manager.
- Communications Manager.
- Roads and Maritime Authorised Delegate.
- Roads and Maritime Environmental Services Manager, Pacific Highway.
- Roads and Maritime Traffic Manager, Pacific Highway.

2.7 Plan Revision

The TAMP is a sub plan of the Construction Environment Management Plan (CEMP) and the review and document control processes for this plan are detailed in Section 9 of the CEMP. The Traffic Manager is responsible for the review and update of this sub plan in accordance with the process described in the CEMP.

The TAMP will be reviewed at least every 12 months by the Traffic Manager to confirm its appropriateness and effectiveness for managing the traffic impacts of the specific works occurring on site. In addition to this process, an adaptive management process will be applied whereby the TAMP will be regularly reviewed and updated to address:

- Changes required as a result of feedback from stakeholders.
- Changes in the design and construction process that materially affects the TAMP.
- The need to prevent the reoccurrence of any compromise of safety of road users, the public or the road workers.
- Changes identified by the continuous improvements process.
- Changes in design or construction sequence, staging, methodology or re-sourcing.
- Progress of the construction works.
- Changes in access to the Project Site.
- Changes in risks or evidence that the risk assessment is no longer valid.
- Following any adverse inspection/audit findings.
- Changes as sections of works are completed and maintenance period commences.
- Changes as directed by the Roads and Maritime site management as required.

When reviewing and amending the TAMP, the Traffic Manager will apply the following procedure:

- Conduct a formal investigation of the specific matter / request for amendment.
- Consult with the relevant stakeholders and develop an appropriate solution / mitigation measure.
- Prepare the necessary amendments to the TAMP.
- Forward the amendments to the relevant stakeholders for review and comment.
- Review stakeholder feedback, and where necessary revise amendments and conduct further consultation.
- Finalise the TAMP amendments.
- Distribute revised TAMP (controlled copies) to all stakeholders, as per the TAMP distribution list.
- Hold internal, and where necessary external, information sessions detailing the TAMP amendments and any specific mitigation measures.
- Apply the amendments and specific mitigation measures on the Project.
- Monitor the outcomes resulting from the changes and conduct further revisions as necessary.

The relevant transport stakeholders include Roads and Maritime site management representatives, Transport Management Centre (TMC), Clarence Valley Council, Coffs Harbour City Council, emergency service agencies, transport associations and Department of Planning and Environment (DP&E).

2.8 Continuous Improvement

Continuous improvement of this plan will be achieved by the ongoing evaluation of traffic management performance against the relevant CoA's and TAMP objectives for the purpose of identifying opportunities for improvement.

The continuous improvement process will be designed to:

- Identify areas of opportunity for improvement of traffic management and performance.
- Determine the cause or causes of non-conformances and deficiencies.
- Develop and implement a plan of corrective and preventative action to address any non-conformances and deficiencies.
- Verify the effectiveness of the corrective and preventative actions.
- Document any changes in procedures resulting from process improvement.
- Make comparisons with objectives.

2.9 Project Description

The general features of the portion of the Project covered by this TAMP are:

- Approximately 14.7km (Section 1) of motorway standard highway, comprising a four-lane divided carriageway (two lanes in each direction) that can be upgraded to a six-lane divided carriageway in the future, if required.
- The following major interchange is to provide access to and from the upgraded highway at:
 - Section 1 - Range Road
- Three bridge crossings of waterways or floodplains.
- Four bridges and underpasses to maintain access along local roads crossed by the project.
- Viaducts located where the project would cross low-lying or flood-prone areas.
- Service roads and access roads to maintain connections to existing local roads and properties.
- Connectivity structures to help wildlife cross above or below the project, including median crossings for arboreal mammals, dedicated culverts and land bridges.
- Rest area located at Arrawarra Beach Road (which was approved as part of the Sapphire to Woolgoolga project).
- Reconstruction and extension of Eggins Drive to Corindi.



Figure 2 Woolgoolga to Ballina overview, and Section 1

2.10 Program

It is anticipated that construction will commence in May/June 2015 and, weather permitting, be completed in 2017.

2.11 Construction hours of operation

Construction activities associated with the SSI shall be undertaken during the following standard construction hours:

- a) 7:00am to 6:00pm Monday to Friday, inclusive; and
- b) 8:00am to 5:00pm Saturday; and (excluding Arrawarra Rest Area, which is 8:00am to 1:00pm Saturday)
- c) at no time on Sunday or public holidays.

Construction works outside the standard construction hours may be undertaken in the following circumstances as per the Out of Hours Works Procedure

- a) construction works that generate noise that is:
 - (i) no more than 5 dB(A) above rating background level at any residence in accordance with the *Interim Construction Noise Guideline* (DECC, 2009); and
 - (ii) no more than the noise management levels specified in Table 3 of the *Interim Construction Noise Guideline* (DECC, 2009) at other sensitive receivers; or
- b) for the delivery of materials required outside the standard construction hours by the NSW Police Force or other authorities for safety reasons; or
- c) where it is required in an emergency to avoid the loss of lives, property and/or to prevent environment harm; or
- d) between 6:00am and 7:00am and 6:00pm and 7:00pm Monday to Friday (except public holidays) in sparsely populated areas (these construction hours may be reviewed and/or revoked by the Secretary in consultation with the EPA in the case of unresolved noise complaints); or
- e) low noise impact activities and work between:
 - (i) 6:00am and 7:00am Monday to Friday; and/or
 - (ii) 6:00pm and 7:00pm Monday to Friday; or
- f) works approved through an EPL; or
- g) works approved by a Construction Environment Management Plan or Construction Noise and Vibration Management Plan for the SSI.

Construction activities resulting in impulsive or tonal noise emission (such as rock breaking, rock hammering, pile driving) shall only be undertaken:

- (a) between the hours of 8:00am to 5:00pm Monday to Friday;
- (b) between the hours of 8:00am to 1:00pm Saturday; and
- (c) in continuous blocks not exceeding three hours each with a minimum respite from those activities and works of not less than one hour between each block.

For the purposes of this condition 'continuous' includes any period during which there is less than one hour respite between ceasing and recommencing any of the work the subject of this condition.

The works subject to this condition may be undertaken in sparsely populated areas within the standard construction hours.

Blasting associated with the SSI shall only be undertaken during the following hours:

- (a) 9:00am to 5:00pm, Monday to Friday, inclusive;
- (b) 9:00am to 1:00pm on Saturday; and
- (c) At no time on Sunday or public holidays.

Blasting outside the above hours and in accordance with the standard construction hours where:

- (i) no sensitive receivers in sparsely populated areas would be impacted by blasting; or
- (ii) an agreement has been made with receivers within 200m of the blast zone to permit blasting in accordance with the standard construction hours.

This condition does not apply in the event of a direction from the NSW Police Force or other relevant authority for the safety or emergency reasons to avoid loss of life, property loss and/or to prevent environmental harm.

3 Organisation, Roles and Responsibilities

3.1 Position Descriptions

All project staff associated with developing, implementing, operating and/or managing traffic control plans and associated site activities will undertake the appropriate RMS Traffic Control at Work Sites (TCWS) Training course. These include:

- Traffic Controllers (Blue Card).
- Apply Traffic Control Plans (Yellow Card).
- Traffic Control at Worksite Planning (select/modify TCPs – red card).
- Design and Audit Traffic Control Plans (orange card).

To further enhance the knowledge of project staff, the Traffic Manager will prepare induction information, tool box notices, and conduct training sessions on road safety and traffic management issues.

The key position descriptions relating to traffic management activities on the project are detailed in the next section.

3.2 Traffic Management Roles and Responsibilities

3.2.1 Project Director

The Project Director shall support the senior site management in complying with the traffic management requirements associated with the project. This support includes but is not limited to the following:

- Ensuring sufficient resources are made available and allocated for traffic management to the Project including in house and subcontractor resources.
- Ensuring quality assurance procedures are maintained to an acceptable level and to ensure auditing is undertaken in accordance with the requirements of the Standards.
- Providing at director level a communication avenue to and from the site management with stakeholder senior representatives.

3.2.2 Construction Manager

The Construction Manager shall support the Traffic Manager in his duties and shall take steps to confirm that those duties are performed in compliance with the Project Specifications and until all obligations of the Project are satisfied. In addition to this the Construction Manager shall ensure that:

- The communication of construction requirements and traffic management requirements is efficient and thorough and to ensure they are fully coordinated.
- The activities requiring traffic management installations are identified in good time to permit the necessary planning and administration to be undertaken in accordance with the Specifications.
- The traffic management installations are not altered or removed during the course of the construction works.

- The procedures and site rules associated with traffic management are monitored and controlled.
- The construction engineers plan their works with due consideration for the restraints associated with traffic management requirements and constraints.
- Ensure adequate project resources are allocated to traffic management.
- Ensure senior management on site supports the Traffic Manager in his duties.
- Ensure safe traffic management has a priority status in terms of project delivery.
- Ensure suitable training is available to all responsible personnel.
- Ensure periodic audits are undertaken of the traffic management quality assurance systems.

The Construction Manager will also have responsibility to ensure the traffic management schemes are planned and implemented in full compliance with the requirements of the Specification documents and other referenced documents. The summarised responsibilities are as follows:

- Coordinate the Project resources to design and plan traffic management schemes to satisfy the requirements of the construction team.
- Coordinate the Project resources to implement, alter or remove traffic management schemes to suit the Project programme.
- Ensure trained competent persons are engaged to act in traffic management specific roles and training requirements are kept up to date.

3.2.3 Safety Manager

The Project Safety Manager shall provide support to the Traffic Manager on issues of public and workforce safety as it pertains to traffic management.

3.2.4 Traffic Manager (also referred in RMS G10 as Traffic Control Site Manager)

The Traffic Manager will hold a current RMS Design and Inspect Traffic Control Plan (Orange Card) qualification and will be responsible for the overall management of traffic and road safety on the project, as per G10 specification. The Traffic Manager or their delegate shall:

- Develop, implement and maintain the TAMP.
- Maintain current copies of the Traffic Management Plan, Traffic Control Plans, Vehicle Movement Plans, Road Occupancy Licences and Speed Zone Authorisations and their controlled documentation.
- Ensuring that the approved traffic control measures are established, implemented and maintained in accordance with the approved plans.
- Amending and updating the plans, as required, to ensure that they remain current as the work progresses.
- Carrying out regular inspections and auditing of the traffic control measures to ensure that they are effective and are being followed.
- Identifying locations and times where traffic congestion or unsafe conditions for vehicles, cyclists, pedestrians and workers are occurring, and providing recommendations for improvement.

- Provide technical advice to the construction team relating to traffic engineering, traffic management and road safety issues.
- Develop traffic management strategies that comply with all project requirements and relevant standards and guidelines.
- Assist in the development of traffic staging and temporary works plans.
- Manage the development and approvals of all traffic control plans in accordance with G10 Specification and Traffic Control at Worksite Manual.
- Liaise with all key internal and external stakeholders, such as RMS site management team representatives, Transport Management Centre, NSW Police and local councils, on traffic management and safety issues.
- Facilitating traffic awareness and providing information for toolbox talks to site personnel.
- Be responsible for the implementation of Road Occupancy Licences (ROLs) and must continuously monitor the implementation and operation of all road occupancies to ensure that they are compliant with the ROLs, including but not limited to:
 - Monitoring and quantifying the durations of traffic flow delays.
 - Monitoring, measuring and recording traffic queue lengths, including the maximum traffic queue lengths in each direction and the total occupancy stoppage time.
- Maintaining and adjusting traffic control measures and devices to assist prevailing traffic flows, minimise lane and shoulder occupancies and any lost traffic flow capacity and minimise traffic flow delay durations and queuing.
- Monitoring of over-dimension heavy vehicle movements.
- Be responsible for the implementation of Speed Zone Authorisations (SZAs) and continuously monitor the implementation and operation of temporary roadwork speed limits.
- Monitor installed traffic management schemes for their safe operation and use and ensure defects or unsafe installations are amended.
- Manage the road safety auditing program of traffic management schemes in accordance with project requirements.
- Maintain the quality assurance system associated with traffic management issues including preparation and storage of all necessary records.
- Report immediately to the RMS site management representative the occurrence of all delays, including those caused by incidents, to the free flow of traffic of greater than five minutes and/or traffic queue lengths greater than 500 metres and as required under the conditions of the project Road occupancy Licences as issued by RMS.
- Be contactable at all times (7 days per week and 24 hours per day) during the construction phase of the Contractor's Work to receive and answer traffic /incident related inquiries from the RMS site management representative, including the RMS Traffic and Safety Manager for the Pacific Highway, the Transport Management Centre in Sydney (TMC-NSW) and Grafton (TMC-NR), local councils and the NSW Police.

- Produce records of all road occupancies and forward records of all traffic flow delays and durations, traffic queue lengths and other ROL related matters to the RMS site management representative upon request.
- Stop work on any activity if it is considered to be necessary to prevent traffic incidents or to comply with the directions of the RMS site management representative, TMC-NSW, TMC-NR or NSW Police.

3.2.5 Traffic Foreman

The Traffic Foreman shall support the Traffic Manager in his duties and perform duties delegated to them by the Traffic Manager, or his delegate. His primary roles are summarised below:

- Co-ordinate daily resource requirements between the various construction teams to ensure that traffic control personnel are allocated to the job which are they are best skilled.
- Carrying out regular inspections of the traffic control plans and devices to ensure that they are effective, of a high quality and are being followed.
- Co-ordinate breaks for traffic control crews to ensure fatigue is managed.
- Provide training for new Traffic Control Personnel to ensure they are competent and able to be used in a variety of roles within the project.
- Contact the Traffic Manager with any concerns regarding traffic control activities which they believe to be ineffective, unsafe or poorly performing.
- Manage Traffic Control Personal to avoid any disputes and to provide a best for project resource.

3.2.6 Traffic Control Personnel

The Traffic Manager shall initially verify and then keep records of all documentation for individuals and organisations that are directly and indirectly associated with traffic control for the Project. The OHLTY will appoint Traffic Controllers under Section 6 of the Roads Regulation 2008 (NSW) in order to provide for safe movement of vehicles and other road users around, through or past the works.

The Traffic Manager shall keep a record of all appointed individuals and shall ensure only those appointed individuals are engaged with traffic control duties. The Traffic Manager shall undertake audits of personnel undertaking traffic control duties as part of the routine traffic control inspections throughout the duration of the project.

It is a requirement that any Traffic Control Organisation shall be registered under RMS' Registration Scheme Category G "Traffic Control". The Traffic Manager shall initially verify the credentials of the organisations and following appointment then maintain records for inspection. Furthermore, the Traffic Manager shall periodically request from the organisations to ensure they are complying with the quality assurance requirements associated with the Registration.

A register of the traffic controllers and their qualification will be attached to this document during construction. As required under the G10 specification all traffic controllers will hold, as a minimum, the RMS Traffic Controllers "blue card".

3.3 Resource Management

The Project Director and the Construction Manager will manage the project resources throughout the duration of the project to ensure that personnel are appropriately qualified, trained and suitable for the work activities they are required to perform and that the construction program can be fulfilled. This will be continuously monitored to ensure that the project is appropriately resourced at all stages.

3.4 Traffic Management System

All traffic management plans will be planned in accordance with the project specification. All schemes are subject to approval before they are implemented and each shall include, but not be limited to:

- Traffic and Access Management Plan.
- Traffic Management Plan (TMP).
- Traffic Staging Plans if more than one stage.
- Temporary Works Drawings.
- Traffic Control Plan(s).
- Vehicle Movement Plan(s).
- Road Occupancy Licence as required.
- Speed Zone Authorisations as required.
- Predictions of delays to traffic (where applicable), possible mitigation and procedures for alleviating delay.
- Independent Road Safety Audit on Traffic Management Plan/Traffic Staging Plans.

The OHL Traffic Manager shall ensure that all approval requirements are met prior to the implementation of any traffic management scheme on the project. A description of each key traffic management process is detailed below.

3.4.1 Traffic and Access Management Plan (TAMP)

The Traffic and Access Management Plan (this Plan) identifies and defines the requirements, management processes, obligations and responsibilities for traffic management during the construction of the Project in accordance with the Project objectives and requirements. The procedures and processes described in the TAMP will ensure that all statutory and project specific conditions as defined in the applicable codes, performance specifications and the contract are complied with during the construction of the project.

This TAMP outlines the overall traffic management measures, durations, impacts and mitigation strategies for a particular area and outlines how work activities will be carried out in a safe and efficient manner. TMPs will be developed based on the TAMP.

The TAMP details the specific road safety and traffic management measures that will be applied by OHLV whilst undertaking the construction works. The TAMP is based on the principles and the obligations under the Contract, RMS G10 and G36 specifications, Australian Standard 1742.3, Department of Planning & Environment and environmental approvals, and the requirements of relevant road authorities, standards, guidelines and other key stakeholders. The TAMP identifies the construction impacts resulting from the proposed work activities involved, provides a detailed assessment of these impacts and describes the control measures that will be applied to address the impacts on the existing road network and the local community. Compliance with all project requirements is also demonstrated in the TAMP.

The TAMP addresses provisions for access to properties affected by the work and the safe passage of cyclists and pedestrians in accordance with the RMS G10 specification.

3.4.2 Stage Specific Traffic Management Plan (TMPs)

Based on the TAMP submitted to DP&E, separate Stage Specific Traffic Management Plans (TMP) will be developed in line with the submitted TAMP Appendix B1 of the CEMP. Separate TMP's will be developed for each traffic staging. TMP's will be audited by an independent Road Safety Auditor prior to submission to RMS for approval.

Traffic Staging Plans will be included as part of the TMP to show the traffic configurations at each stage of the works. The Traffic Staging Plans will illustrate the work site, construction activities, construction durations, road alignment and geometry and direction of traffic.

3.4.3 Traffic Staging Plans (TSP)

All details regarding location specific traffic management works will be captured in Traffic Staging Plans (TSPs). Concept TSPs have been developed for each of the construction stages required for construction activities and will be further developed as part of the construction planning phase.

Traffic Staging Plans will be included as part of TMP to illustrate the traffic configurations at each stage of the works. They show the work site, construction activities, construction durations, road alignment and geometry and direction of traffic. These plans will be prepared in accordance with the RMS G10 specification.

The staging plans should be read in conjunction with the construction staging program. Traffic staging plans illustrate the proposed traffic staging to be implemented during the construction of the Project.

The traffic staging drawings define the following:

- Sequencing.
- Basic construction methodology.
- Temporary works.
- Particular traffic management measures/controls.
- Work areas.
- Available traffic lanes.

Traffic diversions or traffic switches are required to construct the Woolgoolga to Halfway Creek Upgrade. All temporary diversions and switches will be in accordance with the Road Design Guide and will be approved by the RMS as part of the TMPs.

Prior to opening a traffic switch, RMS will be notified as per RMS G10 Specification. Unless otherwise approved by the Principal, OHLY will not disturb existing roadways for at least two days after opening temporary roadways or detour to traffic, to provide for the event where failure of the temporary roadways or detour occurs and there is a need to redirect traffic back onto the existing roadways.

Within 24 hours of the implementation of long term traffic arrangement, an independent Road Safety Audit will be carried out and any issues noted in the audit and appropriate traffic control measures will be implemented. A complete report including control measures will be submitted to RMS within 7 days.

Construction staging along the Pacific Highway may result in the lanes being shifted onto the exiting shoulders or temporary pavements. The lateral shifts will only require a minimal road geometry change. Any temporary works requiring facilitating a traffic switch will be completed as per the RMS G10 specification.

Access for all properties will be maintained during all stages of the works unless otherwise agreed by RMS and property owners.

Traffic Staging Plans (Stages 1a, 1b, 2, 3 and 4) for this project will be provided as part of the TMP submission. The concept construction staging drawings are attached in Appendix A.

3.4.4 Temporary Works Drawings

Temporary Works Drawings are detailed design plans of temporary roads that are required to facilitate construction staging. These drawings are based on the Construction Staging Drawings and will include details of the required earthworks, drainage, horizontal and vertical alignments, carriageway cross sections, lane configuration, junction treatments, property access modifications, environmental controls, pavement design, lines and sign posting, TCPs, safety barriers and road side furniture.

The OHLY will prepare temporary works drawings as required for treatments such as road widening's, sidetracks, median crossovers, temporary pavement tie-ins, and contra-flow utilising opposing carriageways. A certification will be provided by the road designer that the drawings comply with the relevant standards prior to submission to RMS.

3.4.5 Traffic Control Plans

Traffic Control Plans are diagrams that illustrate the signs and devices that will be installed to warn traffic, and guide it around or past, or if necessary through the work site. These plans will address the specific measures stipulated within the TAMP, TMPs and TSPs and will comply with the requirements of AS1742.3, RMS G10 specification, and the RMS Traffic Control and Work Sites (TCWS) manual.

Site specific TCPs will be development for short term works and whenever appropriate will be based on standard TCPs available in the TCWS. A Traffic Control Plan, as part of the TAMP, will be prepared for each stage in accordance with the requirements of the TCWS manual, RMS G10 specification and associated

Australian Standards and submitted to RMS for approval at least 10 days prior to the start of works.

All TCPs prepared for the project will be prepared by a person who has undertaken and passed RMS 'Traffic Control at Worksites' training courses and holds a current 'Red' and 'Orange' card certification.

All TCPs shall be developed with the aim to:

- Warn drivers of changes to the usual road conditions.
- Inform drivers about changed conditions.
- Guide drivers through the work site.
- Ensure the safety for workers, motorists, pedestrians and cyclists.

The TCPs will be designed to address the following issues where applicable:

- Use of traffic control devices.
- Traffic diversion (as required).
- Speed limit sign requirements.
- Environmental issues.
- Changes to the daily construction activities onsite.
- Other construction activities in the area.
- Key risks and control measures recorded on the Health Safety and Environment Risk Register.
- Security arrangements.
- Provision for pedestrian traffic and their safety.
- Provision for cyclists and their safety.
- Provision for vehicle and plant movements.
- Parking restrictions and parking facilities;
- Coffs Harbour City Council and Clarence Valley Council requirements;
- Specifying clearways for Oversize Transport and Heavy Vehicle movement;
- Provision for trade vehicles and plant movements;
- Changes to the light vehicle parking areas;
- Informing all site personnel of the high risk areas;
- Identifying areas where Temporary Parking Control may be required;
- Providing pedestrians with safe access to and from the work site;
- Providing Emergency Services vehicles access and direction to the site if a need arises; and
- Providing adequate signage within the construction site for safe access and egress.

Project specific TCPs will be developed and submitted to RMS for approval and release of the hold point at least 3 days prior to start of works.

The Traffic Control plans will detail the short traffic control signs, devices and traffic controllers required to warn approaching vehicles of the works, and guide the traffic through and around the worksite during works.

3.4.6 Vehicle Movement Plans

A Vehicle Movement Plan (VMP) is a diagram showing the preferred travel paths for vehicles associated with a work site entering, leaving or crossing the through traffic stream. VMPs will be prepared for all construction vehicle movements including at each interface with the existing road network and on the internal haul roads. As VMPs will be constantly changing, a register of current VMPs will be maintained and communicated to site personnel.

3.4.7 Traffic Instructions

Traffic instructions will be developed by the Traffic Manager as required to educate the construction personnel in relation to specific traffic management processes and activities as the need arises throughout the project, such as lessons learnt, safety messages and continuous improvements. When approved, these instructions will be forwarded by the Traffic Manager to relevant Construction Team members. Specific training sessions will be conducted by the Traffic Manager to reinforce the instruction information as required.

3.4.8 Safe Work Method Statements (SWMS)

Where it is considered that a work process must be carried-out in a strictly controlled manner to ensure the specified safety and quality requirements will be met, a specific Safe Work Method Statements (SWMS) will be prepared and implemented.

A OHLY Engineer will prepare a Safe Work Method Statement in consultation with workers and relevant managers/supervisors and implement before the related work activity commences on site to ensure the issues relating to safety and quality are appropriately addressed.

The provisions for working, on or adjacent to road carriageways, and the traffic control measures to be applied will be incorporated where necessary within the SWMS.

3.4.9 Road Occupancy Licence

The OHLY will obtain approval from the RMS site management representative for all road occupancies, detours and closures in accordance with the Contract. Road Occupancies must comply, as a minimum, with the requirements as set out in the RMS G10 specification however, it is noted that RMS may elect to prohibit road or lane closures due to special events or other high traffic demands.

When any unplanned closure of a lane or a restriction in the flow of traffic occurs on the existing Pacific Highway, OHLY will immediately advise the RMS site management representative of the nature of the closure or restriction and the schedule for re-opening of the lanes. OHLY will take all required measures to open the lane as quickly as possible.

A road occupancy is defined as any part of OHLY work, including maintenance of the existing highway that will or is likely to delay, including obstruct, restrict, close, interfere with, slow or stop, the free flow of traffic on any lane or shoulder of the existing highway, the temporary works being used by existing highway traffic or any part of the works opened to traffic. Road occupancies include, but are not limited to:

- Shoulder occupancies and/or closures.
- Lane occupancies and/or closures.

- Any occupation of the construction site by labour, equipment, or plant that requires a traffic control plan under the provisions of RMS G10 specification.
- Any other event that causes delays to the free flow of traffic.

The duration of a delay is defined as the total period of time during which the free flow of traffic is obstructed, restricted, closed, interfered with, slowed or stopped and includes the time taken to clear all stopped, slowed and queued traffic and return the traffic to free flow condition.

In accordance with the requirements of NSW Traffic Legislation, OHLY will obtain the necessary approvals from the appropriate road authorities prior to conducting any works within the road reserve.

3.4.9.1 Road Occupancy on Local Roads

The OHLY will obtain the concurrence of the relevant Local Council(s) prior to the installation of temporary traffic controls/devices and occupying any part of the local road network.

The submission to the Council will include:

- Brief details of the works to be conducted.
- Any relevant design drawings of the works.
- Program of the works.
- Copies of TCPs.
- Copies of VMPs.
- If applicable, details of Speed Zone Authorisation (SZA) submission.
- Contact details of a construction site representative.

3.4.9.2 RMS Road Occupancy Licensing

The Road Occupancy Licence scheme for the Pacific Highway is managed by the RMS Traffic Manager at the Pacific Highway Office at Grafton. All ROL applications will be submitted to the RMS site management representative for forwarding on to the RMS Traffic Manager at the Pacific Highway Office for approval. It is noted that there is a new on-line ROL system in use and OHLY will be guided by the RMS site management representative regarding obtaining access to this system.

3.4.9.3 RMS ROL Submission Procedure

Guidance on applying for an ROL is provided in the RMS Pacific Highway Road Occupancy Licensing Guidelines issued by the Pacific Highway Office. The manual contains a number of explanatory notes, checklists, and application forms.

The Traffic Manager will be responsible for submitting ROL applications to the RMS site management representative for approval. The RMS generally requires at least 10 working days to process the application and will either grant or reject application within this period.

It should be noted the ROL request must comply with the various road safety and traffic management principles and objectives outlined in this plan and the RMS G10 specification.

3.4.9.4 Extensions to ROL Period of Operation

The RMS has generally limited the maximum period of a ROL to one month to 12 months. To obtain extensions, OHLY will be required to re-submit ROL submissions.

It is the responsibility of the Traffic Manager to ensure the validity of each approved ROL, thus regular monitoring of ROL expiry dates is essential. The Traffic Manager will maintain a ROL database, which will contain details of ROLs to assist with this process.

3.4.9.5 ROL Conditions

Generally, the RMS will apply conditions to ROL approvals, which may include:

- Maximum traffic stoppage times.
- Maximum queue lengths.
- Maximum travel time delays.
- Measures to provide information to road users.
- Provision of a weekly schedule outlining the proposed road occupancies for the preceding week.
- Records detailing the date and time of the road occupancy, and the location of all signs, and any other relevant information associated with the traffic control, must be kept.

These conditions will be confirmed and reviewed once the approved project ROL has been issued by RMS. The RMS has the power to revoke ROL approvals at any time for breaches of the associated conditions.

3.4.9.6 Authorisation Limitations

In accordance with RMS requirements, the responsibility for compliance with the ROL conditions remains with OHLY. The granting of an ROL by the RMS does not:

- Constitute approval by the RMS of any actions that relate to traffic safety, occupational health and safety, or environmental issues and management.
- Relieve OHLY or any person of their responsibility for compliance with legislation, regulations, or established operational procedures.
- Change any management accountability or responsibility.

3.4.10 Roadwork Speed Limits

Roadwork speed limits and zoning in road occupancies on the project will comply with the RMS 'Traffic Control at Work Sites' manual and the RMS NSW Speed Zoning Guidelines. The key principles for the effective implementation of roadwork speed limits are:

- They are self-enforcing or will be enforced.
- They are not be used alone but with other traffic control signs and devices.
- They are not be used in place of more effective traffic controls.
- They are only to be used while roadworks are in progress or the lower standard road conditions exist.

OHLY acknowledges that roadwork speed zones must be logical and credible, as well as enforceable.

The roadwork speed limits to be used on this project will be implemented in accordance with the requirements of the RMS G10 specification, approved ROL conditions and the RMS TCWS manual. The temporary roadwork speed limit for the Pacific Highway is to be 80km/h and 40km/h for local roads. Lower roadwork speed limits of 40 and 60km/h on the Pacific Highway will be permitted for short term temporary works subject to consultation with the RMS site management representative and approval of the relevant TCP. To ensure that roadwork speed limit signage is effective in advising road users of the prevailing speed limit, roadwork speed signs will be a minimum Type C size signs duplicated on both sides of the carriageway at any changes in posted speed limits. Also, to ensure that the maintenance requirements for the signage are kept to a minimum, the signs must be supported on two posts.

3.4.11 Determining the need for a Roadwork Speed Zone

Roadwork speed zones are only effective in controlling driver behaviour if they appear reasonable to drivers. A reduced roadwork speed zone must only be implemented where it is warranted.

Roadwork speed zones must not be applied as the first option to control traffic, but as a supplementary measure to the installation of more effective temporary traffic control signs and devices.

Roadwork speed zones may be installed to assist in controlling vehicle speeds when traffic travels through the work site, workers are endangered by high speed traffic, dust or smoke reduces visibility, there is loose material on the road surface, the road geometry is of a lower standard, deep excavations are adjacent to the travel lanes, on bridges for reason of structural safety and diversion onto opposing travel lanes or carriageways.

3.4.12 Submission Procedure

Guidance for applicants applying for SZA is provided in the RMS Road Occupancy Manual issued by the Transport Management Centre (TMC). The manual contains a number of explanatory notes, checklists, and application forms.

The Traffic Manager will be responsible for submitting Speed Zone Authorisation submissions to the RMS site management representative for approval. The RMS generally requires at least 10 working days to process the application and will either grant or reject the application within this period.

Once approved, OHLY will forward a copy of the SZA to the local NSW Police Highway Patrol Office, and if necessary to the Local Council. Copies of speed zone authorisations applicable to any road occupancies must be available at the road occupancies for the duration of the road occupancies.

3.4.12.1 Extensions to SZA Period of Operation

The RMS limits the period of operation of a SZA from one month to 12 months. To obtain extensions, the Traffic Manager will be required to re-submit a SZA submission.

It is the responsibility of the Traffic Manager to ensure the validity of each approved SZA, thus regular monitoring of SZA expiry dates is essential. The Traffic Manager will maintain an ROL database, which will contain details of SZA to assist with this process.

3.4.12.2 Speed Zone Authorisation Conditions

Generally, the RMS will apply conditions to SZA approvals, and has the power to revoke an approval at any time for breaches of the conditions.

The typical conditions include, but not limited to:

- A copy of the SZA must be forwarded to the local NSW Police Highway Patrol representative and for local roads to the Local Council representative accordingly.
- The temporary roadwork speed zone must be installed in compliance with conditions, notes, applicable dates and locations stipulated in SZA.
- All temporary roadwork speed limits must be installed as per the TCP and operated in accordance with the RMS' TCWS manual.
- Similar to all regulatory signs, the speed limit signs are to be properly erected, and any contradictory signs or road markings are to be removed or covered.
- Records detailing the date and time the speed limit is in operation, the speed limit displayed, and the location of all signs, and any other relevant information associated with the speed limit, must be kept.

3.4.12.3 Authorisation Limitations

Similar to ROL approvals and in accordance with the RMS' requirements, the responsibility for compliance with the SZA conditions remains with OHLY. The RMS' granting of a SZA does not:

- Constitute approval by the RMS of any actions that relate to traffic safety, occupational health and safety, or environmental issues and management.
- Relieve OHLY or any person of their responsibility for compliance with legislation, regulations, or established operational procedures.
- Change any management accountability or responsibility.

3.4.13 Road Safety Audits

The objectives of a road safety audit are:

- Provide an independent assessment of the design from a road safety perspective.
- Review the existing road environment and identify any safety related issues.
- Look beyond the project limits and consider the effects in transition areas any proposed design changes will have on the existing built environment.
- Identify potential safety problems of a particular design or section of road.
- Ensure that measures to eliminate or reduce the problems are considered fully by the asset owner. Road Safety Audits will be undertaken when any significant changes are made to existing road conditions.

The OHLY will be undertaking road safety audits on the TMP documents, all long-term traffic control plans and temporary works and traffic staging plans. These audits will be conducted in accordance with the RMSs 'Road Safety Audits Guide (TC2003/RS03), with reference to current practices outlined in AUSTRROADS Road Safety Audit Guide (2nd Edition 2002).

Road safety audits for the Project Traffic Staging Plans will be conducted by independent road safety auditors as outlined in Section 2.10 and 3.4 of RMS G10 Specification.

Typically, on-site audits will involve a two person team with at least one accredited auditor certified to Level 3 and holding an RMS Design and Inspect Traffic Control Plans (Orange Card) and an engineer familiar with the details of the traffic control and safety devices typically used at work sites.

A written audit report will be provided to the Principal within 7 days of initial audit including details of actions taken in response to identified corrective actions in the post implementation road safety audit.

Upon receipt of the road safety audit, the Traffic Manager will promptly address the issues raised in the road safety audits and prepare a response to the audit that:

- Details actions taken/to be taken to address each of the issues raised.
- Provides justification for proposals and actions on particular issues raised.

Identifies issues raised in the audit that are outside the scope and control of the traffic management team (such as deficiencies unrelated to traffic management activities).

3.4.14 Risk Management

Risk management techniques will be applied to determine hazards and associated risks which could affect the delivery of the project. Strategies and control measures will be developed and implemented to manage these hazards and risks. The Project Director will be responsible for ensuring that the risk management strategy for the project includes the development, implementation and ongoing maintenance of a formal risk management plan as part of the Project Management System.

As part of this process, a Risk Management Plan will be prepared for the Traffic Management component of the project to identify and address the risks associated with road safety, traffic management and road network issues specific to the site. This plan will be integrated with the overall Project Risk Analysis.

In accordance with the RMS G10 specification, OHLV will conduct an initial Traffic Management Risk Assessment Workshop commencement of any significant traffic management works. This workshop will assist in the development of a Traffic Management Risk Management Plan for the project and will also be used to consult with key internal and external stakeholders regarding the following issues:

- Further development of the TAMP.
- The key requirements of the project relating to traffic management including training and knowledge requirements, planning for traffic switches, traffic control plans, contract requirements, safety barrier systems, delineation, signage and guidance to motorists and road safety auditing requirements.
- Raise awareness of good traffic management practices to be implemented on the project.
- Discuss road network planning provisions.

The risk and opportunity issues identified at the workshop will be recorded and a risk management plan developed. This plan will be included as an appendix to this plan. The risks and associated control measures will be further developed and addressed when finalizing the specific staging Traffic Management Plans and Construction Staging Plans.

Additional workshops will be held as appropriate to train site personnel regarding the implementation of Traffic Management Plans and Traffic Control Plans and when traffic management issues need to be reinforced or reviewed.

In addition to the over-arching Risk Management Plan for Traffic Management, specific Safe Work Method Statements will be prepared and implemented where a traffic management work process must be carried out in a strictly controlled manner to ensure the safety and quality requirements are met. The selected traffic control sub-contractor will undertake the traffic control activities for the project in accordance with an approved Safe Work Method Statement detailing all work activities associated with the implementation of traffic control. The site specific risks associated with each traffic control plan will be identified, assessed and addressed during the planning and design phase and also verified on site prior to implementation.

The risk assessment process for traffic control activities will be addressed in accordance with the requirements stipulated in the RMS Traffic Control at Work Sites Manual (TCWS) and Australian Standard (AS) 1742.3.

4 Construction Activities and Impacts

The OHLY will sequence construction works with the objective to maximise safety for workers and road users by isolating work areas from traffic flow, maintaining the existing road capacity, minimising road user delays, avoiding undertaking major activities during peak traffic periods, and avoiding installing restrictions that impact on heavy vehicle transport operators. The effective planning and staging of all construction activities is the key to achieving these objectives.

The number and extent of traffic switches will be minimised in order to encourage drivers to become familiar with the temporary traffic arrangements. The switches will be designed based on the following criteria:

- Plan and design traffic staging plans ensuring minimum traffic impact and one lane in each direction of Pacific Highway will be maintained at all times and all associated local roads and minimise the number of traffic changes.
- Reduce speed limit on Pacific Highway as necessary to create a safe working and travelling environment.
- Place concrete safety barriers to protect workforce, and create safe access and egress to work areas.
- Minimise lane closures in both number and duration.
- Minimise driver confusion.
- Provide safe and accessible construction areas.
- Schedule the works to exclude lane closures during Public Holiday Weekends and School Holidays and minimise closures during daylight hours in accordance with ROL requirements.
- Schedule the work to minimise the duration of shoulder closures for tie-ins to existing pavements.
- Minimise disturbance and inconvenience on local roads while accessing the construction site.
- Maintain access to properties at all times.
- Utilising the construction footprint as the main haulage.

Typically, the following sequences of activities are anticipated for all project work areas:

- **Traffic management** – installing traffic control devices, temporary linemarking, temporary pavements or enhancement to existing intersections for site access gates.
- **Site establishment** – installing boundary fencing, construction facilities and environmental controls then carrying out pre-clearing vegetation fauna surveys.
- **Relocation or protection of services** – relocating and protecting electricity, gas, water and telecommunications infrastructure affected by the project.
- **Site preparation** – removal of harvestable timber, clearing and grubbing, topsoil stripping and storage, construction of haul roads.
- **Earthworks** – undertaking cut and fills works along the alignment to achieve desired levels, removal of unsuitable material, batter and embankment shaping.
- **Structures** – building bridges, drainage and fauna underpass facilities.
- **Pavements** – forming sub and base layers and construction final pavement finishes.

- **Road Furniture** – installing signage, line marking, safety barriers and fauna overpass structures.
- **Landscaping and restoration** – reuse of topsoil, planting of native plants and seeding disturbed areas with native and cover crops species (note – this will take place throughout the construction phase as elements of the project are complete, and ongoing disturbance is not anticipated).
- **Maintenance of roadways** – ongoing maintenance activities in line with section 7 of the G10 for duration of project.
- **Open to traffic** – decommission construction facilities and commissioning new road and related infrastructure.

4.1 Construction Traffic Staging

The effective management of traffic during the construction phase of the project is critical. The traffic staging for the project is based on the RMS concept staging drawings and will be further developed taking into consideration constructability issues, program requirements and feedback obtained from consultation with RMS site management representatives and key stakeholders.

The construction of the project is currently planned to be in five stages. The duration of staging is based on the Tender Program dated 8 January 2015.

Stage 1a

Initial “pre works stage” to set up the main site compound located off Kangaroo Trail Road. These works would be required to set up the batching plant and stock yard areas. Once the main site compound has been established the construction stages would then commence. The Pacific Highway/ Kangaroo Trail intersection will be upgraded in accordance with the Temporary Works Intersection Treatment diagram in the RMS G10 specification.

This stage will also include the construction of temporary pavement within the existing median Chainages 200 to 150, and Chainages 14700 to 14900 to facilitate later traffic diversions in stage 2, 3 & 4. This work will be carried out behind concrete safety barriers with a “straight through” works traffic access system.

Eggs Drive to the east will be constructed under local traffic conditions which will require traffic control to enable construction of the culverts and maintain access to local properties. This will be managed closely to ensure local access is maintained at all times and disruption to local traffic is kept to a minimum.

It is proposed that an access track from the Pacific Highway to the stockpile site located adjacent to the main compound (approximate Chainage 1700) will be constructed to reduce traffic flows on Kangaroo Trail Road as shown in 4.2.1. The stockpile site and access design will be implemented in accordance with the Environmental Consistency approval.

The OHLY will also consider upgrading the intersection at Corindi Access Track to facilitate mass haul movements of material to the south of the project. The design of this intersection will be assessed based on vehicle volumes and in line with the requirements of the RMS G10 specification.

Stage 1b

This involves the construction of the new Northbound Carriageway between Chainages 0 and 300 alongside the existing Pacific Highway (behind concrete barriers), the off line section of works between Chainages 1700 and 9300, new Northbound Carriageway between Chainages 9300 & 13400 alongside the existing Pacific Highway (behind concrete barriers) and the temporary southbound Carriageway widening between Chainages 13500 and 14300 alongside the existing Pacific Highway (behind concrete barriers).

Stage 2

New Northbound Carriageway between Chainages 13500 and 14300 alongside the existing Pacific Highway, continue the off line section of works between Chainages 1700 and 9300, construct a temporary pavement within the existing median at Chainages 14700 to 14900 (behind concrete barriers), continue range road junction works and commence McPhillips Road access works.

Stage 3

Complete the new Northbound Carriageway between Chainages 300 and 1800 alongside the existing Pacific Highway, continue the off line section of works between Chainages 1700 and 9300, continue McPhillips Road access works

Stage 4

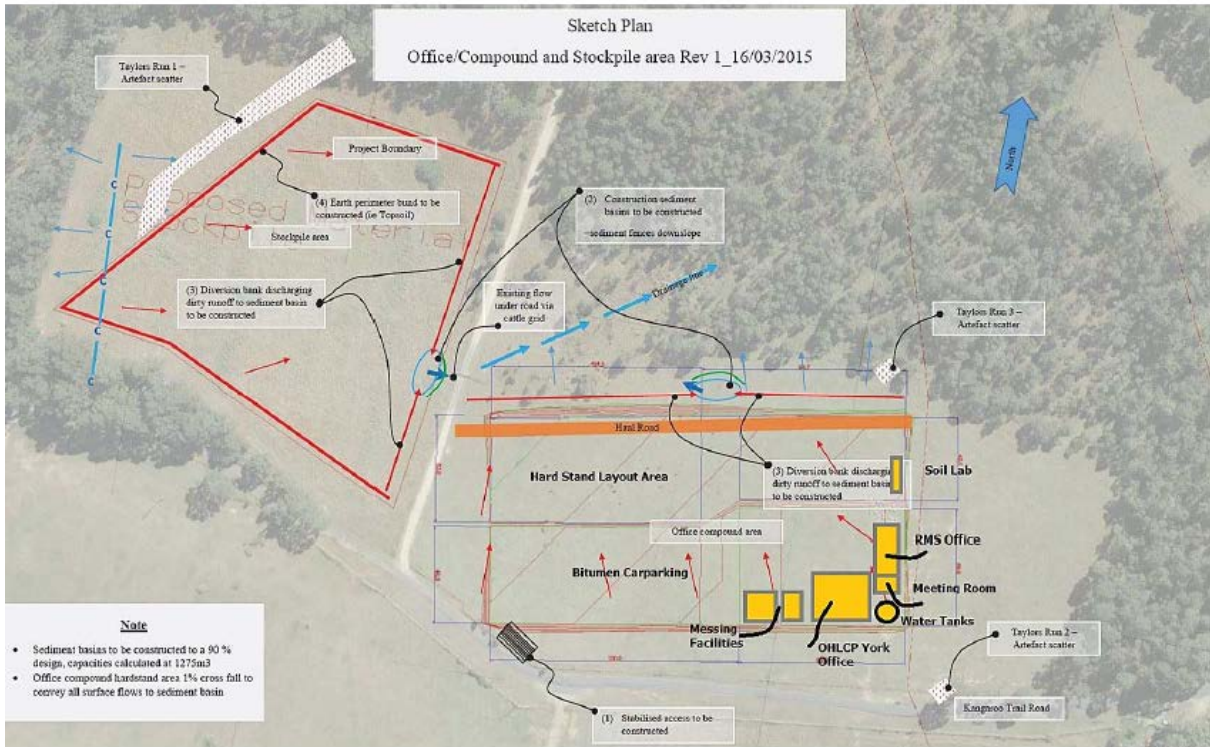
Complete the new Southbound Carriageway between Chainages 50 and 1800 alongside the new northbound Pacific Highway (behind concrete barriers), complete Eggins drive tie in to the old Pacific Highway under local traffic conditions, complete Range Road junction tie-ins to old Pacific Highway and complete McPhillips Road access works.

4.2 Construction Site Office

To identify the most appropriate location for the site offices and compounds, OHL Y has considered the physical constraints in the area, the logistics of servicing the construction site, and the potential impact on the road network.

4.2.1 Site Compound and Parking

The OHL Y has identified a site compound location on Kangaroo Trail Road, illustrated in Figures 4-1 and 4-2.



Figures 4-1 Office & Site Layout



Figure 4-2 Kangaroo Trail Road access

Workforce numbers have been based on comparable recent major highway upgrade projects undertaken by RMS and exclude part time, off site workers and delivery trucks. Approximately 300 light vehicles trips per day (two-way) have been estimated based on a worst case scenario of 85 per cent of the workforce would drive to site alone. To accommodate this estimated traffic generation, the site compound will provide approximately 200 car parking spaces for staff members, visitors and workforce. Heavy vehicles are expected to be up to 50 per day at peak.

Construction access to the site compound will be directly from the Pacific Highway, in the short term. The existing Kangaroo Trail Road and intersection with the Pacific Highway will be upgraded to provide safe access for all traffic movements to the site compound. The design of Kangaroo Trail Road will be in accordance with G10 requirements, and will include a deceleration lane for the left turn in movement, an acceleration lane for the left turn out movement and right turn bay for the right turn in movement. There will not be a right turn out movement for construction vehicles due to lack of room to provide an acceleration lane for this movement. This restriction will be addressed through standard regulatory signage and VMP.

The proposed access points will be addressed in a global site VMP as access locations are assessed, constructed and placed in operation.

The site accesses will be located at locations that provide safe intersection sight distance, and are designed to accommodate the turning movements of the largest service vehicle accessing the site. All site offices/accesses will be appropriately sign posted. Security fencing, flood lighting and an appropriate security system will be provided to restrict public access to the compound areas.

4.3 Material Haulage Operations

The majority of truck movements will be for the delivery of materials with only limited quantities of spoil being removed from the site. All spoil to be moved on the project will be confined to the construction footprint haul roads with the exception of approximately 130,000m³ required to be disposed of off-site over an 18 month period. Offsite spoil haulage is yet to be determined by the project team.

The management of construction haulage traffic is detailed in section 5.5 of this plan. The measures and processes to be implemented on the project will ensure that construction haulage traffic movements interacting with road users on the Pacific Highway and local road network will be undertaken in a safe and efficient manner and traffic delays kept to a minimum.

4.4 Construction Access Points

A concept strategy for the location of construction access points for the project area has been developed however these locations need to be further developed and confirmed on site, including the design of appropriate traffic control plans detailing the required signage and traffic control measures. The timing of operation of the construction gates will be developed in conjunction with the staging of works and will be updated as work progresses on site. The concept strategy for the construction access points are detailed in Table 2.

Table 2 Proposed Construction Access Points

Gate No.	Road	Location Description	Vehicle movements
N/A	Pacific Highway	Arrawarra Interchange	Southern turn around location
1	Pacific Hwy south bound off-ramp at Arrawarra Interchange	Arrawarra Interchange	Left in

Gate No.	Road	Location Description	Vehicle movements
2	Eggin's Road and Arrawarra Beach Road intersection	Access to be provided opposite Arrawarra Beach Road	Left in Right in Left out Right out
3	Pacific Hwy (west side)	Access off north bound on-ramp – permanent pavement stub	Left in
4	Sherwood Creek Road	Interface with project corridor	Left in Left out Right in Right out
N/A	Pacific Highway	Intersection with Eggin's Drive	Left in Left out Right in
5	Eggin's Drive (north side)	Access to tie-in work area	Straight in Straight out
6	Kangaroo Trail Road	Haul road at interface with project corridor	All movements
7	Kangaroo Trail Road	Access to main compound	Right in Left out
N/A	Pacific Highway	Kangaroo Trail Road intersection – to be upgraded	All movements
8	Corindi Access Road	New access to be provided	Left out
9	Pacific Highway	Intersection with Bottlebrush Lane	Left in Left out
N/A	Pacific Highway	Intersection with Hawthorn Close – to be upgraded	All movements
10	Hawthorn Close	Interface with project corridor	Left in Left out Right in Right out
11	Pacific Hwy (east side)	South of Range Road	Right in Left out
12	Pacific Hwy (east side)	Intersection with Dirty Creek Range Road	Left in Left out Right out
13	Range Road	Intersection with Kathleen Road (Old Pacific Highway) - north side	Left out Right in Straight in Straight out
14	Range Road	Intersection with Kathleen Road (Old Pacific Highway) - south side	Left in Right out Straight in Straight out
15	Pacific Highway	Intersection with The Siding	Left in Left out
16	Pacific Highway	Intersection with McPhillips Road	Right in Left out
17	Pacific Highway	Northern tie-in	Left out
18	Pacific Highway	Intersection with Rediger Close and Grays Road – to be upgraded	U-turn facility

All permitted construction vehicle movements are to be verified on site prior to each access becoming operational to ensure that intersection entering sight distance,

deceleration, acceleration and storage for the anticipated vehicle type and quantity criteria is met. Intersection signage will be provided to reinforce restricted turning movements and the Traffic Manager is to notify all construction staff of approved Vehicle Movement Plans at each gate access prior to gate operation commencing. Turning movements are to be closely monitored at each access and reviewed if operational safety issues are identified.

Specific Vehicle Movement Plans (VMPs) will be developed for all haulage routes including gate numbers, access or specific instructions, marshalling points and contact details (UHF channel and Phone Number).

4.5 Road Network

4.5.1 Local Roads

There are a number of local roads that are intersected by, join or intersect with the project. These roads service very small communities, numbers of properties or unpopulated areas. These roads generally experience very low volumes of traffic movements each day. The roads located near to the project are listed from south to north in Table 3. An estimate of population numbers and indicative existing traffic flows (low, medium, high) are also shown. These roads will be monitored throughout the project to assess the current local traffic characteristics to ensure that any likely impacts are taken into consideration when planning work activities.

Table 3 Local Road Network (from EIS, Chapter 14)

Station	Road and Location	Town, village, location services	Population and/or no. of properties (estimated)	Traffic volume	Seasonal changes
0	Arrawarra Beach Road	Arrawarra	515 people	Low	Yes, holiday traffic
0.6	Sherwood Creek Road, Arrawarra	Upper Corindi	1090 people	Low	No
2.5	Kangaroo Trail Road, Corindi Beach	Private property	Less than 10 dwellings	Low	No
6.55	Paper Road, 600m north of Post Office Lane, Corindi Beach	Private property	Less than 10 dwellings	Low	No
Station	Road and Location	Town, village, location services	Population and/or no. of properties (estimated)	Traffic volume	Seasonal changes
9.6	Range Road, Dirty Creek	Dirty Creek	555 people	Low	Yes, Berry Farm activity
9.8	New Lookout Road,	NA	NA	Low	No

	Dirty Creek				
9.6	Range Road East, Dirty Creek	NA	NA	Low	No
10.5	Dundoo Reach Road, Dirty Creek	NA	NA	Low	No
11.4	Dirty Creek Road, Halfway Creek	Barcoongere and Newfoundland State Forests	NA	Low	No
11.95	Falconers Lane, Milleara	NA	NA	NA	No
12	The Siding, Milleara	NA	NA	NA	No
13.2	McPhillips Road, Halfway Creek	Private property	Less than 10 dwellings	Low	No
14.3	Dunmar Lane, Halfway Creek	Private property	Less than 10 dwellings	Low	No
15.65	Grays Road, Halfway Creek	Private property	12 dwellings	Low	No
15.75	Rediger Close, Halfway Creek	Private property	Less than 10 dwellings	Low	No

At various stages during the project duration these roads will require traffic management installations to facilitate the construction works.

In addition, there are a number of roads in the vicinity of the project that will be affected principally due to the increase in traffic associated with the Project. The impacts on the adjacent road network resulting from the construction activities associated with the project will be assessed and measures implemented in accordance with the requirements of the project and the road authority to ensure any impacts are kept to a minimum.

Pre-construction surveys will be undertaken to record the condition of existing road and bridge infrastructure in accordance with the RMS G10 specification. Defect identification and rectification on the existing road network will be managed as part of the project maintenance procedure.

4.5.2 Pacific Highway

Traffic surveys in 2011 measured average daily traffic along the Pacific Highway between Woolgoolga and Halfway Creek. The survey results and composition of existing traffic are shown in Table 4.

Table 4 Surveyed average daily traffic volumes 2011 on the existing Pacific Highway

Project Section	Location	Light Vehicles (veh/day)	Heavy Vehicles (veh/day)	Total Daily Volume (veh/day)	% Heavy Vehicle
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1	Woolgoolga to Halfway Creek Upgrade	6,538	2,133	8,671	25%
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The Pacific Highway is an inter-regional travel route with a significant volume of heavy vehicles. On the W2HC section of the highway heavy vehicles represent approximately 25% of the total volume of traffic.

Fluctuations in traffic volumes occur over the Christmas-New Year period, the Easter period, and the June-July and October school holidays. The average daily traffic during the Christmas period is much higher than the yearly average, in the order of 135%.

The Pacific Highway varies between one and two lanes in each direction. The estimated capacity of the highway is about 1200 vehicles per hour per lane. This provides an adequate level of service except during peak holiday periods. ROL conditions ensure that impacts from work activities are minimised during the peak holiday traffic periods.

The existing Level of Service on the Pacific Highway within the project area would typically vary between B and C. However, a lower Level of Service is experienced during holiday peak periods which can result in congestion and delays. Traffic delays can also occur due to unplanned incidents.

The daily traffic volume profiles for the highway indicate light traffic volumes generally peak during the middle of the day (generally between 8am and 4pm), while heavy vehicle traffic remains fairly constant throughout the day.

It should be noted that crash analysis of the Woolgoolga to Ballina section of the Pacific Highway has revealed that the highway section between Range Road and Barcoongere Way at Dirty Creek located within the project area has a very high crash frequency. This crash risk will be taken into consideration when planning work activities on this section of the Pacific Highway.

4.6 Impacts

4.6.1 Pacific Highway Function and Access

Construction will generally be undertaken clear of traffic. This will result in only minor impacts on the existing Pacific Highway and local traffic. The existing highway will continue to operate within capacity, but temporary disruptions and delays will occur. Road user management delay strategies will be implemented to ensure construction activities minimise delays to traffic and works are undertaken within the prescribed road occupancy parameters for the project.

A reduced speed limit from 100km/h to 80km/h for the length of the project will result in an increased travel time through this section of the Pacific Highway. This will be managed through project static signage and VMS messages to ensure that motorists are informed of changed traffic conditions and driver expectations are managed pro-actively.

There will be a need to remove or shorten existing overtaking lanes to facilitate the construction of gate accesses and staging works. This will reduce the number of overtaking opportunities along this length of the Pacific Highway and have the potential to impact on the current level of service of the highway, especially on the

northbound uphill grade at Dirty Creek Range. The existing Level of Service will be maintained with only minor delays associated with reduced roadwork speed limits, short term traffic control operations within G10 and ROL conditions, construction vehicle movements and impacts on existing overtaking lanes. As stated in the TAMP, specific impacts associated with each stage of construction will be addressed in the stage specific TMP's and specific staging design drawings with close consultation with RMS and key stakeholders. This process is consistent with all Pacific Highway projects.

An overtaking lane impact strategy will be developed by OHLY to identify the specific overtaking lane locations proposed to be impacted with a program of implementation for consultation and agreement with the RMS site management representative.

4.6.2 Adjacent Project Works

There will be an adjacent Pacific Highway Upgrade project, the Halfway Creek to Glenugie project, which interfaces at the northern end of this project. There will need to be close liaison between both projects to ensure that work activities are co-ordinated and traffic delays kept to a minimum. To ensure that a high level of co-ordination is achieved, it is proposed that a weekly traffic co-ordination meeting is held with key traffic representatives from both projects in attendance to discuss work programs and interface issues such as adjacent traffic control operations, vehicle movement plans, maintenance activities and incident management. It is proposed that this meeting is facilitated by an RMS representative.

4.6.3 Property Access

There are a number of property accesses impacted by the construction work. OHLY will maintain property access at all times throughout the project and will carefully stage the works to ensure disruptions to residents are kept to a minimum. The success in the management of the interface between these private accesses and the construction works is critical to maintain a positive public profile of the project in the local community.

OHLY will provide an alternative access to a standard that is at least equivalent to that currently existing and meets the relevant road safety standards prior to commencement of construction or opening of the project to traffic, whichever is relevant. Details for provision of altered access for both construction and operation shall be determined in consultation with the landholder.

With regard to the Berry Farm adjacent to Range Road, adequate signage will be provided taking into account that many people accessing the farm may not read English. This signage system will be developed in consultation with Berry Farm management. The final signage scheme highlighting the Berry Farm access arrangement will be included in the relevant traffic control plans.

4.6.4 Public Transport

The public transport operations in the area consist of long distance coach services and local bus services. There are currently no passenger rail services in the area.

There will be minimal disruption to existing passenger and school bus routes during construction, as the project is largely greenfield. The existing highway will be retained for local access.

The location of any bus stop that is close to a construction site will be reviewed to ensure it is still safe to operate. It may be necessary in some situations to temporarily move the bus stop to a safer location. If this is required, all key stakeholders will be consulted and the details of any changes included in the relevant traffic control plan.

4.6.5 Local Road Network

All roads will be maintained at the existing capacity unless reducing it is allowed by the RMS site management representative and is for specific construction purposes. Any reduction in capacity for the purpose of construction staging will be temporary and kept to a minimum. The details of any new road alignment will be outlined in the relevant staging specific TMP.

4.6.6 Emergency Services

Construction activity will have only minor impacts on emergency vehicles, as vehicular access along the Pacific Highway will be maintained. Emergency services will be kept fully informed of all changed traffic conditions throughout the various construction stages of the project. The OHLY will ensure that all construction accesses and adjusted property accesses are clearly signposted with identification signage.

4.6.7 State forest road network

During construction, potential impacts on areas of State forest may result from the temporary use of land for construction activities. Roads, access tracks and fire trails in State forests likely to be affected by the project include Sherwood Creek Road and Dunmar Lane. The OHLY will consult with all key stakeholders to ensure that construction State forest vehicular access is maintained at all times and that any adverse impacts to State forest operations are kept to a minimum.

5 Traffic Operations

OHLY acknowledges the importance of planning and staging all works to avoid road occupancies during peak traffic flow periods and to minimize the delays to all road users.

Historical traffic volume and composition data will be referenced to assist in the planning and design of temporary traffic management controls. Data from RMS permanent and temporary count stations along the existing highway and surrounding major local roads will be used as a basis for this analysis. Additional traffic data will be obtained as identified in the planning stages of each site specific traffic management plan.

Additional speed monitoring will also be managed by the Traffic Manager to assist in the planning of traffic control activities and also to identify the effectiveness of the traffic management schemes implemented. This data will also assist in identifying locations where Police enforcement assistance will be required and will be included in any submissions to the local highway patrol representatives of the NSW Police via the RMS site management representative.

To ensure that all traffic control operations fulfil the obligations of the RMS G10 Specification, traffic controllers will be trained to continually monitor and record queue lengths and delays. A marker will be placed at a 500m point from the traffic controller so that it clearly sets out the limit of the required traffic queue.

A log sheet will be kept of all traffic stoppages recording the stoppage and the resultant queue length. This information will form the basis of the traffic control performance reporting to be submitted to the RMS site management representative.

5.1 Road User Delay Management

The Pacific Highway is a key component of the transport network between Brisbane and Sydney. The highway is of fundamental importance in making this vitally important transport system work. As Australia's most heavily used interstate highway, the road is a vital piece of national infrastructure. The route is of great strategic and regional significance. Its functions include the carriage of interstate freight and passenger traffic, providing for local and regional traffic within the fastest growing rural area in New South Wales and providing access to a large number of popular coastal holiday resorts.

The benefits of reducing road user delay associated with construction works along the highway include travel time savings, lowering driver annoyance, benefits to commerce relating to reliable deliveries of freight and an improved public image for

RMS. Therefore, the OHL Y acknowledges the importance of minimising delays to road users on the Pacific Highway during the construction phase of the project.

To achieve this goal, a road user delay management strategy will be employed throughout the project. The key principles of this strategy are to plan work activities and work sites to minimise:

- Disruption of established traffic movements and patterns.
- Interference with traffic at peak movement periods.
- Interference with public transport services.
- The amount of road closed to traffic at any one time.

The measures to reduce road user delay are addressed in the design of traffic management schemes, the planning of the work area to be isolated from the traffic lanes, developing work methods to avoid impacts on the road network and road occupancy planning. These measures include:

- Seek options and layouts at the design development stage which minimise impacts on traffic during construction.
- Minimise the road space occupied by the works in time, width and length.
- The road capacity should not be reduced unnecessarily and sufficient capacity should be provided to accommodate expected traffic volumes.
- Co-ordinate works at each work area to ensure road users do not encounter several delays in quick succession.
- Undertake detailed site investigations to avoid any unforeseen problems that may increase traffic delays.
- Effectively plan all work activities and ensure that road occupancies are not implemented at times of peak traffic volumes, such as periods associated with school and public holidays.
- Ensure compliance with the TAMP and project requirements.
- Plan maintenance works to avoid activity close to an active construction site.
- Ensure co-ordination of road occupancies with transport operators regarding schedules and over-dimension loads.
- Maintain the ability to stop work and clear the travel lanes to allow traffic flows to return to normal free-flow conditions.
- Ensure adequate spacing between points at which traffic is delayed.
- Ensure road users are well informed of changed traffic conditions.

The RMS G10 Traffic Management specification stipulates traffic delay requirements for the project. In accordance with these project requirements, the OHL Y will ensure that when undertaking the works, the free flow of traffic is not delayed in any direction:

- At any single road occupancy for a duration of longer than 5 minutes.
- Cumulatively due to all road occupancies for a duration of longer than eight (8) minutes.

In addition to these travel time delay requirements, traffic queues caused by road occupancies, measured in any direction, must not exceed 500m in length. If traffic

queues reach 500m in length, the cause of the delay must be removed until the flow of traffic returns to free flow conditions.

To minimise delays through the work site, traffic controllers located closest to, and within a road occupancy on each of the approaches to the road occupancy, must be positioned no greater than 600m apart. Also, road occupancies involving the closure of any shoulder or auxiliary lane must provide a minimum of one travel lane in each direction at all times through the road occupancy. Partial closure of any length of an auxiliary lane may only be implemented if the remaining open length of the auxiliary lane is equal to or greater than 600m where the posted speed limit is 100km/h and 400m where the posted speed is 80km/h. If this open length cannot be achieved, the entire length of auxiliary lane must be closed.

The Traffic Manager will ensure that traffic control activities are planned to operate within this traffic delay criteria and the Traffic Manager will undertake daily travel time surveys through the project to monitor and verify the delays caused by the project works to ensure that this criteria is being satisfied.

The Traffic Manager will develop a travel time monitoring regime that is approved by the RMS site management representative to measure compliance with the road occupancy parameters.

5.2 Road Occupancies

A number of the diversions or stages will require closing of shoulders and lanes on either the existing, temporary or new pavements of the Pacific Highway. Road occupancy licences will be obtained for each type of work involving closures. Several TCPs may operate under the same road occupancy licence.

The various works requiring site specific TCPs are listed in Section 3.1.3. The TCP with applications and works, timing details will be submitted to RMS at least 10 days in advance.

The OHLY will obtain an approved ROL prior to the commencement of any works on or near the Pacific Highway except in the case of an emergency, or when directed by Policy or Emergency services.

5.3 Speed Zoning Strategy

A long-term speed reduction from 100km/h to 80km/hr on the Pacific Highway is proposed for the length of the project area and is in accordance with the requirements of the RMS G10 specification. The speed limit may be reduced further during temporary short term lane traffic control works and this will be detailed within TCP's as required. All changes to speed limits will be in accordance with the approved Road Occupancy Licences and Speed Zone Authorisations issued by RMS. RMS will be provided 14 days' notice of any proposal to change the posted speed limit. Road users will be advised of any speed limit changes utilising VMS on the Pacific Highway and traffic alerts issued via media. Temporary speed zoning changes shall be recorded for operational times of speed zone controls.

On implementation of Stage 1 the posted speed zoning along the Pacific Highway will be as shown in Table 5.

Table 5 Pacific Highway Speed Zone Strategy

Pacific Highway Section	Current Speed	Proposed Speed	Length
CH -200 (South end) to CH 14540 (North end)	100km/hr	80km/hr	14740m

5.4 Safety and Amenity of Road Users

OHLY will safely manage the interaction with all road users, including pedestrians, cyclists and over-dimension heavy vehicles during the construction of this project. OHLY recognises the importance of giving consideration to all road users, including vulnerable users, and maintaining access for all road users through and around the work sites.

5.4.1 Management of Pedestrians

OHLY will ensure that access is maintained for pedestrians at all times during the undertaking of construction and maintenance works. The site specific traffic management plans will outline any signage and/or delineation required for the specific areas of the work. Any necessary diversion of existing walking routes will be undertaken following consultation with key stakeholders and approval from the relevant road authority. The safe night time use of walking routes will be considered in the planning of any diversion.

When planning construction activities, OHLY will give consideration to the:

- Number of pedestrians.
- Type of pedestrian activity.
- Origin and destination points of the pedestrians, and their desired travel path.
- Needs of vulnerable pedestrians, such as young children, the elderly, vision impaired, disabled people, people with prams and trolleys.
- Proximity of pedestrian generating developments.

OHLY will provide a safe road environment for pedestrians by clearly defining all work areas, and where required, defined walking paths will be provided. These paths will be clearly signposted and delineation.

Where feasible, OHLY will aim to maintain all existing pedestrian crossing facilities. Where this cannot be achieved alternative facilities that are a similar standard to the present facility will be provided.

A Traffic Control Plan will be developed for all alterations to existing pedestrian crossing facilities.

OHLY will obtain approval from the relevant road authority prior to adjusting any existing pedestrian facility or the implementation of any new temporary facility.

OHLY will adopt the following process to provide for the safe passage of pedestrians:

- All existing pedestrian/cycle facilities will be maintained in their existing location throughout the construction phase where possible.

- Where pedestrians are required to move through or around a work area, provision will be made via a temporary footpath or planned diversion to minimise the deviation from the existing route.
- Where crossing will be temporarily relocated, they will be located as close as possible to the existing crossing and will be constructed to the same standard as the crossings they replace (such as crossings will be signalised or utilise Traffic Controllers if the crossings they replace were signalised).
- No existing crossing will be closed without a suitable temporary alternative.

All footpath and crossing treatments will be implemented in accordance with relevant RMS TCWS and AS1742.3, which will address but not be limited to the following:

- The revised location of crossings and temporary footpaths will be developed in consultation with the appropriate road authorities and user groups.
- All footpaths adjacent to or within works areas will be clearly delineated, signed and fenced to prevent access to work areas, and will be sufficiently separated from vehicular traffic.
- Pedestrians will be segregated from live vehicular traffic by safety barriers where required.
- Appropriate pedestrian detour signage will be provided to guide/direct pedestrians where detours and closures are in effect.
- The revised location of cycle travel paths (and alternative routes) will be developed in consultation with the appropriate road authority and cycle user group(s).
- 'Cyclist Dismount' signage will be provided at any location where cyclists are expected to cross the carriageway or any other locations where the proposed path may not be suitable for high speed path users.

5.4.2 Management of Cyclists

OHLY will ensure that access is maintained for cyclists at all times during the undertaking of construction and maintenance works. The site specific traffic management plans will outline any signage and/or delineation required for the specific areas of the work. Any necessary diversion of existing cycling routes will be undertaken following consultation with key stakeholders and approval from the relevant road authority. The safe night time use of cycling routes will be considered in the planning of any diversion.

When planning construction activities, OHLY will give consideration to the:

- Number of cyclists.
- Type of cycling activity.
- Origin and destination points of the cyclists, and the connectivity of their routes.
- Proximity of cyclist generating developments.
- The travel speed of cyclists.

OHLY will provide a safe road environment for pedestrians by clearly defining all work areas, and where required, defined walking paths will be provided. These paths will be clearly signposted and delineation.

Where feasible, OHLY will aim to maintain all existing pedestrian crossing facilities. Where this cannot be achieved alternative facilities that are a similar standard to the present facility will be provided.

A Traffic Control Plan will be developed for all alterations to existing pedestrian crossing facilities.

OHLY will obtain approval from the relevant road authority prior to adjusting any existing pedestrian crossing facility or the implementation of any new temporary facility.

5.4.3 Management of Heavy Vehicle Access

OHLY will ensure that access is maintained for heavy vehicles, including over-dimension loads, at all times during the undertaking of construction works. Planning of traffic control operations and temporary works will incorporate the requirements of all heavy vehicle access through the work site.

To facilitate the movement of heavy vehicles OHLY will:

- Give consideration to the movement of heavy vehicles and over-dimension loads when preparing temporary works drawings and Traffic Control Plans.
- Minimise traffic control operations at night so as not to disrupt night freight movements.
- Limit obstructions and restrictions on the carriageways, and when required provide alternatives to maintain access for transport operators including over-dimension load movements.
- When traffic control operations are in place, traffic controllers will effectively co-ordinate the movement of over-dimension vehicles through the work site.
- Assist the RMS Special Permits Unit and over-dimension operators by notifying the RMS, including the Pacific Highway Traffic and Safety Manager, of any obstructions that may impact on over-dimension vehicle movements.

OHLY will also ensure the effective management of over-dimension heavy vehicle movements relating to the construction works. In particular, one of the highest risk activities will be the delivery of super-T bridge girders to site. This activity will require detailed planning to address all risks and ensure that the activity is undertaken in a safe and efficient manner.

It is proposed that a girder delivery strategy will be developed through consultation with key stakeholders. For the purpose of girder delivery, these stakeholders will include representatives from the Construction Team and RMS Project Team, RMS Traffic and Safety Manager Pacific Highway and RMS Network Operations Manager, NSW Police, local councils and haulage operators.

5.5 Construction Vehicle Management

OHLY will manage construction vehicle movements to ensure that all traffic associated with the works can safely travel on the road network to and from the construction site, safely enter and exit the site access points, manoeuvre to and from traffic streams and turn at work areas, depots, stockpile sites and quarries. OHLY will plan all construction vehicle movements with the aim to minimise the risk to other road users and keep the traffic generated by the project to minimum. The

management of works traffic will be undertaken in accordance with the RMS 'Traffic Control at Work Sites' manual.

OHL Y will monitor the use of local roads by construction heavy vehicle traffic in consultation with Clarence Valley Council and Coffs Harbour City Council and develop measures to minimise and/or restrict use of local roads by heavy vehicle traffic as far as reasonable and practicable. Mitigation measures would include:

- Priority given to construction traffic using the Pacific Highway and the project corridor offline.
- Minimising the number and frequency of construction vehicles using local roads through planning of work activities and deliveries.
- Limiting construction vehicle movements on local roads to certain times of day to avoid conflict with local road users.

The types of construction vehicle movements may include:

- Deliveries of materials, supplies, plant or equipment to site.
- Transportation of over dimension loads.
- Haulage of materials on and off site associated with earthworks operations.
- Deliveries of concrete and AC bitumen from batching plants to pavers.
- Regular trips by construction personnel in work trucks and utilities.

5.5.1 Driver Responsibilities

All drivers employed on the project, whether direct employees or subcontractors, have a responsibility to drive safely and in accordance with the Australian Road Rules and any other safe driving instructions issued on the project.

Drivers must exercise care at all times and work in accordance with Vehicle Movement Plans (VMPs).

5.5.2 Types of Vehicles

The types of vehicles used on the project may include, but not be limited to:

- Off-road plant/vehicles eg. Scrapers, dump trucks.
- On-road registered vehicles eg. 4wd utilities; single unit trucks with or without dog trailers; semi-trailers; B-Doubles; and over-dimension floats/platforms etc.

5.5.3 Hazardous Movements

When planning construction vehicle movements, the following hazardous movements will require particular consideration:

- Entering and exiting work sites to and from adjacent travel lanes.
- U-turn movements across travel lanes and at median crossover points between dual carriageways.
- Reversing manoeuvres within the work area and in the adjacent travel lane.
- Travelling through the work area between construction personnel and hazards.
- The stopping of construction vehicles within adjacent travel lanes.

OHL Y will apply controls and measures to mitigate the risk of these hazardous movements including:

- The restriction of specific movements (e.g. turning bans).
- The provision of temporary traffic controls.
- The installation of deceleration, acceleration and turning lanes outside of the through lanes.
- Educating drivers.
- The installation of warning devices on vehicles.
- The implementation and compliance with project VMPs.

5.5.4 Planning Vehicle Movements

It is essential that satisfactory arrangements are planned and implemented for vehicles associated with the construction works. This mainly involves entering and leaving the traffic stream at work areas, accesses and side roads, or turning around.

Locations for turning across lanes carrying traffic and for entry and exit to and from work areas for vehicles associated with the work will be restricted to well defined points selected after considering relevant factors including:

- Sight distance.
- Vertical grades.
- Horizontal grades.
- Traffic volumes of through traffic.
- Approach speeds of through traffic.
- Areas clear of traffic lanes for accelerating and decelerating.

When planning construction vehicle movements OHLV will:

- Comply with all relevant environmental approvals.
- Minimise the number of vehicle movements by balancing earthworks and recycling excavated materials.
- Conduct a risk assessment to identify specific hazards and to facilitate the application mitigation measures.
- Promote safe driving principles.
- Develop on-road haulage routes that not only provide an efficient operation but minimises the impact on the road network and local community.
- Analyse, assess and mitigate the impacts of the traffic generated by the construction works.
- Set-up depots, stock piles and batching plants at locations that minimise travel distances and impacts.
- Limit haulage operations to the construction corridor as much as feasible.
- Limit the number of access points and haul road crossings.
- Evaluate the need for temporary traffic control.
- Implement appropriate environmental controls.
- Provide an efficient and well maintained vehicle fleet.
- Prepare Vehicle Movement Plans (VMP) for all construction vehicle movements.
- Determine the most appropriate hours of operation that will minimise the impact on the road network and local communities.

5.5.5 On-Site Construction Vehicle Movements

Construction vehicle movements on the construction site need to be carefully planned to address the various hazards and conflict points that occur within the work area and where a number of work areas interface with each other including the presence of workers on foot adjacent to working plant, mixing light vehicles with heavy vehicles, rough surfaces, poor sight distance and alignments, deep excavations and steep embankments.

To address these risks OHLY will ensure that:

- A risk assessment is conducted for all work activities and vehicle movements.
- VMPs are developed for all vehicle movement on sites.
- Regular toolbox meetings are held to discuss on-site vehicles movements.
- All plant are fitted with the appropriate safety features.
- All plant are regularly inspected for road-worthiness and are deemed 'fit-for-purpose'.
- All access tracks are clearly defined and sign posted.
- Pedestrian tracks and crossing points are provided where necessary and clearly sign posted.
- Large plants, such as scrapers are separated from small plant items where possible.
- Workers do not operate within exclusion zones of moving plant.
- Exclusion zones at work areas and around plant are clearly delineated and where possible, physical separation is provided.
- Spotters and traffic controllers are positioned to assist and warn workers who are operating in close proximity to access roads and moving plant.
- Appropriate temporary traffic controls are installed where required.
- Consideration is given to the installation of reduced on-site speed limits.
- Site escorts are considered at locations where high-risk activities are being undertaken.

5.5.6 Road Network Construction Vehicle Movements

OHLY will plan all vehicle movements to minimise the impact on the road network. However, where on-road haulage operations are required OHLY will:

- Conduct traffic analysis to determine the number of vehicle movements and assess the potential impact on the road network.
- Develop a route that maximises the use of the arterial roads and minimises the use of local roads.
- Consult with Clarence Valley Council and Coffs Harbour City Council and the RMS Representative during the development of haulage plans.
- Where possible, avoid movements during peak periods.
- Develop a detailed VMP and toolbox all drivers.
- Ensure that the fleet are regularly maintained.

5.5.7 Construction Access Points

The most hazardous movement for construction vehicles occur when the vehicle is entering or exiting the construction site to and from the adjacent travel lane. When planning construction access points OHLY will:

- Consider the use of existing local road junctions to access construction work areas where feasible.
- Keep the number of access points to a minimum.
- Ensure that the new construction access points do not adversely impact on any existing intersections, traffic facilities or traffic generating developments.
- Ensure that all access points comply with the RMS G10 Specification Temporary works Intersection Treatment and relevant design guidelines in relation to sight distance, turning paths appropriate for the vehicle usage, intersection layouts, lane widths, acceleration and deceleration lanes and right turn bays to protect the right turn movement unless agreed with the RMS site management representative based on site specific traffic management and vehicle movement plan submissions.
- Ensure the junction configuration has sufficient capacity to accommodate the traffic generated by the construction site.
- Ensure that security fences and gates at access points are indented to enable vehicles to park clear of the adjacent travel lanes.
- Ensure that access points are constructed of a suitable all weather surface that prevents debris from being tracked onto the adjacent travel lanes.
- Ensure that all access points are clearly visible to approaching traffic and signposted accordingly.
- Consider the use of temporary traffic control to facilitate short-term major haulage operations and the movement of over-dimension vehicles where required.

Each site access will be detailed in a site specific traffic management plan and the associated vehicle movement plan(s), which will show the exact entry and exit points for works vehicles and the associated signage.

5.5.8 Implementation of Traffic Controls

The risk assessment, and or VMP will identify those specific locations where temporary traffic controls will be required to mitigate a particular hazardous movement.

The type of temporary traffic controls to be installed by OHLY may include, but not be limited to:

- Truck turning ahead signs in advance of access points.
- Reduce speed zones on the approaches to access points and turning locations.
- Traffic controllers at access points to facilitate entry and exit movements where required.
- Road shoulder closures to provide deceleration and acceleration lanes.
- Closure of slow and fast lanes on dual carriageways to provide deceleration and acceleration lanes.

In addition, all access points will have a unique identification number that will be sign posted on the approaches and at the access.

Details of all access points and signage will be detailed on the overarching project Traffic Management Plan.

5.5.9 Environmental Controls

OHLY will implement various environmental controls and measures for the haulage operations to mitigate the impacts on the surrounding road network. The controls and measures to be applied will include, but not be limited to:

- The compulsory covering of all loads prior to leaving the site.
- Provision of wheel wash facilities or other devices to ensure mud, dirt or other material is deposited onto any road which is open to the public.
- Maintenance of all construction vehicles to prevent loss of fuels, lubricants, loads or other substances, whether in the form of dust, liquids, solids or otherwise.
- Dust suppression measures conducted regularly at loading/unloading areas and along the routes.
- Clean-up crews, including street sweepers, will be available to manage material spills.

5.5.10 Monitoring

During haulage operations regular monitoring will be undertaken along the various haulage routes to ensure that:

- Operations are complying with the CoA and the requirements of the TAMP.
- Haulage operations are not causing increased traffic congestion throughout the road network.
- The VMPs are being applied and compliance is being achieved.
- Damage to pavements and traffic facilities are reported and rectified.
- Haulage vehicles are fitted with appropriate warning devices.
- All required TCPs are installed correctly.
- The required vehicle and access point environmental controls have been applied and are performing to the required level.
- The monitoring of local roads will be conducted in consultation with Clarence Valley Council and Coffs Harbour City Council.

The Traffic Manager has the authority to stop an activity if the impact on the road network is deemed to be unacceptable. Such circumstances would include debris on the road causing a safety hazard or traffic congestion caused by construction vehicle movements that contravene the road network performance criteria for traffic delays.

5.6 Traffic Control Signs and Devices

Traffic control devices are all signs, traffic signals, pavement markings, traffic islands, and/or other devices placed or erected to regulate, warn and/or guide road users. All traffic control devices used on the project will be in accordance with RMS and Australian standards and guidelines. The development of temporary signposting

schemes associated with the traffic staging arrangements will be undertaken to meet the requirements as stipulated in the RMS G10 specification.

5.6.1 Traffic Control Devices

The following traffic control devices may be used as required by the RMS G10 Specification and as shown on the stage specific traffic management plans:

- Safety barriers.
- Pavement markings and signs.
- Portable variable message signs.
- Radar activated speed signs.
- Temporary traffic signals.
- Anti-gawking screens.
- Lighting towers.

5.6.2 Safety Barriers

Where identified in the TCP for work, safety barriers will be provided to protect the work areas and pedestrian areas from traffic. The safety barriers used on the project will be selected from the list of safety barrier products accepted by RMS. A statement of the basis for the selection and locations of safety barrier systems and their end treatments will be submitted to the RMS site management representative prior to implementation.

All safety barriers will be installed in accordance with Specification RMS R132 and the acceptance conditions for that safety barrier product. An exclusion zone will be established behind barriers as required and no construction work or pedestrian movement will be permitted within the deflection or impact zone of safety barriers. All safety barrier installations will be inspected to ensure compliance with the manufacturer's specification and RMS requirements.

5.6.3 Pavement Markings and Signs

All pavement markings, retro-reflective raise pavement markers and signposting used in the temporary works will comply with the requirements of RMS specifications R141, R142 and R143 respectively, to the same standard as permanent work.

Unless otherwise specified, waterborne paint will be used for pavement markings for temporary works.

The removal of redundant pavement markings from wearing surfaces, other than final wearing surfaces, will comply with the RMS Traffic Control at Work Sites manual and RMS specification requirements.

5.6.4 Portable Variable Message Signs

During the construction of this project, OHLY will utilise portable Variable Message Signs to enhance advanced warning sign posting and provide changed traffic condition information to road users.

When not required for construction activities, the VMS can also be utilised to support the RMS's incident management operations, and for the display of road safety messages.

The use of VMS and the appropriate message will be incorporated within the site specific TCPs. The positioning and setting of VMS messages will be coordinated by the Traffic Manager and approved by the RMS site management representative.

OHLY will deploy the VMS and set standard messages in accordance with the RMS' VMS Policy - Technical Directions TDT 2002/11 and TDT2005/02A. All VMS utilised on the project will be portable in nature, Type C size, solar powered and in accordance with AS 4852.2.

As required in the RMS G10 Specification, a minimum of four trailer-mounted VMS are to be provided on the construction site from the start of any construction activity on the construction site until the date of construction completion. The signs must be used to aid traffic safety and delay management and to provide information to road users. These four VMS will be incorporated in the project signage and advanced warning signage strategy targeting the main approaches to the project area and the locations and messages will be implemented in consultation with the RMS representative.

Where required by the conditions of a ROL, a minimum of one additional VMS sign must be provided and installed on the Pacific Highway and the existing highway on each approach to all road occupancies. During the period of operation of the road occupancy, the VMS must be operated continuously to notify all road users of the road occupancy by displaying appropriate messages to this effect. The VMS must have a remotely controlled 24-hour message change facility to make immediate changes to the messages on the VMS. The VMS must be installed at least one week prior to the day of the implementation of the road occupancy to provide advance notification to all road users of the future road occupancy.

5.6.5 Radar Activated Speed Signs

As required in the RMS G10 Specification, speed monitoring VMS will be provided during the construction period at suitable locations as identified in the site specific traffic management plans and as approved by the RMS site management representative.

The speed monitoring VMS will be located in positions suitable for influencing the travelling speed of motorists entering the reduced speed zone. The locations and the message will be agreed with the RMS site management representative prior to implementation.

Calibration details from the VMS supplier will be obtained to confirm the accuracy of each device is within the manufacturer's tolerances.

The effectiveness of the speed limit reductions will be monitored and a log of vehicle speeds will be submitted to the RMS Representative each week.

5.6.6 Flashing Arrows Signs

Flashing Arrow Signs (FAS) are key components of most TCPs, in particular for use when closing single lanes along dual carriageways, and conducting mobile traffic control operations.

The requirements of when to utilise a FAS are stipulated in the various standard TCPs contained in Appendix 4 of the RMS TCWS manual. When stipulated by the TCP, OHLY will implement FAS in accordance with Section 11 of the RMS TCWS Manual.

All FAS used on this project will comply with the RMS equipment specification FAS/4 and be controlled by the appropriately trained traffic control team member.

5.6.7 Portable Traffic Signals

In some situations during the construction of this project, OHLY will utilise portable traffic signals to enhance Traffic Controller operations. The specific uses may include one lane alternate, haul road crossings, and for short-term full closure operations. All portable traffic signals installed on the Pacific Highway will be manually operated by a Traffic Controller and coordinated with end of queue management arrangements

When stipulated by the TCP, OHLY will implement the portable traffic signals in accordance with Section 10 of the RMS TCWS Manual.

All portable traffic signals used on this Project will comply with RMS equipment specification PTS/3 and be controlled by the appropriately trained traffic control team member.

In accordance with Section 51 of the Road Transport (Safety and Traffic Management) Act, OHLY will obtain approval from the relevant road authority prior to installing the set of portable traffic signals.

5.6.8 Project Signage Requirements

The temporary project identification signs will be installed as directed by the RMS site management representative and will be located on the approaches to the site. These signs will be integrated with the advance warning sign schemes on approach to both ends of the site consistent with other Pacific Highway upgrade projects. In addition, identification signage will be provided at all construction access points and security signage will also be provided at all construction access points and along the work area perimeter to discourage unauthorised access.

5.6.9 Anti-Gawking Screens

Suitable anti-gawking screens will be considered for use at critical locations along the Pacific Highway within the project area to ensure that drivers' attention is not diverted by adjacent construction activities. The use of anti-gawking screens will be considered in the design of traffic staging and traffic control plans.

When installed, the screens must not present a hazard to road users or obscure any existing traffic control devices and must be maintained to ensure that they remain securely fixed in place at all times.

5.6.10 Lighting Towers

Lighting towers used to facilitate night works or when where there is insufficient light must comply with the following requirements:

- Trailer-mounted with a minimum of four 1500 watt flood lights on a 360 degree telescoping hydraulic mast extendable to 9 metres in height.
- Noise rating of 83dB(A) at operators ear, 81dB(A) at 1 metre, 70dB(A) at 7 metres.

Lighting towers will be positioned away from motorists.

5.7 Traffic Control Inspections

The continuous monitoring of temporary traffic controls implemented at work sites is critical to the success of providing a safe environment for road workers and road users.

Inspections of the temporary traffic controls will be conducted in accordance with the RMS 'Traffic Control at Work Sites' manual and Australian Standard AS 1742.3 and will focus on monitoring compliance against the TCP and identify any safety hazards, to enable OHLY to implement corrective solutions.

OHLY will be conducting four main types of inspections on this project:

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

5.7.1 Inspection Frequency and Responsibilities

The Construction Manager or delegate (Traffic Manager) will ensure regular inspections of temporary traffic controls are conducted during the construction of this project.

The frequency of the traffic control at work sites inspections will be subject to the construction program and the types of activities in progress. The responsibility and frequency of inspections summarised in the Table 6.

Inspection	Responsibility	Frequency
Pre-start and pre-close down	Traffic Control Leading Hand and Site Engineer	Before works start and prior to closing down. The Leading Hand must also conduct regular inspections throughout the shift.
Weekly inspections	Foreman and Site Engineer	On the day before the work begins, and at least once per week.
Night inspections	Foreman and Site Engineer	At least once during the first week and at least every two months.
Pre-opening inspections of temporary roadways	Project Manager and Traffic Manager	Prior to opening any temporary traffic switches, sidetracks or carriageway deviation to traffic.

Table 6 Traffic Control Inspection Schedule

5.8 Temporary Works

5.8.1 Temporary Roadways

Where required, the construction of temporary roadways and detours will be in accordance with the approved Construction Staging road design drawings. This includes the modification and strengthening of existing pavement and road shoulders, where they are unlikely to be able to support the new traffic loadings. The works on temporary roadways and detours is subject to Temporary Works Design approval and construction will not proceed without prior RMS approval.

Construction of temporary roadways will comply with the relevant RMS Specifications for the particular roadworks element.

Temporary works will meet the needs of all road and path users, provide traffic safety, security, maintain access to properties, temporary environmental controls, temporary facilities, temporary infrastructure and all temporary measures to meet the requirements of the RMS G10 Specification.

5.8.2 Design Standards

The design and sign posted travel speed limit for carriageways carrying Pacific Highway traffic will be 80km/h. Minimum widths of traffic lanes to be 3.5m, except as required by section 6.1 of RMS G10 Specification. The minimum width of shoulders will be 1.2m.

Where a single carriageway of the main carriageways is utilised as a two way road for Pacific Highway traffic as part of traffic staging and where the available shoulder width on the single carriageway is less than 3.0 metres, breakdown bays are to be provided for each direction of traffic flow at a maximum spacing of one kilometre along the single carriageway. Cross carriageway accesses with deceleration lanes may be utilised as breakdown bays. As a minimum, breakdown bays must satisfy the following criteria:

- Have a sealed surface.
- Be a minimum 35 metres long and 3.5 metres wide, excluding shoulder.
- Be signposted, including advance signage.

For the avoidance of doubt:

- When a permanent carriageway is utilised as a two way road and the single carriageway contains a 2.5m wide shoulder and an adjacent 1.0m wide SO gutter or minimum 0.5m wide verge, the 3.0m shoulder width condition will be satisfied.
- When the permanent carriageway is utilised as a two way road, the single carriageway will generally require widening, on the offside of the permanent carriageway, in the areas that do not contain cross carriageway access at a spacing of less than one kilometre. Cross carriageway accesses with deceleration lanes satisfy the requirements relating to breakdown bays as indicated in the points above.

5.8.3 Temporary Lighting

The staging specific Traffic Management Plans shall identify the need for temporary lighting. The requirement for lighting shall be determined by risk assessment and shall be agreed with the RMS site management representative. The positions and numbers of lighting sources will be identified in the TMP.

5.8.4 Opening Temporary Roadways and Detours

Prior to opening temporary roadways and detours to traffic all pavement markings, retro-reflective raised pavement markers, signposting and safety barriers and installation of portable or temporary traffic signals must be completed.

An inspection by a person qualified in the RMS 'Design and Inspect Traffic Control Plans' course will be arranged to verify that regulatory signs, warning signs and traffic control devices have been suitably located to be visible and effective under the

site conditions and expected traffic speeds before opening the temporary roadways to traffic.

Any deficiencies identified during the inspection should be rectified prior to opening and the adjustments amended on the TCP to show the final traffic control arrangement in place.

Unless otherwise approved by the RMS site management representative, traffic may only be switched to a temporary roadway or detour where the OHLY workforce will be performing work on the construction site for minimum of two successive days thereafter. Unless otherwise approved by the RMS site management representative, the existing roadway being replaced cannot be disturbed for at least two days after the opening of the temporary roadway or detour to traffic, to provide for the event where failure of the temporary roadway or detour occurs and there is a need to redirect traffic back onto the existing roadway.

5.8.5 Road Safety Audit of Temporary Roadways or Detours

OHLY is required to arrange for a road safety audit within 24 hours of implementation of any TCPs for long-term temporary work. A qualified road safety auditor will be arranged to undertake an inspection of the traffic control measures during both daytime and night time.

If the original measures prove not to be fully effective, the Traffic Manager, in consultation with the Road Safety Auditor and the RMS site management representative, will revise the TCP without delay and implement appropriate corrective measures.

The Traffic Manager will submit a report to the RMS site management representative within 7 days of implementation of the TCPs. This report will include findings from the Road safety Auditor's inspections and any changes implemented to the long-term work TCPs.

5.8.6 Removal of Temporary Roadways and Detours

Upon completion of the works, the temporary roadways and/or detour arrangements will be removed and the area restored to a condition equivalent to that which existed prior to the commencement of the work.

5.9 Management of Unplanned Incidents

The detailed management of large scale emergencies and incidents within the boundary of the site shall be in accordance with the State requirements as laid out in the State Disaster Plan as detailed below.

Notwithstanding this, should an incident occur within the boundary of any area subject to a Traffic Control Plan, OHLY will assist the RMS or Emergency Services as required. The RMS and Emergency Services will have the contact number for the OHLY Traffic Manager and will be able to call for assistance at all times throughout the duration of the project.

For non-emergency but disruptive incidents the Traffic Manager or his representative will attend the location of the incident and assess the course of act required and the level of involvement required of OHLY resources. This assessment and the course of action will be coordinated with the local emergency services if they are in attendance.

The OHLY Traffic Manager, Construction Manager and the Construction General Superintendent are the contractor personnel to be contacted in the case of an emergency or other serious incident within the length of the Works. These persons will have sufficient access to labour, plant and materials as necessary to immediately undertake repairs, to a minimum sufficient level of safety to permit traffic to use the area damaged or disrupted by the incident. Within an acceptable minimum time the area will be completely repaired to the full and compliant safety level.

Should a works vehicle breakdown en route or within the compound, it is the sub-contractors responsibility to arrange recovery. Should the breakdown cause congestion on the Pacific Highway, the Traffic Manager will be able to determine the level of assistance required.

5.9.1 Management of Emergencies in NSW

The Government of New South Wales acknowledges the inevitable nature of emergencies and their potentially significant social, economic and environmental consequences. Accordingly, the Government has enacted the State Emergency and Rescue Management Act, 1989. Emergencies may be controlled by combat agencies or emergency operations controllers as specified in the State Emergency and Rescue Management Act, 1989, which recognises the need for a coordinated response by all agencies having roles or responsibilities for such emergencies. Organisations have been identified in the State Disaster Plan as the agencies primarily responsible for controlling particular hazards/emergencies. Combat agencies particularly relating to the NSW are detailed in the following table.

Table 7 Unplanned Incident Agency Responsibilities

Event	Agency
Law Enforcement/Emergencies	NSW Police
Fire	NSW Fire Brigades/NSW Rural Fire Service
Hazardous Materials	NSW Fire Brigades
Flood	NSW State Emergency Service
Storm and Tempest	NSW State Emergency Service

5.9.2 Roads and Maritime Services (RMS) Responsibilities

In accordance with its statutory obligations, RMS has the ultimate responsibility for road safety and traffic management of the State Road Network. It is the lead agency for traffic management in New South Wales, including the management of unplanned incidents in co-ordination with NSW Police. For further information refer to the “RMS and Police – Memorandum of Understanding (MOU) Traffic Management of Incidents” (1999).

The RMS Transport Management Centre (TMC) at Eveleigh is responsible for the management of unplanned incidents throughout the NSW road network. Under the RMS and Police MOU, the incident scene and responsibility is divided into three cordons:

- Inner Cordon – Police lead with RMS support.
- Outside the Inner Cordon – RMS lead with Police support.
- Outside of Outer Cordon – RMS lead and manage.

OHLY may be requested by emergency service agencies or the RMS to provide support when emergencies / unplanned incidents occur within, or adjacent to the construction site.

5.9.3 OHLY Roles and Responsibilities

The site management of unplanned incidents is ultimately the responsibility of the OHLY Construction Manager or Construction General Superintendent. These persons will determine the actions required in response to requests from emergency response agencies including the RMS and shall direct OHLY and subcontractor resources as required.

Any issues associated with traffic management shall be coordinated by the Traffic Manager under the direction of the Construction Manager or Construction General Superintendent.

5.9.4 Management of Unplanned Incidents

The occurrence of unplanned incidents within the construction site will potentially have negative impacts on the operation of the road network. Similarly incidents that occur on the surrounding road network can temporarily restrict construction activities.

In the event of an unplanned traffic incident the Traffic Manager will:

- Determine the details of the incident and identify the likely impact on the road network.
- Inform the Project Director, RMS' Traffic Management Controller (TMC) and appropriate emergency and support services immediately and continually coordinate activities for the duration of the incident.
- Establish a point of contact on site.
- Agree with the Construction Manager on immediate action to prevent any further harm.
- If resources are available, provide initial response to unplanned incidents with the aim to make incident scene safe, and prevent further harm to persons or property.
- Provide close support to emergency services, including traffic control in the vicinity of the incident.
- During major incidents provide a senior construction representative on-site to liaise with the RMS and TMC, and emergency service agencies.
- In consultation with the Construction Manager, reschedule planned works that will interfere with the incident, or create additional delays to those road users already affected by the incident.
- Monitor and disseminate road condition information to the RMS' TMC and for their distribution to road users.
- Log all information received and actions taken.
- Monitor traffic incidents to identify a trend and in consultation with the RMS enhance traffic control measures where required.
- Note lessons learned.
- Ensure all actions specified in section 9 of the RMS G10 Specification are undertaken.

5.9.5 On-site Traffic Control Resources

Where available, OHLY will provide access to on-site traffic control resources to cater for unplanned incidents (if required).

5.9.6 Traffic Control

Where required, the temporary traffic management and control measures implemented during incidents within or adjacent to the construction site will be based on the requirements stipulated in the RMS 'Traffic Control at Worksites Manual', and where further reference is required, Australian Standard AS1742.3, and RMS G10 specification.

5.9.7 Variable Message Signs

OHLY considers Variable Message Signs (VMS) as a very effective traffic control tool. During the construction of this project, OHLY will utilise one portable Variable Message Sign on approach to each end of the site on the Pacific Highway to enhance advanced warning sign posting and provide changed traffic condition information to road users.

When not required for construction activities, the VMS can also be utilised to support the RMS incident management operations.

The use of VMS and the appropriate message will be incorporated within the site specific TCPs.

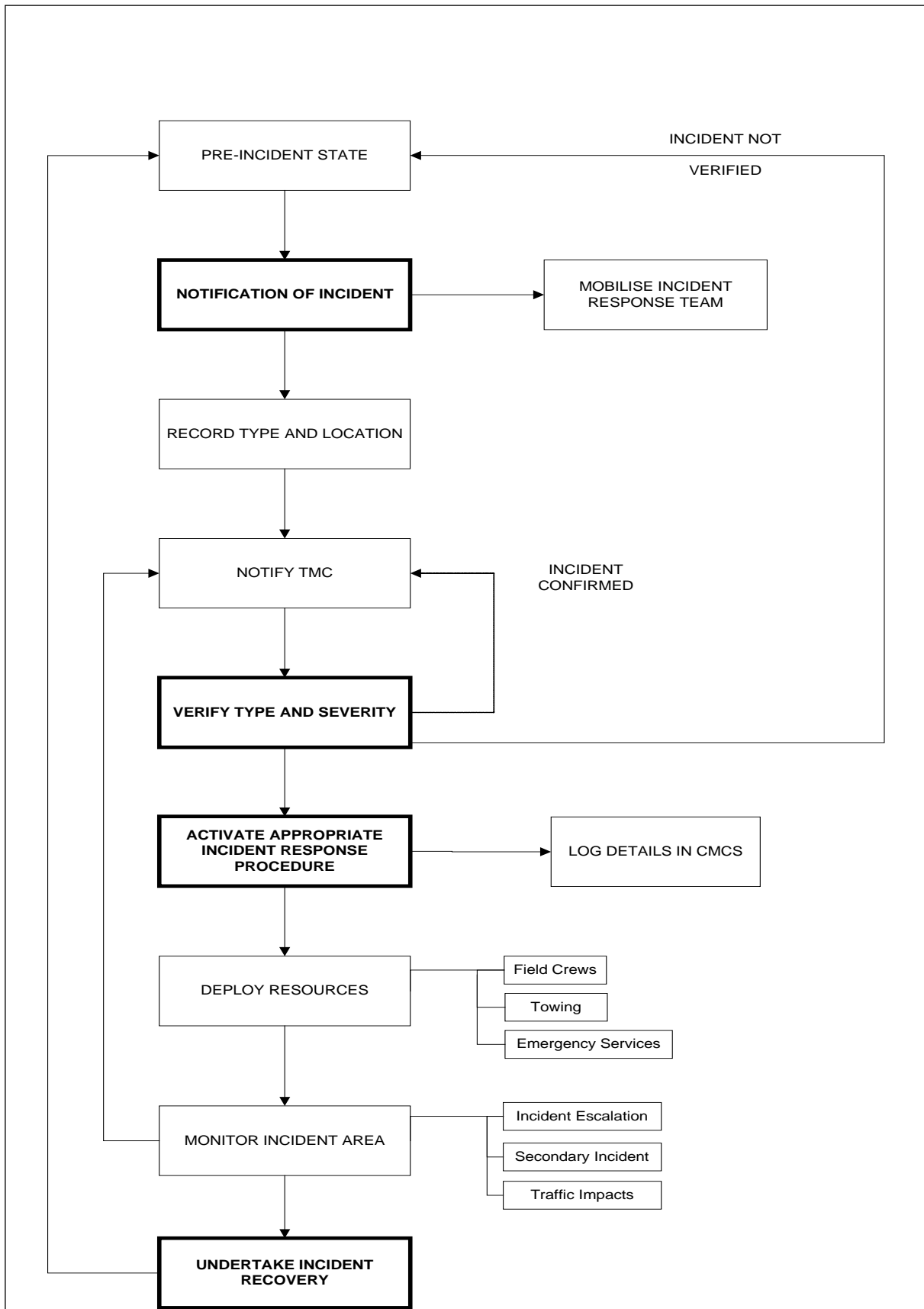
The positioning and setting of VMS messages will be coordinated by the Traffic Manager.

OHLY will deploy the VMS and set standard messages in accordance with the RMS' VMS Policy - Technical Directions TDT 2002/11 and TDT2005/02A and as directed by the TMC, Police and/or RMS Representative.

5.9.8 Incident Response Plans

OHLY will develop specific incident response plans to address identified risks and scenarios that may impact the Pacific Highway and local road network within the project area.

Figure 4 Generic Incident Response Plan



5.10 Management of Special Events

A special event is a local or regional event which generates increased traffic volumes, reduces traffic speed or lowers the capacity of the road network. Some examples of special events include marathons, fun runs, cycling events, parades, marches and street market days.

In traffic terms, RMS defines a Special Event as any planned activity that is wholly or partially conducted on a road, requires multiple agency involvement, requires special traffic management arrangements and may involve large numbers of participants and/or spectators.

5.10.1 Key Guideline

In 2003, the NSW Government published “The Guide to Traffic and Transport Management for Special Events”, which provides a comprehensive guide for organising, managing and controlling special events. This guide was developed in consultation with representative from: the NSW Premier’s Department; RMS; Local Government Association; numerous NSW Local Councils; Police and members of the events industry.

5.10.2 Responsibilities for Special Events

In accordance with its statutory obligations, RMS has the ultimate responsibility for road safety and traffic management of the State Road Network. It is the lead agency for traffic management in New South Wales, including the management and control of major special events.

The RMS’ Transport Management Centre (TMC) at Eveleigh is responsible for the assessment and coordination of special events, which is conducted in consultation with event organisers, Police and local Councils.

The specific roles of the RMS, Local Council and Police are stipulated in the Guide to Traffic and Transport Management for Special Events.

5.10.3 Classes of Special Events

Special events are classified based on the potential disruption to traffic and transport systems, and the disruption to the non-event community. The four classifications are as follows:

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

protest or demonstration). For example: a small march conducted with a Police escort.

5.10.4 The Role of OHLY

Where special events are expected to generate additional vehicle or pedestrian traffic in any areas directly or indirectly affected by the construction works or temporary works, OHLY must co-operate with the RMS site management representative and other authorities to facilitate traffic and pedestrian flows on the existing road network or adjacent to the construction site.

The role of OHLY in special events of any category that may impact on the road network through or in the vicinity of a construction site will be one of participation and co-operation in the planning and implementation process. OHLY will be proactive and maintain regular contact with road authorities to identify upcoming special events to ensure any conflict with construction activities can be addressed at an early stage in the planning process.

5.11 Maintenance

In accordance with the requirements of the RMS G10 specification, OHLY will carry out maintenance of the pavement and drainage on existing roads and pavement constructed for staging, including shoulders and kerb and gutter, within the Limits of the Contract. The maintenance will start at the commencement of work on site other than site establishment.

OHLY will undertake the maintenance of existing roadways, temporary roadways and detours and new roadway opened to traffic in accordance with section 7 of the RMS G10 specification.

Inspection/maintenance of existing roadways, new roadways, temporary roadways and detours will be undertaken on a weekly basis as follows:

- Existing roadways – including repairing potholes, cleaning kerbs and gutters, clearing drainage blockages, removal of debris from roadway, straightening and cleaning roadside furnishings, grass mowing and trimming of vegetation, as needed.
- Temporary roadways and detours – including maintenance of the existing pavements, line marking, kerb and gutter, road shoulders and verges, ancillary services, roadside environment, drainage, signage, trimming of vegetation and housekeeping.
- New roadways opened to traffic – including cleaning of kerbs and gutters, clearing of drainage blockages, removal of debris from roadway, grass mowing and trimming of vegetation, as applicable.
- Inspection of traffic control devices for short term and long term traffic management will be completed on a daily basis by a qualified minimum RMS blue or yellow card holder. Reporting will be in the format provided in the Traffic Control at Worksite Manual. Inspection and Control of Traffic Management and uploaded into the web based document management system on completion.

5.12 Climatic and seasonal conditions

To address variable climatic conditions, appropriate delineation, advance warning signs and speed zoning will be provided at all times to cater for foggy conditions and when required, lighting will be provided if night vision is poor.

In the event of bushfires or flooding, these situations will be treated as an unplanned incident and a response will be implemented in accordance with the relevant incident response plan.

6 Traffic Management Communications and Stakeholder Involvement

6.1 Community Communication Strategy

The Community Communication Strategy provides an approach to stakeholder and community communications in accordance with the requirements of CoA C1. The Strategy identifies opportunities for providing information and consulting with the community and stakeholders during the construction phase of the Project. The strategy defines:

- The engagement groups.
- The key messages of the Project.
- The range of tools that will be used to interact with community and stakeholders.

Communication tools defined in the strategy include:

- Targeted community open days.
- Advertisements.
- Displays.
- Door-knock.
- Letterbox drops.
- Signage.
- Website.
- Focus meetings.
- 1800 number and email address.

The Community Communications Strategy will be submitted to DP&E for approval prior to the commencement of construction. The Traffic Manager will liaise closely with the Community Manager and provide traffic and road safety information as required to assist in the planning and preparation of community information, consultation and involvement activities and documentation.

6.2 Complaints and Enquires Procedure

A Complaints and Enquiries Procedure, consistent with AS 4269: Complaints Handling, has been developed for the Project, in accordance with the requirements of CoA C2 and C3.

All community inquiries and complaints related to the construction activities will be referred to the 24-hour community information line (1800 778 900). An email address w2hc@ohlaustralia.com has been provided for receipt of complaints and enquiries. The telephone number, the postal address and the email address were published in newspapers circulating in the local area prior to the commencement of construction and is provided on the Project website.

Information on all complaints received, including the means by which they were addressed and whether resolution was reached and whether mediation was required or used, will be included in a Complaints Register. The information contained within the Register will be made available to the Secretary on request.

Attempts will be made to resolve all complaints in accordance with the community communications strategy. An initial response to complaints will be provided within 24 hours of a complaint being received. A further detailed response, including steps taken to resolve the issue(s) that lead to the complaint, will be provided within 10 days. All complaints should be closed off in the stakeholder database. At all times the stakeholder will be kept informed of when they may expect to receive a response.

The Traffic Manager will ensure that corrective actions are applied, as appropriate, in consultation with the appropriate construction staff to allow modifications and improvements in the management of any environmental issues that result in community complaints.

7 Reporting

OHLY will undertake reporting of traffic management and road safety issues in accordance with the project requirements. It is acknowledged that the timely and accurate reporting of traffic management issues is essential in ensuring that the RMS, internal and where necessary, external stakeholders are kept well informed at regular intervals. This assists in tracking the performance of the project, responding to incident management, liaising with key stakeholders and satisfying the reporting needs of the Client.

During the project OHLY will report to the client, community consultative committees and other relevant stakeholders on all traffic management and road safety issues that may impact on the road network.

The Traffic Manager will be responsible for reporting the following information.

7.1 Traffic Control Operations

- Report immediately to the RMS site management representative the occurrence of all delays, including those caused by incidents, to the free flow of traffic greater than five minutes and/or traffic queue lengths of greater than 500 metres;
- Produce records of all traffic flow delays and durations, traffic queue lengths and other ROL related matters to the RMS site management representative by 9:00am on the Thursday following the week being recorded; and
- Provide a forecast of the proposed road occupancies for the following week to the RMS site management representative. The forecast must be in the form of a schedule running from Monday to Sunday and contain full details of the locations and timing of all proposed road occupancies. The forecast must be provided to the RMS site management representative by 9:00am on the Thursday of the week preceding the week being forecast.

7.2 Traffic-related Incidents

- Traffic-related incidents occurring within the construction site or at other locations affected by the work will be reported to the RMS site management representative immediately.
- A formal report detailing the incident, photographs of the approach to the incident site, including the location of all safety devices and signs and any recommended corrective actions will be forwarded to the RMS site management representative within 2 days of the occurrence of the incident.

7.3 Traffic Management Performance

- Monthly reports will be provided to the RMS site management representative summarizing the traffic management performance for the month concluded, traffic management activities undertaken during the month, details of incidents and any corrective actions, recent and proposed traffic changes, road network performance, status of approved and anticipated ROL/SZA applications, results from recent road safety audits and traffic management inspections and monitoring, and the status of traffic management documentation under development.

7.4 Toolbox notices/Training Sessions/Induction information

- Traffic management and road safety information will be disseminated across the entire Project Team or relevant sections of the Construction Team as required.
- Presentations on traffic management and road safety information to stakeholder forums will be undertaken as required.

The RMS “Traffic Control at Worksites” Manual and Australian Standard 1742.3 will be referenced in terms of reporting requirements for traffic control activities.

7.5 Records

As identified in the Annexure G10/C, the OHLTY will maintain all records as below:

- Traffic Control qualification details.
- Road Occupancy Licences obtained.
- Traffic Management Plan.
- Traffic Staging Plans, including road design plans if applicable.
- Traffic Control Plans (TCP) and Vehicle Movement Plans (VMP) if not part of the TAMP.
- Risk issues identified in Traffic Management Risk Assessment Workshop.
- Road Safety Audit of TSP report and associated documentation.
- Inspection report on traffic control measures, prior to opening of traffic switches or temporary roadways.
- Road Safety Audits reports on TSP implementations.
- Daily inspection records of traffic control measures in place.
- Register of changed traffic speed conditions.

Appendices

Appendix A - Concept Construction Staging Drawings