

Volume 2 of 2

Intelligent Transport Systems Maintenance Contract - Metro East Zone

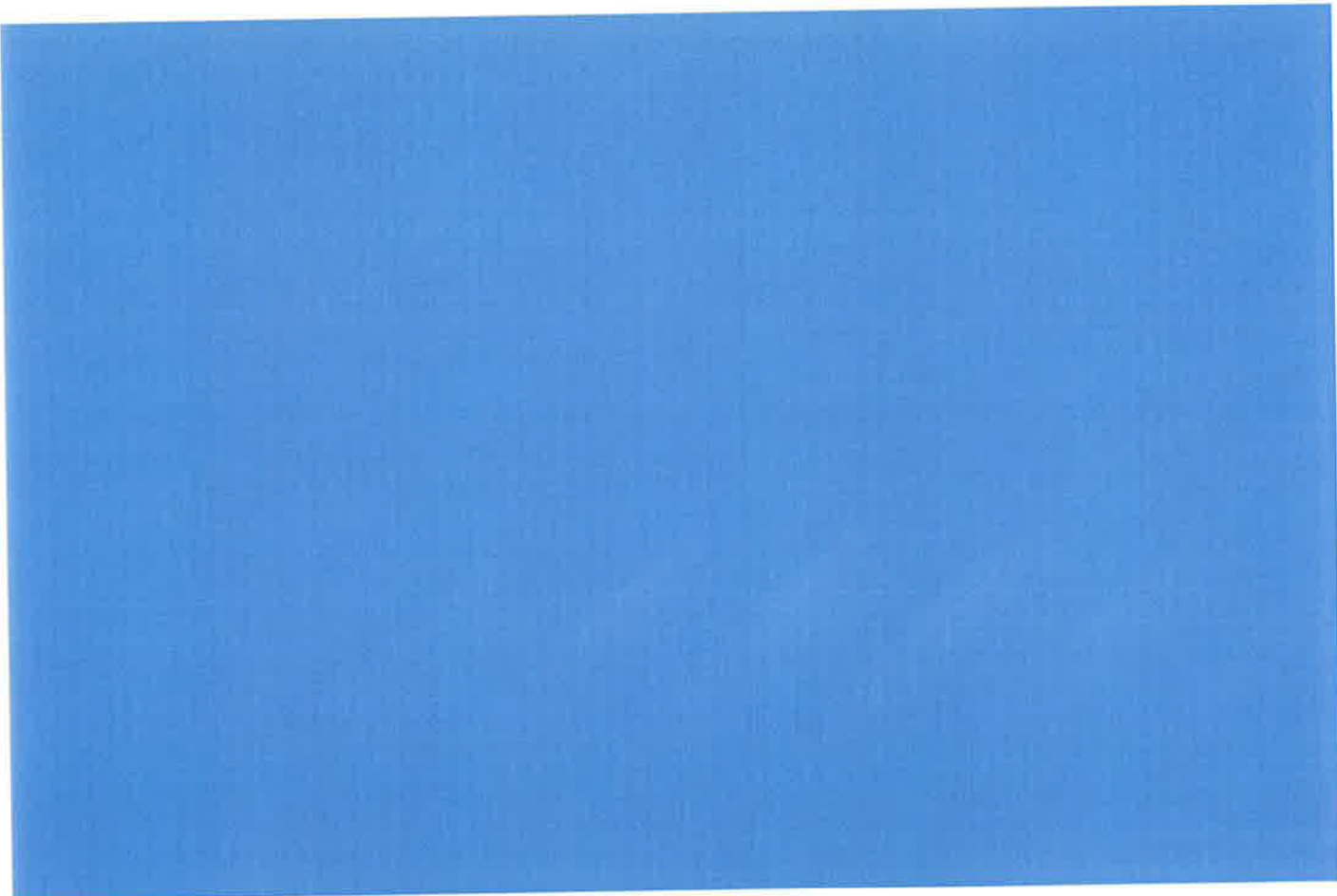
Schedules 10 to 21, Execution Page &
Exhibits

SCHEDULE 10

DRAFT INITIAL FORWARD WORKS PROGRAM

ITS-PL-7002 – Initial Forward Works Program

RMS Road Maintenance Contestability Reform Program
ITS Maintenance Contracts (ITS MC)



ITS-PL-7002 – Forward Works Program

Authorisation and Control

The Initial Forward Works Program (FWP) describes the scope of Services to be delivered over each program period.

Authorisation

This FWP is a controlled document, and is to be approved by RMS on a quarterly cycle.

Control and Records

The FWP is to be signed and scanned into the Document Management System.

Recipients identified within the distribution list shall be responsible for ensuring their copies remain up-to-date. Records generated as a result of the implementation of the FWP shall be handled in accordance with the ITS MC Documentation Plan.

Revision

The Quality Manager shall be responsible for ensuring all revisions remain up-to-date and controlled, communicating the updated documentation to those on the recipient list, as well as to Team.

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VERSION	DATE	DESCRIPTION	SECTION/ PAGE NO.	APPROVED
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02				

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1 Introduction

1.1 Overview

We have developed this Initial Forward Works Program based on the successful delivery of similar services and the information provided in order to establish ourselves as custodian and steward of the ITS assets working in collaboration and partnership with RMS.

1.2 Contract Scope

This Plan details the services that shall be delivered during the Initial Forward Works Program (FWP) period of 1 Oct 14 – 30 Jun 15. Inspections and planned maintenance activities to be undertaken during this period are in accordance with the direction provided in the ITS Maintenance Contracts (ITS) MCs – Overarching Asset Maintenance Plan.

This Plan will be finalised with RMS during the transition stage and agreed 10 days prior to the Full Services Commencement Date. This will allow incorporation of the Specific Project Proposals (SPPs) for the strategic asset renewal/replacement and minor improvement works programme to be incorporated into the FWP when briefs are made available by RMS, following finalisation of budgets in June/July 2014.

- During the initial period we will work collaboratively with RMS to ensure our development process is robust for subsequent years
- Our approach to the FWP will be continually reviewed to ensure it reflects any changes to RMS' Overarching Asset Maintenance Plan
- The FWP will be reviewed with RMS on a quarterly cycle
- This plan details
- Our asset maintenance approach to deliver the Service categories
- Processes by which the FWP is prepared for approval
- Our process for identifying alternative approaches to delivering the outcomes to provide improved value for money, and
- How we will work collaboratively with RMS to adopt best practice and innovation to improve the performance of the assets.

All our work will be managed to facilitate recording of costs against the RMS supplied Program Codes. The financial system within our Integrated Contract Management System (ICMS) will provide robust reporting to RMS. This is detailed within our Financial Management Plan.

We will work collaboratively with RMS during the Transition Stage to establish the project and reporting codes within our financial system to aid a smooth handover of Services. These will be aligned where possible to simplify this process.

This FWP does not include any of the Services excluded from this ITS maintenance contract by RMS as detailed in Schedule 2, Section 3.

1.3 Compliance Matrix

This Initial Forward Works Program describes our approach to support RMS achieving its Strategic Asset Management objectives. In doing this we will adopt the required Stewardship Principles over the ITS Assets.

Furthermore, this Management Plan will demonstrate how we shall deliver the five RMS outcomes below.

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Table 1 - Compliance Matrix

OUTCOME	COMPLIANCE REFERENCE
Execute a smooth and successful transition from current service delivery.	Section 3
Successfully deliver an agreed program of works which provides an opportunity to learn about the Assets, within agreed commercial targets.	Section 1
Develop and agree a "baseline" for the inventory, condition, performance and cost of maintaining the Assets.	Section 4
Establish an effective working relationship with RMS and other key stakeholders.	Section 3
Establishing robust service delivery systems, plans and procedures.	Section 3

This table details the lead sections only as invariably full compliance can only be ascertained by considering each section.

1.4 Performance Measures

The following sections describe our approach to the required service categories to be included within the FWP as defined in Schedule 9, Section 2, Table 2.

- Section 2 Program Management
- Section 3 Asset Management
- Section 4 Asset Inspection Works
- Section 5 Planned Maintenance Works.
- Section 6 Reactive Maintenance Works
- Section 7 Incident Support
- Section 8 Minor Improvement Works, Strategic ITS Asset Renewal and Replacement Works (Special Projects)
- Section 9 Facilities Support Services.

1.5 Reference Documents

This plan is to be read in conjunction with a number of documents (and the references contained therein) but principally:

- Schedule 2: ITS MC Service Requirements
- Schedule 3: ITS MC Commercial Framework
- Schedule 4: ITS MC Performance Framework
- Schedule 7: ITS MC Brief for Transition Services
- Schedule 11: ITS Maintenance Contracts (ITS) MCs – Overarching Asset Maintenance Plan
- Exhibit 1: ITS MC Asset Definition Specification
- ITS Maintenance Services – General Requirements (R300 et seq)
- All RMS Specifications
- ITS type specific Asset Maintenance Plans (to be developed during transition).

This initial FWP draws from the approach, procedures, processes and strategies defined within our Management Plans notably:

- Initial Services Management Plan

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- Initial Incident Management Plan
- Initial Operations Management Plan
- Transition Management Plan
- Initial Depot Management Plan
- Initial Communication and Stakeholder Management Plan
- Initial Traffic Management Plan, and
- Initial Procurement Management Plan.

1.6 Plan Relation Overview

The management plan overview for the RFP submission is represented below, the initial Forward Works Program is indicated in green.

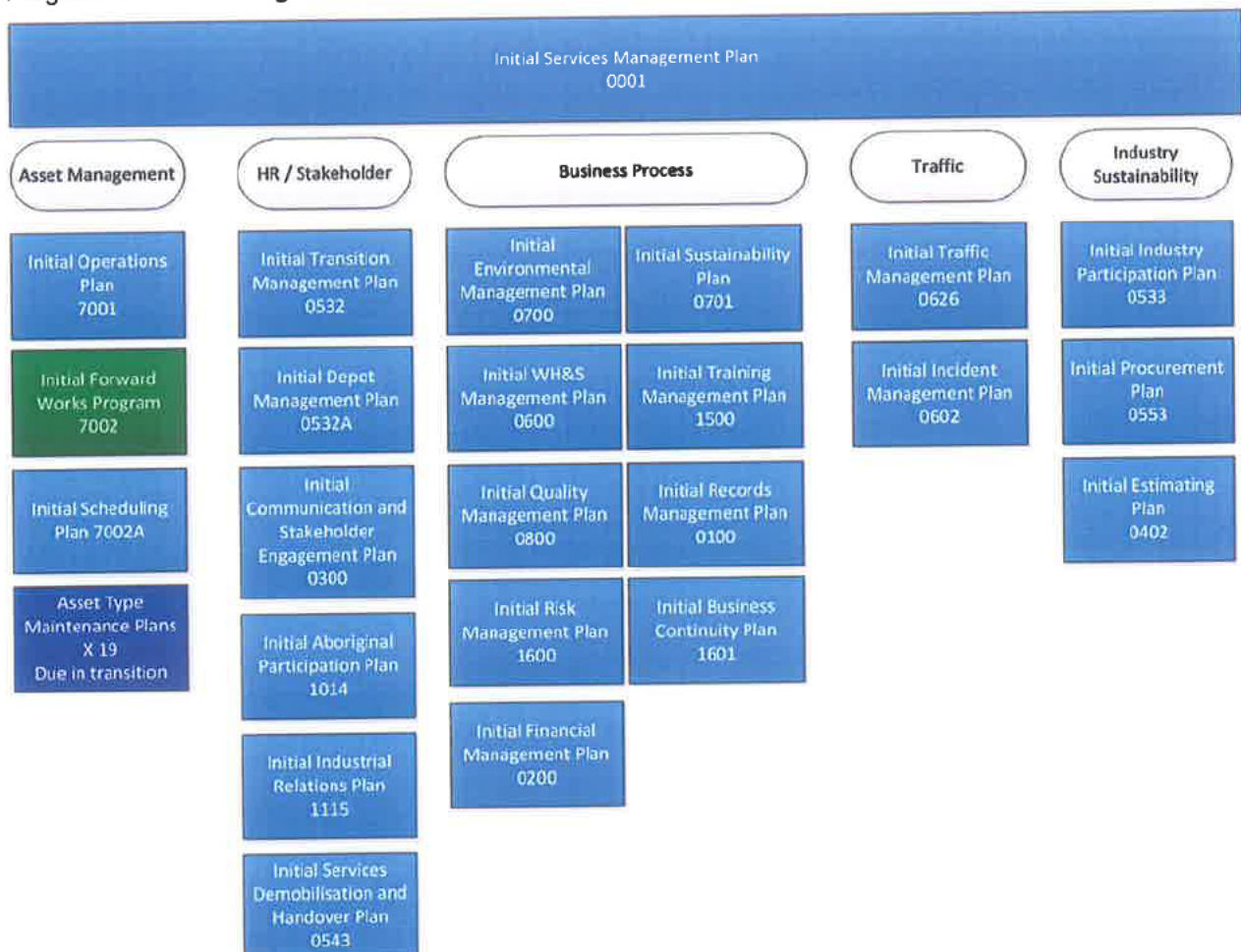


Figure 1 - Management Plan Structure

1.7 Further Development

During the Initial FWP Period, we shall develop a specific Asset Maintenance Plans (AMP) for each asset type for approval by RMS. The draft format, we shall develop, is at Attachment 1.

Following Contract Award we shall engage with key stakeholders as detailed within the Communication and Stakeholder Management Plan but, in relation to the development of this initial FWP, principally:

- RMS
- NSW Traffic Management Centre



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- Stewardship Maintenance Contractors
- Fellow ITS Maintenance Contractor
- Motorway owners and operators
- Transport Operators, and the
- Emergency Services.

This engagement will allow us to optimise our Service delivery and ensure the functionality of the ITS asset. Feedback from key stakeholders on the operation of the asset will allow us to understand problem sites on the network and work to deliver improvements.

Of key importance will be our collaborative relationship with NSW TMC to confirm road occupancy requirements and to develop efficient procedures. This will enable us to plan works to maximise utilisation of traffic management minimising the impact to road users.

2 Resources and Responsibilities

The resources required to deliver the project management aspects of the contract are shown in our organisation structure within our Initial Services Management Plan.

The project management aspects have been shown on our draft program contained in Appendix 2 of this Plan.

2.1 Program Manager

The Program Manager's responsibilities include:

- Project management
- Oversee project schedules and planning (inc strategy)
- Communications approvals

2.2 Asset Maintenance Planning Manager

The Asset Maintenance Planning Manager's responsibilities include:

- Development of systems and processes to support the services
- Planning of the Services Asset Maintenance Plans (AMPs) and FWP's
- Coordination of project and service scheduling
- Initial verification and maintenance of asset data (including inventory, condition, performance, maintenance and fault history, etc.)
- Development of interfaces with RMS Asset Management and Fault Management systems
- Provision of asset data to RMS including update of RMS systems
- Monthly accomplishment and performance reporting
- Analysis and forecasting of asset performance and life cycle costs
- Preparation of Business Cases and Special Project Proposals for Strategic Asset Renewal/Replacement Works and Minor Improvement Works for RMS consideration and
- Continual improvement through innovation.

2.3 Asset Engineer

The Asset Engineer's responsibilities include:

- Initial coordination of project and service scheduling
- Initial verification and maintenance of asset data (including inventory, condition, performance, maintenance and fault history, etc.)

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- Ensuring the quality of data within the ICMS
- Conducting analysis and forecasting of asset performance and life cycle costs
- Preparation of Business Cases and Special Project Proposals for Strategic Asset Renewal/Replacement Works and Minor Improvement Works for RMS consideration and
- Continual improvement through innovation.

2.4 FWP Program Estimator

The FWP Program Estimator responsibilities include:

- Estimating budget for delivery for FWP and SPP
- Verification of costs relating to the delivery for FWP and SPP
- Conducting Activity Based Costing analysis of service activities
- Assisting in analysis and forecasting of asset performance and life cycle costs
- Preparation of Business Cases and Special Project Proposals for Strategic Asset Renewal/Replacement Works and Minor Improvement Works for RMS consideration
- Quantifying innovative improvements.

2.5 Field Services Manager

The Field Services Manager's responsibilities include:

- Overseeing completion of the delivery of services under any FWP and SPP
- Management of all reactive and planned maintenance
- Incident management and support
- Operational risk management
- Coordinate and contribute to the monthly report
- Verification of third party works (including developer works)
- Approve process changes and ensure they are documented.

3 Program Management

3.1 Overview

Program Management Services (following mobilisation activities completed during the Transition Period) will commence on the Full Services Commencement Date.

Our overall approach to Program Management will be to provide the necessary competent leadership and resource to deliver the Services.

Details of our organisation structure and the key management personnel that will be responsible for the management of this ITS Contract are contained within our Initial Services Management Plan.

3.2 Planning timeline for FWP

We will work with RMS to submit briefs, review and achieve approval to enable the program plan for the next year to be developed in line with the indicative planning timeline provided. This activity will be led by the Asset Maintenance Planning Manager with the ideal timeframe illustrated in Figure 2 below.

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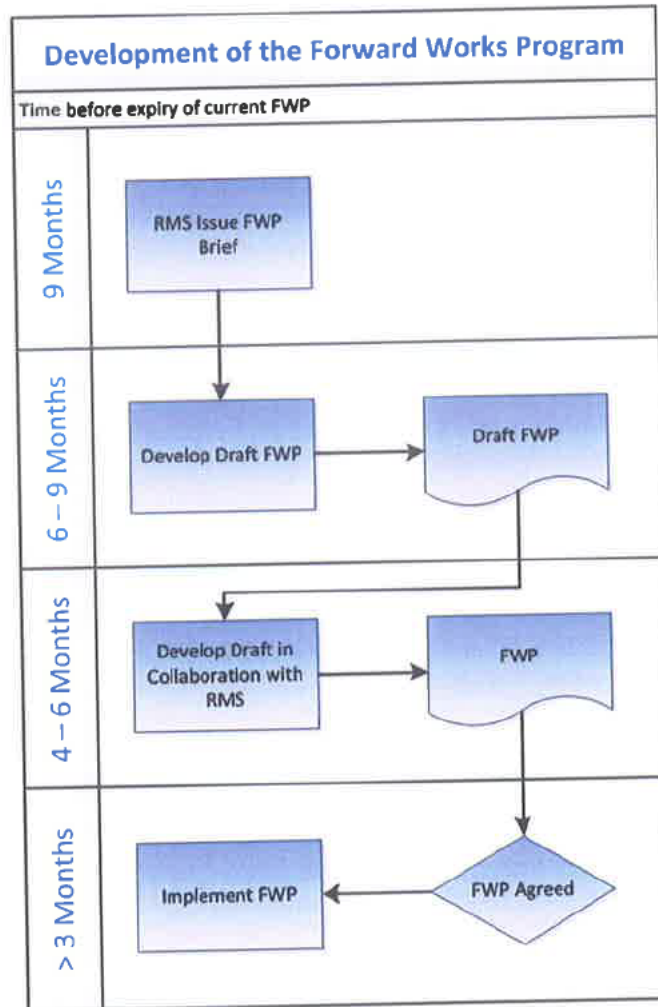


Figure 2 - FWP Development Timeline

Once briefs have been approved by RMS we will develop the FWP and produce a program for each asset renewal/replacement or improvement scheme that will start from the agreed handover date from RMS of the concept design.

3.3 Strategy and Work Plan

3.3.1 Transition Stage

The success of this contract will initially be governed by the timely delivery of mobilisation activities during the transition stage. The key elements of this will be:

- Establishment of business management and asset systems
- Establishment of premises and workshops
- Procurement of plant and equipment
- Finalisation of supply chain and suppliers
- Building the Team including integration of RMS staff.

We will employ a Transition Manager who will coordinate all non-recurrent mobilisation activities. This will enable the Program Manager and his team to start focusing on service delivery activities. The Transition Manager will be supported by a small transition Management Team experienced in mobilisation.

Of particular importance in this team will be the HR Manager who will be key in managing the smooth transfer and integration of existing RMS employees during this stage.



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Our approach will be to manage the transition stage to provide an uninterrupted service for the ITS asset. Full details of how we will achieve this and effectively manage the integration of former RMS staff can be found in our Transition Management Plan.

We will request early engagement with RMS after contract award to discuss the implementation of this plan.

3.3.2 Project management, Supervision and Administration

We will ensure that our Team is sufficiently resourced to effectively and efficiently manage delivery of the Services. Our Initial Services Management Plan contains details of our organisation structure. The team will be led by our Program Manager who will be experienced in the delivery of asset maintenance contracts. It will be his responsibility to ensure that staff with the necessary skills, experience and competence are employed on the contract.

Our Integrated Contract Management System (ICMS) will contain all the necessary business management process and procedures to deliver the Services including:

- Asset and inventory management
- fault (and maintenance) management
- Stock control
- Personnel management
- Record management
- Document management
- Quality control and all
- Management reporting.

Our ICMS will allow effective project management and administration of the contract. All management reporting requirements will be within our ICMS.

There will be the facility to add new reports or amend existing as requirements develop and improve through the contract period. We will work with RMS to define the reports to which it requires access.

Our strategies for the delivery of the Services are detailed in the various Management Plans. These will form an integral part of our ICMS. Each Plan will have an identified owner and be approved by the Program Manager before submission to RMS for approval.

Our ICMS Manager will ensure that each plan is regularly reviewed with the Plan owner to ensure it continues to reflect the service requirements to deliver the overall RMS outcomes. Plans will be reviewed on at least an annual basis or following new service requirements introduced by RMS.

Processes and procedures within the management plans will clearly identify hold points for approval, internal and external (RMS), before activities can continue or works can commence. These will reflect all RMS governance.

Our ICMS will also incorporate the requirements of Program and Project Management within our Project Management System.

3.3.3 Stakeholder Engagement and Consultation

We will appoint an experienced Stakeholder Consultation Lead to manage communication and stakeholder engagement.

Interacting with and communicating effectively to stakeholders will significantly aid the success of our service delivery and will ensure that both RMS and Lend Lease/Tyco is seen in a positive light.

Many staff from within our team will have regular contact with stakeholders. In particular, our crews will come into daily contact with road users, residents and local businesses. Our training and briefings will ensure that they adopt respectful behaviours at all times. We will ensure that all staff undergo training in customer care principles that includes:

- Road etiquette campaign
- Cultural alignment workshop



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- Stakeholder engagement/customer service workshop.

All our crews will carry customer contact cards. These cards will provide contacts details and also allow for feedback to be provided on the manner in which the work is being undertaken and the helpfulness of staff. This will be reviewed in Stakeholder Engagement item within the Monthly Report.

There are numerous stakeholders and we have identified these in our Initial Communication and Stakeholder Engagement Plan. Whilst common respectful behaviour is appropriate in all cases, the strategy for dealing with each group of stakeholders will be different and this is covered in detail within the Plan. Our approach to the management of stakeholder relationships and interfaces will be managed by our Stakeholder Consultation Lead.

We will engage with all key stakeholders during the Transition Stage so that we are clear on their requirements and expectations to incorporate within our management Plans. They will need to understand the service we will be providing and new contact details. This will facilitate a smooth handover that will ensure that customers requirements are the focus of all our activities.

We will adopt a collaborative culture in all our dealings with RMS, key stakeholders and our team. This culture is embedded within our Values and Key Behaviours (highlighted below) and will be led by the Program Manager. All staff will be made familiar with expected behaviours during induction.

Our Values	Key behaviours
<p style="text-align: center;"> Innovation Excellence Respect Ownership/accountability Safety Collaboration Integrity </p>	<p style="text-align: center;"> Make conversation robust No personal attacks Listen to each other Commit to having an open mind Encourage new ideas and ways of thinking Commit to finding the best solution, not the solution that is most comfortable </p>

On occasions, maintenance work required to the ITS asset will attract media attention. We will refer all media enquiries to RMS as soon as possible and within 24 hours of that approach.

Our Stakeholder Consultation Lead will ensure that all engagement and consultation will be in accordance with RMS guidelines and the RMS Customer Services Charter. We will request an early meeting after contract award with RMS Customer team to finalise our plan and ensure it meets the expectations of RMS.

To ensure our dealings with stakeholders and RMS continue to aid delivery of the contract outcomes we propose a regular quarterly meeting between our Stakeholder Consultation Lead and the RMS Customer Team.

The delivery of Special Projects for improvements and asset/renewal schemes will require a more focused approach to suit the location and circumstances of the work. The FWP will identify where works are likely to have a significant impact. We will seek to engage with RMS at an early stage in the FWP process so that an appropriate communication strategy can be identified where agreed as necessary.

Our approach to dealing with customers will be to act with respect and integrity. We will close out all customer enquiries received directly or via the TMC and RMS within 15 business days of receiving.

The Stakeholder Consultation Lead will manage all customer contact received during business hours. Customer contact received out of hours will be re-directed to Operations Centre personnel who will take the enquiry and refer onto the Stakeholder Consultation Lead for follow-up during the next business day.

Our Initial Communication and Stakeholder Engagement Plan provides more detail on our approach to customer liaison.



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3.3.4 Review of Environmental Factors (REF) and heritage assessment for Minor Improvement Works

We will comply with all environmental legislation and have robust processes and procedures within our Environmental Management System. Our Environmental Management Plan (EMP) will detail our strategy and approach and strategies to avoid or mitigate any detrimental effects on the environment. The EMP will clearly identify the environmental responsibilities for the management team and key personnel. Our WHS and Environmental Officer will have responsibility for the EMP and ensure all staff are aware of their environmental responsibilities.

3.3.5 Financial and Commercial Management Including Maintenance of Auditable Records

Our Commercial Manager will be responsible for all financial and commercial aspect of the Contract. He will adopt a transparent approach to all financial transactions.

We will use ICMS as our core estimating and cost management system. Access will be available to RMS at all times for audit. The system will align with RMS' systems and we will agree financial reporting mechanisms during the transition stage.

Details of all financial and commercial processes and procedures will be provided within the Financial Management Plan.

3.3.6 Procurement Management

This ITS Maintenance Contract will be delivered with support from our supply chain and suppliers. Our Supply Chain strategy will be led by our Commercial Manager and details will be contained within the Procurement Plan.

We have already commenced engagement with our supply chain and will finalize arrangements upon confirmation of Contract Award. This will ensure we provide a full service from day one with access to support services and materials.

The Procurement Plan will contain details of all process and procedures for procurement and will identify strategic and tactical support and the arrangements we will have with each organization.

In tandem with the Procurement Plan we will develop an Industry Participation Plan which shall describe in detail the following:

- Engagement, evaluation and award of suppliers / ITS Contractors
- Use of existing subcontract resources and suppliers
- How transparency for RMS and competitive industry markets will be achieved.

We will undertake regular benchmarking across the industry to confirm that our supply chain continue to provide value for money.

3.3.7 Stock Levels

The ICMS will ensure that appropriate levels of stock in our facilities and vans are maintained at all times and will include the restocking process and supplier control. This is detailed in the Initial Procurement Plan.

3.3.8 Obtaining Planning Approvals

We shall ensure that planning approval is sought for those works which require such approval. The Communication and Stakeholder Plan details outline responsibilities for this activity. Details of this process will be included in any project plan.

We shall develop and maintain Memoranda of Understanding with stakeholders to assist in this process. At the earliest opportunity, we shall seek advice from RMS in the event that we have concerns with planning approvals so that a mutually agreeable solution is found and/or our works are not unnecessarily delayed.

We shall record any received approval in the project files for the work being undertaken for storage in our Document Management System.

3.3.9 Verification of third party works (including developer works)

On being notified of third party and developer works, we shall liaise with RMS and the third party to verify that the work undertaken is compliant with all standards, specifications and requirements. On completion of the

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works we shall provide advice pertaining to the works, that lie within the scope of our Services, to RMS, so that final approval (or 'sign off') can be provided.

We shall update our records of the Network in accordance with our procedures for new and/or maintained assets.

4 Asset Management

4.1 Overview

Strategic planning as documented in the Overarching Asset Maintenance Plan will remain the responsibility of RMS. Our overall approach will be for our Asset Maintenance Planning Manager to take ownership of the ITS type specific Asset Management Plans (AMPs), tactical planning through the FWP and all operational planning.

We will work collaboratively to support RMS in achieving its strategic asset management objectives and ensure they remain an informed client.

4.2 Strategy and Work Plans

4.2.1 General approach to asset management

Effective asset management will be key to delivering RMS' objectives and outcomes for this ITS maintenance Contract.

Upon contract award our Asset Maintenance Planning Manager will seek an early meeting with RMS so that our approach can be finalized and fully aligned with RMS' requirements. During the Transition Stage we propose that our Asset Maintenance Planning Manager will spend about 50% of his time collaboratively working in RMS' offices.

Our Asset Maintenance Planning Manager will be responsible for the following key activities:

- Developing asset related systems and processes to support the Service
- Planning of the Service
- Development of the interfaces with the RMS Asset and Fault Management System
- Analysis of fault and performance data
- Management of the inspection program
- Management of inventory and asset data
- Identification of renewal or replacement need
- Preparation of business cases/briefs for SPPs
- Continual improvement through innovation.

An Asset Maintenance Plan (AMP) will be developed for each asset type and submitted to RMS for approval. These plans will be based on:

- ITS Type Maintenance Specifications
- Overarching Asset Maintenance Plan provided by RMS
- Assessment of asset condition
- Historical performance and life cycle cost considerations to enable the performance requirements to be met.

The AMPs will address key asset maintenance aspects including but not limited to:

- Inspection needs and frequency; (refer also to Section 4 of this Plan)
- Planned Maintenance needs and frequency; (refer also to Section 5 of this Plan)
- Strategic Asset Renewal/Replacement needs

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- RMS priorities and available budget
- Required skills, resources and training needs; (refer to Initial Operations Plan)
- Resourcing to meet the Reactive Maintenance response times; (refer to Initial Operations Plan)
- Facilities Support Services requirements; (refer to Initial Depot facilities Plan)
- Supply chain availability, including timely support from OEMs
- Availability of spares and stock holding levels of parts and equipment for lifecycle of an asset, and the
- Strategy for damaged, defective, obsolete or redundant parts and equipment (i.e. repair or disposal).

We have developed a draft AMP template for Traffic Control Signals and included this at Attachment 1.

This template will be developed during the Transition Stage and extended to cover all other asset types. The Asset Maintenance Planning Manager will review the AMPs quarterly in collaboration with RMS. Approval of the AMPs will be annual to align with the FWP review cycle.

Our Field Service Manager will be responsible for all resources necessary to deliver the approved AMPs. We will arrange engineering and technical liaison meetings with RMS. These will be monthly during the transition period, and quarterly thereafter to align with the AMP review cycle. We will propose alternative approaches that achieve the required asset performance outcomes including working with RMS to investigate the development of a risk based approach to managing the ITS assets.

Where services are outside of the scope of this contract i.e. Major Civil works with minor ITS, we would expect our Asset Maintenance Planning Manager to be consulted on any asset installation before it is handed over for maintenance under this contract. This will enable future management of the asset, service checks, inspections etc. to be incorporated within any future FWP. We will coordinate with other service providers undertaking works within the zone that are excluded from this ITS maintenance contract.

Our Asset Maintenance Planning Manager will discuss with RMS the incorporation into this ITS Maintenance Contract any assets currently managed under legacy arrangements. In liaison with our Commercial Manager we will propose appropriate commercial arrangements that will demonstrate value for money.

During the initial FWP we will develop a "baseline" for each asset type that will show ongoing maintenance costs. Monitoring this will enable us to identify trends and assist in determining end of asset life to make recommendations for asset renewal.

4.2.2 FWP Briefs

Analysis of defect and condition data by our Asset Maintenance Planning Manager will enable us to identify when asset renewal or replacement is necessary.

He will prepare the required business cases/briefs to enable RMS to take decisions regarding the strategic asset management functions of prioritizing need, project development and concept design. We have a Project Manager and estimating resource that will assist the production of briefs.

4.2.3 Setting Priorities

Maintenance activities will be prioritized in accordance with operational importance to ensure that objectives are met with regard to safety, cost effectiveness and practicality.

The relevant maintenance specifications will also assist in setting priorities with regard to:

- Asset Condition
- Operational Performance
- Impact on the Community.

4.2.4 Management Actions

Defects or faults will be analyzed to understand the root cause and to determine the appropriate action. The level of intervention will be described in the Asset Management Plans. Repeated faults and defects may require a more detailed approach to understand the following:

- The cause of the fault

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- Rectification proposals
- Whether systemic failures require a system upgrade
- If additional preventive maintenance address the cause of the problem.

4.2.5 Record Keeping

Our asset management system will record the following:

- Completed works data and reports
- Ensure compliance with asset performance
- Effectiveness of maintenance strategies and asset life cycle costs
- Maintenance history
- Spare parts inventory
- Satisfy safety and environmental requirements
- Produce financial reports
- Evidence (to the required standard) to be used in court (Incident and claim management).

4.2.6 Drawings

Our Asset Maintenance Planning Manager will manage the equipment drawings provided by RMS.

He will ensure that one set of drawings are retained on site within the controller cabinet and another set in the office. Any changes will be marked in hand and provided to site within 7 days. A final CAD drawing will be prepared and made available on site within 4 weeks. A further 3 copies will be supplied to RMS.

Design drawings will include:

- Layout
- Cable installation
- A cable connection chart, and any
- Special or non-standard construction, fabrication or installation.

It is essential that all drawings are made available to us prior to Full Services Commencement Date so as not to affect service provision. We will work with RMS during the Transition Stage to aid the handover process.

4.2.7 Asset and Fault Management Systems

As required, we shall initially adopt the relevant electronic RMS fault management systems and processes.

We shall also work to develop interfaces with our own ICMS in order to introduce efficiency to this process. Our Asset Maintenance Planning Manager will lead our collaborative approach with RMS for the ongoing development and improvement of fault management systems.

Our ICMS will contain all the processes and procedures needed to demonstrate and record how we will address our obligations and ensure the objectives are achieved in an effective and cost efficient manner. The system will be available for interrogation by RMS at any time. Our ICMS will be refined to enable us to provide timely and accurate information to support RMS fulfill its strategic asset management responsibilities.

4.2.8 Inventory and Asset data

The Asset Maintenance Planning Manager will manage data in accordance with the requirements of Schedule 2, Appendix 4 Asset Data Requirements.

He will undertake initial verification of inventory, condition data, fault history and asset performance data.

4.2.9 ITS Equipment Calibration

We will provide the necessary access for RMS appointed specialist contractors for the periodic calibration and verification of enforcement systems. Our Asset Maintenance Planning Manager will be our focal point for coordinating access. These arrangements will be excluded from the FWP.

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4.3 Program and Resources

The resources required to deliver the asset management aspects of the contract are shown in our organisation structure within our Initial Services Management Plan.

The asset management aspects have been shown on the draft FWP contained in Appendix 2 of this Plan.

5 Asset Inspection Works

5.1 Overview

Asset condition inspections will be undertaken to monitor deterioration, thus enabling renewal/replacement work to be identified.

Our overall approach will be for our Asset Maintenance Planning Manager to determine the asset inspection requirements for each asset type and monitor condition reports and defect data.

5.2 Strategy and Work Plan

Asset inspections will be combined with planned maintenance activities and undertaken by the same crews. They will generally consist of a visual inspection of the asset. In addition a program of electrical testing, signal strength and non-destructive testing of structures will be produced. We will initially adopt the inspection frequencies specified by RMS in the ITS Maintenance Specifications.

All crews will receive appropriate training and be assessed as competent to undertake the inspections.

Results from inspections will be recorded in our ICMS and analyzed by our Asset Maintenance Team to identify any need for renewal.

5.3 Program and Resources

The resources required to deliver inspections are combined with reactive response and planned maintenance work. This is shown in our organisation structure within our Initial Services Management Plan.

The inspection aspects have been shown on our draft program contained in Appendix 2 of this Plan.

6 Planned Maintenance Works (Routine/Preventative Maintenance)

6.1 Overview

Planned routine and preventative maintenance works include regular inspection, service checks and minor preventative items or repair of the assets to avoid the occurrence of defects and faults.

Our overall approach is that the Asset Maintenance Planning Manager will identify the routine and preventative maintenance requirements essential to maintain the safety and structural integrity for each asset type. Our Field Services Manager will allocate work to crews to ensure frequencies within the FWP are met.

The detail of our approach and methodology is contained within our Initial Operations Plan.

The requirements for each asset type will be detailed in the individual AMP.

To maximize the utilization of resources, crews will also undertake reactive fault rectification work and condition inspections.

This Section therefore needs to be read in conjunction with Section 4 and Section 6 of this Plan.

6.2 Strategy and Work Plans

All work will initially be undertaken in accordance with the current ITS maintenance specifications and the Operations and Maintenance Manuals.

Our Asset Maintenance Planning Manager will monitor performance of each asset type and propose adjustments to the frequency of routine and preventative maintenance activities.



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He will also consider any departures from the ITS Maintenance Specifications providing full justification for any proposed changes for agreement with RMS.

These reviews will be quarterly to align with the review of the AMPs but we believe it will take a year to collate sufficient data on the performance of the assets before any meaningful changes can be considered.

The Asset Maintenance Planning Manager will plan routine and preventative maintenance activities having due regard for the assets' operational importance, safety, condition and defect levels. See Section 4 above for identification of condition and defects.

Operationally, our approach will be to program work on a geographical basis. We will divide the zone into geographic areas with a crew assigned to each (as detailed within our Initial Operations Plan). This will strengthen Stewardship and engender a sense of ownership and pride in the performance of assets, which leads to improved effectiveness of the maintenance work and less repeat maintenance.

To efficiently manage resources a weekly program will be produced that will enable daily tasks to be scheduled to the crews. We will monitor weekly outputs and adjust accordingly to take account of aspects that could impact on the program and in particular:

- Reactive fault rectification
- 3rd party works preventing access to the equipment
- Occupancy not being granted
- Incident support.

Initially, we will complete the service checks and preventive maintenance as detailed within in the relevant annexure.

Our systems will be established to record this inspection and maintenance work on mobile devices that will allow direct transfer of data into the asset management system within our ICMS. The same system will be used for our condition inspections as described in Section 4 above.

Crew vehicles will be fitted with tracking to identify the nearest crew to any fault response and to enable controllers to monitor Network coverage for incident response purposes.

Service checks are aligned with preventative maintenance frequencies for efficiency so that all tasks can be completed in one visit.

Crew vehicles will be equipped with sufficient spares, including electrical testing equipment, and tools to undertake cleansing and preventive maintenance.

6.3 Program and resources

The resources required to deliver the routine and preventative maintenance aspects of the contract are shown in our organisation structure within our Initial Services Management Plan.

The routine and preventative maintenance aspects have been shown on our draft program contained in Appendix 2 of this Plan.

7 Reactive Maintenance Works (Fault Maintenance)

7.1 Overview

Reactive maintenance work includes site attendance and rectification of ITS asset faults notified through the relevant Fault Management processes and defects identified through asset inspections or planned maintenance service checks.

Our reactive response will be provided 24/7.

Our overall approach will be for the Asset Maintenance Planning Manager to own the processes and systems required to deliver reactive maintenance. Our Field Services Manager will manage resources to ensure the defined performance service levels are met.

To maximize the utilization of resources, when not undertaking reactive maintenance our crews will also undertake planned service checks, preventative maintenance and condition inspections. This section

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therefore needs to be read in conjunction with Section 4 and Section 5 of this Plan. Reactive response will take precedence over other activities undertaken by the crews.

The detail of our approach and methodology is contained within our Initial Operations Plan.

7.2 Strategy and Work Plan

We will initially adopt the ITS Asset and Fault Management Systems provided by RMS as required by the contract.

Our operators within the Operations Centre personnel will provide 24/7 monitoring of SCATS and other RMS Fault Management Systems to allow quick reporting of faults to our response crews who will receive details on mobile devices (MFCs) in order to meet the specified response times for each asset type.

Our reactive maintenance response will be designed to meet the following fault categories:

- **Critical Faults (CF)** component failure or physical defect that has occurred in the ITS device/system. When a CF occurs the device/system cannot perform its intended functions.
- **Non-Critical Faults (NCF)** component failure or physical defect that has occurred in the ITS device/system. When an NCF occurs the device/system can still perform its intended function.

The MFCs will have real time connectivity to our ICMS which will enable response times to be accurately recorded from the initial fault occurrence stamp to arrival at site to investigate the cause and commence rectification.

Our system will be capable of recording fault responses against the defined high and normal priorities. Our crews will prioritize the return of an asset to service following a fault in the shortest possible time.

To ensure continuity of services to we will develop an operational handover plan during transition. This is outlined in Section 3.5 of our Response. It will detail exactly where responsibilities are allocated during transfer.

We will engage with NSW TMC so that they are clear on the new points of communication which we will test before the service goes live. We will test this plan in both day time and night time (out of hours) periods.

The Operational Handover Plan will also detail payment arrangements for the transferring staff which will be important to understand for ongoing fault issues at the point of transfer.

Continual monitoring of fault data trends will be undertaken by our Asset Maintenance Team.

When combined with analysis of inspection condition data the team he will build a complete picture of the performance of each asset type.

7.3 Program and resources

The resources required to deliver the reactive maintenance aspects of the contract are shown in our organisation structure within our Initial Services Management Plan.

The reactive maintenance aspects have been shown on our draft FWP contained in Appendix 2 of this Plan

8 Incident Support

8.1 Overview

Incident Support includes responding to vandalism, traffic incidents and accidents along with declared natural disasters that may cause damage to ITS asset.

Our incident response will be provided 24/7.

Our overall approach will be for our Field Services Manager to manage the resources required to respond to notified incidents.

The detail of our approach and methodology is contained within our Initial Incident Response Plan.



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8.2 Strategy and Work Plans

The SMC Service Provider has prime responsibility for Incident Response. We will receive requests for support via the TMC, initially through RMS' Fault Management Systems or by telephone. This will enable us to monitor response times.

Depending on the specifics of each situation the required response will be managed in collaboration with RMS, TMC and SMC Service Providers.

We will advise of any required repair work and provide all necessary information to allow RMS to effectively manage and pursue any third party for damages.

A procedure on how we will support with the recovery of costs for repair of damage is contained within our ICMS.

Our crews will be empowered to take direction from the TMC Duty CTOC, Traffic Commander and/or the relevant emergency services representatives in attendance. The crews will be trained and competent to provide a service with limited supervision. On call support will be available if necessary.

On arrival at site, our initial response will be to make the asset electrically safe and undertake a full condition inspection. Where a site has been designated a crime scene we will take instructions from the emergency services before doing any work or inspection. Our inspection will include full photographic evidence.

Our crews will assess whether they are able to facilitate a repair or need support from on call supply chain. If a permanent repair cannot be immediately achieved our crews will make safe the site with appropriate barriers and commence a process to facilitate full repair at the earliest opportunity.

If appropriate we will instigate an interim arrangement to make the asset operational through the provision of a temporary portable power generator and /or communication links to ITS assets or temporary signal installation.

Where necessary, we will replace damaged equipment on a "like-for-like" basis in accordance with relevant specification.

Every effort will be made to minimise disruption by ensuring that any incidents that require road closures be re-opened in the shortest possible time while still having regard for safety of responders, others at the Site and the travelling public.

To ensure continuity of services to Lend Lease/Tyco we will develop an operational handover plan during transition. This will detail exactly where responsibilities are allocated during transfer.

We will engage with NSW TMC, the SMC, emergency services so that everyone is clear on our new contact details and communication channels which we will test before the service goes live. We will test this plan in both day time and night time (out of hours) periods.

The plan will also detail payment arrangements for the transferring staff which will be important to understand for ongoing fault issues at the point of transfer.

8.3 Program and resources

The resources required to deliver incident response are shown in our organisation structure within our Initial Services Management Plan.

Incident response has been shown on our draft FWP contained in Appendix 2 of this Plan

9 Minor Improvement Works, Strategic ITS Asset Renewal and Replacement Works (Special Projects)

9.1 Overview

Our overall approach will be to support RMS in delivering its strategic asset management responsibilities.

RMS may from time to time request priced proposals to carry out Special Projects (SPPs) such as ITS asset related Minor Improvement Works and Strategic Asset Renewal/Replacement Works.



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9.2 Strategy and Work Plans

Our Asset Maintenance Planning Manager will identify asset needs based on life cycle cost analysis and produce briefs for RMS approval.

We have a Project Manager for Special Projects and estimating resource that will assist the production of briefs. When approval is received from the RMS the works will be added to the FWP.

Once works have been approved by RMS, for incorporation into the FWP, we will agree the handover date from the concept design stage. Our Project Manager for Special Projects will determine the necessary resources to undertake tasks associated with design, procurement, implementation, testing and commissioning and handover.

These tasks will include but not be limited to:

- Community consultation
- Environmental Management Plans
- Road safety audits
- Risk management
- WHS Plans
- Traffic Management Plans
- Requirements Specification
- Site survey, including dial before you dig, geotechnical survey and others
- Utility Relocation
- Detailed Design
- Procurement
- Construction / Installation
- Integration into TMC Systems/SCATS
- Testing and commissioning
- Documentation and drawings including WAE drawings for the system handover.

All of this will be delivered in line with the appropriate Management Plan and our Project Management, Asset Management and Maintenance Management Systems incorporated within our ICMS.

During the transition stage our Asset Maintenance Planning Manager, support by our Project Manager for Special Projects, will work closely with RMS to take possession of work briefs already developed for the initial FWP period.

This will enable us to resource the Minor Improvement Works and asset renewal schemes to ensure deliver is achieved and RMS budget expectations met. At the same time we will understand the existing rolling 2 year FWP.

9.3 Program and resources

Once briefs have been approved by RMS we will develop the FWP and produce a program for each asset renewal/replacement or improvement scheme that will start from the agreed handover date from RMS of the concept design. Resources levels will vary depending on number, nature and complexity of the projects approved by RMS. The Project Manager for Special Projects will be responsible for securing this resource to ensure projects are delivered within time and budget in the PWP period.



10 Facilities (including depot, workshop, store) Support Services

10.1 Overview

Facilities, including depots, stores and workshops will be established to manage and support the delivery of all ITS maintenance services.

Our overall approach will be to provide sufficient equipment and resources to support the maintenance of each asset type.

10.2 Strategy and Work Plans

Full details of our approach to facilities and resources are detailed within our Initial Depot Management Plan. This will be managed by our Field Services Manager.

We will continually assess and determine the level of spare parts, components & materials required to maintain each Asset Type to meet the Contract performance requirements. At commencement of the initial FWP we will finalise with RMS the minimum stock levels suggested that are held by the JV.

10.3 Depots

We propose to deliver the Services through the following facilities:

- Rockdale. Our Operations Centre and Warehousing will be based at the existing RMS Rockdale Depot.
- We will utilize our existing facility at Guildford to support Service delivery.

10.3.1 Workshops

- The Guildford Depot will be used for technical repairs and product dispatch. The facilities comprise of a technical work shop, office space and a warehouse and will be capable of carrying out :
- Testing and repair of traffic signals equipment;
- Testing and repair of other ITS equipment;
- Assembly and testing of controller cabinets and electronics.

10.3.2 Stores

The warehouse at Guildford provides a secure and an environmentally sheltered storage facility where equipment and materials, including free issue, are stored to support the contract.



Appendix 1 – Glossary, Acronyms and Abbreviations

<i>ABBREVIATION</i>	<i>DESCRIPTION</i>
AMP	Asset Maintenance Plans
CF	Critical Fault
FWP	Forward Works Program
ICMS	Integrated Contract Management System
ITS	Intelligent Transport Systems
ITS MC	ITS Maintenance Contract
MIW	Minor Improvement Works
NCF	Non-critical Fault
NSW	New South Wales
OEM	Original Equipment Manufacture
OPS	Overall Performance Score
REF	Review of Environmental Factors
RMS	Roads and Maritime Services
SCATS	Sydney Coordinated Adaptive Traffic System
SPP	Special Project Proposals
TMC	Traffic Management Centre



Appendix 2 – Draft FWP for Initial Period

RMS - Intelligent Transport Systems Maintenance Contract		Lend Lease		tyco Traffic & Transportation		P 3.6 Initial Forward Works Program Appendix 2 - Draft FWP for Initial Period																		
ID	Program/Program Position	Task Name	Inspection Frequency	1 July	11 July	21 September	1 December	11 February	21 April	1 July	11 July	23/06	28/07	1/09	6/10	10/11	15/12	19/01	23/02	30/03	4/05	9/06	13/07	
1	Forward Works Program	Develop Initial FWP																						
2		Agree FWP																						
3		Refine FWP Detail and Resource Allocation																						
4		Inspections, Planned and Reactive Maintenance and MIM for TCS, Other ITS devices and Graffiti Removal																						
5	22-503	Traffic Control Devices																						
6	22-505	Traffic Facilities Asset Upgrade																						
7	22-802	Information Management																						
8	27-108	Sydney Congestion Treatments																						
9	14-205	On Road Enforcement																						
10	14-205	On Road Enforcement																						
11	17-801	Fixed Digital Speed Cameras																						
12	17-804	Fixed Light Speed Camera																						
13	17-805	Point to Point Speed cameras																						
14	27-207	Strategic Bus Operations																						
15	26-000	All program codes starting																						
16		likely Special Projects																						
17	27-000	All program code: Projects Related to Traffic Efficiency																						
18	17-802	New Enforcement: Capital																						
19	22-802	Information Man/WIM, Traffic Counters & Classifiers Upgrade																						

Legend: Manual Summary Rollup, Manual Summary, Start-only, Finish-only, Inactive Milestone, Inactive Summary, Manual Task, Duration-only, Project Summary, External Task, External Milestone, Inactive Task, Task, Split, Milestone, Summary

Project: FWP Plan V1
Date: Mon 7/04/14

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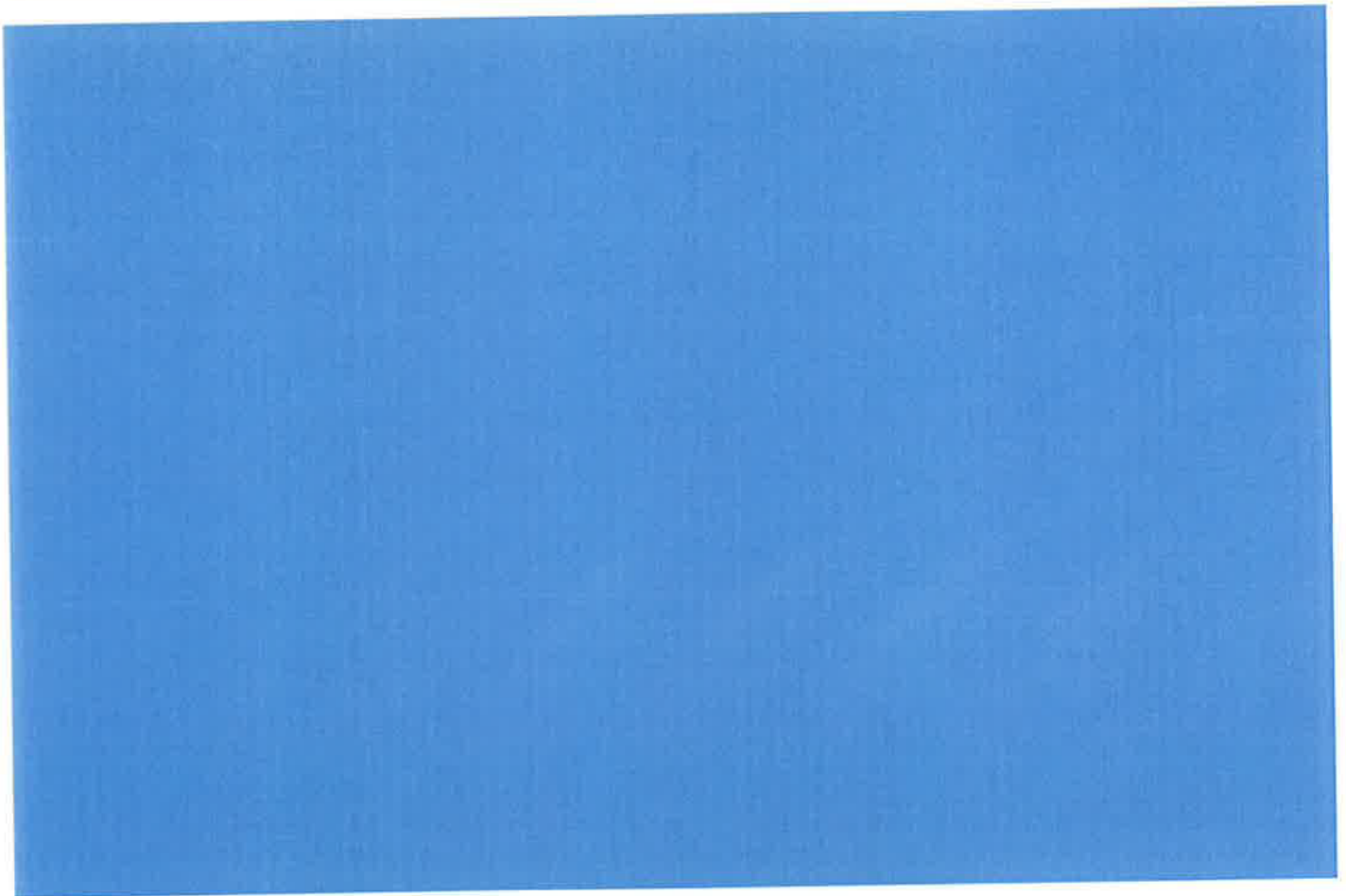
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ITS-PL-7002 – Initial Forward Works Program: Attachment 1 - ITS-PL-3301 – Asset Type Maintenance Plan - TCS

RMS Road Maintenance Contestability Reform Program
ITS Maintenance Contracts (ITS MC)



ITS-PL-3301 – Asset Type Maintenance Plan - TCS

Authorisation and Control

The Plan is applicable to Traffic Control Signals.

Authorisation

This plan is a controlled document, and is to be approved by RMS on annual cycle.

Control and Records

The Plan is to be signed and scanned into the Document Management System.

Recipients identified within the distribution list shall be responsible for ensuring their copies remain up-to-date. Records generated as a result of the implementation of this Plan shall be handled in accordance with the ITS MC Documentation Plan.

Revision

The ICMS Quality Assurance Manager shall be responsible for ensuring all revisions remain up-to-date and controlled, communicating the updated documentation to those on the recipient list, as well as to Team.

Revision Control:

VERSION	DATE	DESCRIPTION	SECTION/ PAGE NO.	APPROVED
00	09 Apr 14	RFP Submission		
01				
02				

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.....
ICMS Quality Assurance Manager

Date:

ITS-PL-3301 – Asset Type Maintenance Plan - TCS

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1 Introduction

The Asset Management Plan for Traffic Control Signals (TCS) is based upon the principles of asset management. Key risks and issues will be identified and a series of management strategies developed with RMS and will be used to assist the prioritisation of maintenance needs.

This plan aims to establish the condition and sustainability of the ITS Maintenance Contract (ITS MCs) Traffic Control Signal Asset with the information being fed into the Forward Works Programme and support the process to identify Network need.

The Traffic Control Signal Asset inventory data is to be maintained to a consistent and accurate level. The QA Specification R301 Maintenance of Traffic Control Signals sets out specific performance requirements for the asset.

Key to this performance is the risk based approach to inspections; this Plan sets out our approach to meeting this performance specification.

1.1 Objectives

The aim of the plan is to manage defects to secure the safe use of the network in accordance with RMS policies.

To enable effective management of the asset, a risk based approach to the inspection process and the make safe and repair procedure will be robust to ensure that the condition meets the operational requirements up to the end of its serviceable life.

1.2 Overview

This document is produced as a draft for development through the transition period and throughout the life of the contract to reflect emerging practice. The plan supports the underlying strategic outcomes and safety performance levels for the maintenance of Traffic Control Signals within the ITS MC.

The plan reflects the various stages of Traffic Control Signals (TCS) within the contract. Different chapters will describe the maintenance of the TCS and will be relevant to new or existing TCS schemes.

The plan will describe the roles of wide variety of technical personnel engaged in the design, implementation and management of Traffic Control Signal Sites. All personnel below are to have competences assessed in line the requirements of the Contract:

- Asset Planning Maintenance Manager
- Asset Engineer
- Field Services Manager
- Design Engineers
- Those assessing the environmental impact of a new or replacement Traffic Control Signal scheme, and any
- Supervisors for the installation and commissioning.

1.3 Assets included within Traffic Control Signals

The scope of the TCS asset is defined in R301 as:

- TCS Controller
- TCS lanterns (including at least two (2) LED/QH aspects)
- TCS target board
- Controller cabinet/housing (where used)
- Controller housing labels
- Integrated-loop detector (ILD) (includes the loops, interface and detector controller boards)
- Ramp metering (where used)

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- Communication equipment, cables, pits and conduits
- Conspicuity devices (also called advance/flashing warning lights)
- Emergency Center priority schemes (e.g. Fire Brigade, Police, Ambulance)
- Power supply equipment (including cables, power regulators, surge protection, pits and conduits, etc.)
- Power backup equipment (including UPS, batteries and charging units, power regulators)
- Photo voltaic cells where applicable, backup power generators, etc.)
- Mast arms
- Posts and attachments
- Reflective tape on exposed posts
- Pedestrian push button assemblies
- Associated inter-system cabling (including to interface of TFS, enforcement cameras, etc)
- Support structures
- Access walkways.

1.4 Relevant Documentation

Relevant documentation, in order of precedence is:

- Statutory and legislated requirements
- R301 together with RMS QA R300
- Other RMS ITS Maintenance specifications
- RMS ITS Equipment specifications
- O&M manuals
- Australian Standards.

In the absence of specific requirements Australian Standards are to apply.

1.5 Terminology

This document adopts the definitions and interpretations from Schedule 1 of the Intelligent Transport Systems Maintenance Contract – [Metro West Zone / Metro West Zone].

2 Inventory Management

The Integrated Contract Management System shall incorporate a computerized asset register/inventory within the ICMS which will record the traffic controlled signal equipment that form part of the ITMCs.

2.1 Data Quality Statement

Personnel undertaking maintenance activities are to utilize a mobile device on the ground (Mobile Field Computer – MFC) that will establish a record of all Traffic Control Signal equipment in scope.

During the transition period verification and data gaps will be identified; these gaps may include maintenance records, electrical test results and historical data.

2.2 Requirement

The register will constitute the recording particulars of each item as follows:

- The current type, class, nature, location and composition of the asset
- The detailed identification by way of make, model, and serial number
- The specifications both physical and performance

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- The original and subsequent condition reports or surveys
- Other records such as photographs etc.

3 Inspections

3.1 Inspection Frequencies

Electrical and structural safety defects will be identified through inspections with frequencies as detailed below.

<i>INSPECTION NEEDS AND FREQUENCY FOR POWER BACK UP SYSTEMS</i>			
<i>ASSET INSPECTION</i>	<i>FREQUENCY</i>	<i>QUANTITY</i>	
		<i>ZONE EAST</i>	<i>ZONE WEST</i>
Structural Integrity Check	12 months	1	1
NDT of Base and support	60Months	1	1
<i>INSPECTION NEEDS AND FREQUENCY FOR OTHER</i>			
Structural Integrity Check	12 months	1859	1389
NDT of Base and support	60Months	1859	1389

4 Maintenance

Planned Maintenance is to include routine, preventative, proactive and predictive strategies.

These activities will include both mandatory intervention and discretionary elements that will adopt a risk based approach prioritising need within available funding budgets considering the condition of the asset.

4.1 Planned Maintenance Program

The cyclical maintenance program will synchronize the Functional Check and Routine Maintenance so that they occur together. The intention is minimise the number of visits to the asset.

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PLANNED MAINTENANCE FREQUENCY FOR POWER BACK UP SYSTEMS			
MAINTENANCE ACTIVITY	FREQUENCY	QUANTITY	
		ZONE EAST	ZONE WEST
Functional Check Service	3 months	1	1
Routine Maintenance Service	3 Months	1	1
INSPECTION NEEDS AND FREQUENCY FOR ALL OTHER TCS EQUIPMENT			
Functional Check Service	6 months	1859	1389
Routine Maintenance Service	12 Months	1859	1389

4.2 Reactive Maintenance

The Control Room will monitor the Fault Management Systems 24 hours a day and seven days a week. When a fault is received it will be reviewed and categorized and passed to the relevant engineer. Response times are detailed below.

FAULTS	PRIORITY	RESPONSE
Critical (CF)	High/Medium	2 hours
Non Critical (NCF)	High /Medium	24 hours
Non Critical Fault Categorized as Critical	High/Medium	2 hours

A Critical Fault (CF) is a component failure or physical defect that has occurred in the ITS device/system. When a CF occurs the device/system cannot perform its intended functions.

A Non-Critical Fault (NCF) is a component failure or physical defect that has occurred in the ITS device/system. When NCF occurs the device/system can still perform its intended functions.

Response times include:

- Remote investigation time to ascertain nature of defect(s)
- Equipment/parts/materials preparation time
- Travelling time to site.

When a fault is received the ICMS will record:

- The date and time when the fault was reported and the fault code. The fault code will be taken from the QA Specification R 301 Annexure E
- TCS No. This is the number shown on the labels attached to the controller housing
- Date sent to RMS. This will record the date when the information has been sent to RMS along with other forms that are required to lodge for payment.

The crews will be provided with a mobile device (MFC) which is to record:

- Arrival date/time at site
- Site status. (The status of the site when personnel arrive on site)
- Actual fault description. (A description of the fault so that there is a better understanding of it)

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- Actual fault code. Personnel are to confirm the actual fault code as described In Annexure R301/E as the reported code may differ from the actual fault at site
- Time repair completed
- Repair status (The code for the status of the site on departure)
- Components replaced (e.g. the details for all lamps or LED aspects that have been replaced)
- Site Detail: (The post number which can be obtained from the TCS layout design plan)
- Lantern Detail (The lantern designation which will be the phases for which the lantern displays can be read)
- Aspect (Aspect designation)
- Signature of member of staff completing work

It should be noted that the repair time is to be recorded as the actual time taken to repair the fault.

4.3 Detector Faults

When a detector fault is identified the process detailed in QA Specification R301 Annexure H will be followed.

Loop failures are to be prioritised as follows:

PRIORITY	DESCRIPTION
One	It is not a half loop Occurs on a minor movement Reduces the stretch time of the main phase and may unnecessarily call minor failures Is irrelevant if the minor phases are also heavily trafficked
Two	It is not a half loop Occurs on a minor movement Is a strategic point If SI has 2 or more loops and only one is faulty. The good loop/s can provide SCATS counting If SI has all loops faulty. Network operations may be able to use loops at a nearby intersection to provide count
Three	Is when Priority one and two are not applicable and the faulty loop is not set to half-loop.
Four	Is a half loop that is visible and can be re-cut without affecting other complete loops.
Five	Is a half loop that is not visible and cannot be re-cut without affecting other complete loops or is a pushbutton.

4.4 Incident Support

In the event of an incident, response times and repair times for Reactive Maintenance will apply as defined in Item 4.2 of this plan.

On arrival the condition of the site will be assessed to determine any immediate safety hazards to the members of the public and make safe as a priority. All other faults will be rectified in line with the requirement for reactive maintenance.

It is vital that information is collected as to the cause of the incident in order to assist RMS in recovering monies. Details are to be recorded in the Fault Management system (through mobile devices) or recorded on the form in QA Specification R301 Annexure D. This information should be supplemented by photographic evidence.

Details are to be recorded accurately to support RMS in recovering claims arising from the incident. These reports will be submitted as part of the RMS monthly report and recommended recovery actions arising from the incident.

5 Strategic Renewal Replacement

Strategic renewal replacement will be derived by compiling records of the latest inspection, functional checks and maintenance service regimes to determine risk and prioritisation.

This data will be used to assist RMS to define asset strategy and prioritise asset need.

Schemes can then be developed that are clearly needed and are deserving of funds being allocated out of the budgets available to maintain the asset in a safe and serviceable condition.

5.1 Design Life

The Asset Inspection and Planned Maintenance Services will support a design life for each TCS asset of at least:

- Five years for power supply equipment
- Five years for power backup equipment and battery, including replacing, dating and tagging each battery with a durable label upon the battery as proof of purchase, expiry date of battery OEM's warranty, or 400 recharge cycles to 80% depth of charge, whichever is earlier
- Ten /twenty years for electronic, electrical and communications equipment, excluding the power supply equipment or as specified in TSC/4, whichever is higher
- Ten /twelve years for display equipment, including replacing LED/QH lanterns or LED/QH conspicuity devices if the light output decreases below L70 or as specified in RMS QA R3452, whichever is the higher.

5.2 Design

The detailed design will take into account the type of materials and products to ensure that foreseeable risks are avoided over the life time of and TCS scheme so that future maintenance such as testing, repairs, dismantling or removal can be carried out safely and efficiently.

6 Level of Skills and Training Requirements

Personnel who perform inspections shall satisfy the visual acuity requirements of AS 3978.

In addition technical training, competencies and safety training, requirements are specified as:

- Basic knowledge of structural actions resisted by traffic asset structures such as: bending moments; tensile, compression and shear, forces; and, torsion
- Visual inspection of structural elements to enable the identification of non-compliance with Australian Standards in particular with regard to warping, bowing, distortion, bolting, etc.
- Identification of corrosion to structural elements
- Identification of deterioration of concrete foundations
- Identification of cracking/fracturing and other defects
- Identification of damage caused by vehicular collision
- Identify defects in welds
- WHS legislation (Commonwealth and New South Wales); Work Cover requirements.

All personnel who perform Routine inspections are to maintain:

- A Work Cover approved WH&S construction white card
- Completed working at heights training
- Completed rigging training
- Completed confined space training.



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Personnel who perform planned routine functional and maintenance checks, reactive maintenance and incident support will be competent and receive the level of training required to service the Contract.

All personnel who perform Planned /Reactive Maintenance and incident support are to maintain:

- A Work Cover approved WH&S construction white card
- Completed working at heights training
- Completed rigging training
- Completed confined space training.

7 Facilities, Support Service Requirements

Crews will be allocated individual zones within the larger maintenance Zone.

The size of these zones will be depend upon the number of Traffic Control Signals so that all incidents and fault response times will be achieved. The detail for this lies outside the scope of this plan.

8 Supply Chain

Current Tyco products will be returned to the Depot at Guilford for repair and redistribution back into the Contract.

QTC and ATC products will be returned to the appropriate company for repair.

LED aspects which have a 5-10 year guarantee will be returned to the appropriate manufacture for replacement and or repair.

8.1 Stock Level

All parts and equipment for the purpose of maintaining the TCS Equipment will be supplied by approved suppliers as recorded in the "Register of Assessed ITS Equipment" ("the Register") at the RMS web link: http://www.rms.nsw.gov.au/doingbusinesswithus/downloads/approved_suppliers_for_its_equipment.html

The following table describes the initial stock level at the start of the contract. The items and quantities will be reviewed every 3 months to ensure that the level of stock is sufficient to meet the requirements of the contract.

ITEM DESCRIPTION	MINIMUM STOCK LEVEL
Arrow Mask – 300 mm	10
Arrow Mask – 200 mm	20
Mask – Pedestrian – Don't Walk	10
Mask – Pedestrian – Walk 10	10
Audio Tactile – Proof Housing Drive Unit	12
Audio Tactile – Plug-In Module	40
Tactile Only - Plug-In Module	10
Bracket – 'L' Target Board	60
Bracket - 2 Point Lower Mounting	40
Bracket - 4 Point Lower Mounting	25
Cable Splice Kit – 29 Core Heat Shrink	18
Communication Unit – Dido	30
Communication Unit – Dusk	5
Controller – PSC MK3	0
Controller – Pedestrian	4
Controller – QTC	4

ITS-PL-3301 – Asset Type Maintenance Plan - TCS

ITEM DESCRIPTION	MINIMUM STOCK LEVEL
Controller – Tyco	4
Controller Housing – Key	12
Controller Module - Philips PSC-NA	16
Controller Module - Philips PSC-NC	35
Controller Module – Eclipse (Small)	5
Controller Module – Eclipse (Large)	20
Controller Module - QTC (Small)	15
Controller Module - QTC (Large)	20
Cover Yellow - Out Of Service 200 mm	60
Cover Yellow - Out Of Service 300 mm	20
Detector Module - 4 Channel	80
Detector Unit - Pole Mounted	6
Finial - Suit 29 Pt Top	40
Finial Split - Suit 29 Pt Top	6
Keypad	20
Lamp - QH - 10V 35W	9,000
Lamp - QH - 10V 50W	3,000
Lantern Complete – QH – 3 Aspect – 200 mm – Arrow	0
Lantern Complete – QH – 3 Aspect – 200 mm	0
Lantern Complete – QH – 4 Aspect – 200 mm	0
Lantern Complete – QH – 3 Aspect – 300 mm	0
Lantern Complete – QH – 1 Aspect – Pedestrian	0
Lantern Complete – LED – 2 Aspect – 200 mm – Arrow	0
Lantern Complete – LED – 2 Aspect – Pedestrian	12
Lantern Complete – LED – 2 Aspect – Bike	2
Lantern Complete – LED – 3 Aspect – 200 mm – Arrow	10
Lantern Complete – LED – 3 Aspect – 200 mm – Full	15
Lantern Complete – LED – 3 Aspect – 200 mm – Other	0
Lantern Complete – LED – 3 Aspect – 300 mm – Arrow	4
Lantern Complete – LED – 3 Aspect – 300 mm	4
Lantern Complete – LED – 3 Aspect – 300 mm – Other	0
Lantern Complete – LED – 4 Aspect – 200 mm – Full	4
Lid – Roadside	TBD ¹
Lantern Strap – 120 mm	50
Lantern Strap – 150 mm	50
Lantern Strap – 200 mm	60
Lantern Strap – 250 mm	60
Lantern Strap – 300 mm	100
Lantern Strap – 350 mm	60
Lantern Strap – 400 mm	40
Lens – 200 mm – Red	50
Lens – 200 mm – Yellow	50
Lens – 200 mm – Green	50
Lens – 300 mm – Red	30
Lens – 300 mm – Yellow	10
Lens – 300 mm – Green	15
Post – Type 2 – 3.2 m	10



ITS-PL-3301 – Asset Type Maintenance Plan - TCS

ITEM DESCRIPTION	MINIMUM STOCK LEVEL
Post – Type 2 – 4.1 m	12
Post – Type 2 – 5.2 m	3
Post – Type 4	2
Post – Type 5	2
Post – Type 6	2
Post – Type 9	0
Post – Type 10	0
Post – Type 11	0
Post – Type 13	0
Push Button – Pedestrian – Assembly	20
Push Button – Pedestrian – Audio Tactile Assembly	80
Push Button – Plate – Escutcheon (Dual Arrow)	10
Stop Sign – Special	0
Target Board – 3 Aspect – 200 mm	10
Target Board – 3 Aspect – 300 mm	6
Target Board – 3+3 Aspect – 200 mm	10
Target Board – 3+3 Aspect – 300 mm	6
Target Board – 4 Aspect – 200 mm	5
Terminal Assembly – 29 Pt Top Mounting	12
Visor – Closed – 200 × 200 mm	100
Visor – Open – 200 × 200 mm	120
Visor – Closed – 300 mm	80
Visor – Open – 300 mm	60
Visor – Pedestrian – Square	TBD ¹
Visor – Pedestrian – Symbolic Lantern	100
Aldridge	
Aldridge – Insert – LED – 200 mm – Arrow Green	50
Aldridge – Insert – LED – 200 mm – Arrow Amber	50
Aldridge – Insert – LED – 200 mm – Arrow Red	40
Aldridge – Insert – LED – 300 mm – Arrow Green	6
Aldridge – Insert – LED – 300 mm – Arrow Amber	8
Aldridge – Insert – LED – 300 mm – Arrow Red	6
Aldridge – Insert – LED – 200 mm – Vehicle Green	80
Aldridge – Insert – LED – 200 mm – Vehicle Amber	40
Aldridge – Insert – LED – 200 mm – Vehicle Red	50
Aldridge – Insert – LED – 300 mm – Vehicle Green	8
Aldridge – Insert – LED – 300 mm – Vehicle Amber	6
Aldridge – Insert – LED – 300 mm – Vehicle Red	6
Aldridge – Insert – LED – Pedestrian – Don't Walk	60
Aldridge – Insert – LED – Pedestrian – Walk	60
Bob Panic Consultancy (BPC)	
BPC – Insert – LED – 200 mm – Arrow Green	15
BPC – Insert – LED – 200 mm – Arrow Amber	15
BPC – Insert – LED – 200 mm – Arrow Red	20
BPC – Insert – LED – 300 mm – Arrow Green	10
BPC – Insert – LED – 300 mm – Arrow Amber	10
BPC – Insert – LED – 300 mm – Arrow Red	10



ITS-PL-3301 – Asset Type Maintenance Plan - TCS

ITEM DESCRIPTION	MINIMUM STOCK LEVEL
BPC – Insert – LED – 200 mm – Vehicle Green	15
BPC – Insert – LED – 200 mm – Vehicle Amber	15
BPC – Insert – LED – 200 mm – Vehicle Red	15
BPC – Insert – LED – 300 mm – Vehicle Green	8
BPC – Insert – LED – 300 mm Vehicle Amber	8
BPC – Insert – LED – 300 mm – Vehicle Red	8
BPC – Insert – LED – Pedestrian – Don't Walk	8
BPC – Insert – LED – Pedestrian – Walk	8

¹ **Note** Items marked TBD will be determined in a later revision

9 Repair and Disposal

Where appropriate, parts or equipment will be repaired or refurbished and held as spares in store for future use.

For the purposes of quality assurance, repaired or refurbished parts will be treated the same as replacement parts and equipment. Each part's repair history will be maintained and made available to RMS as and when requested.

Before parts or equipment are disposed due to age, damage or failure and are beyond economic repair RMS will be informed and the disposal agreed.

These parts and equipment will be distinctly and permanently marked prior to disposal by indicating their condition. These items will be physically disfigured prior to recycling at a certified facility and a certificate of disposal produced.

10 Good Practice Policy

Wherever it is practical and reasonable:

- For specialised equipment and new technology, the manufacturers should be consulted regarding procedures for handling, operation and recycling
- Maintenance crews will be expected to ensure that they are sufficiently equipped to carry out the tasks required of them
- All Changes to the TCS asset will be recorded in the Asset Management System
- Wherever possible planned maintenance operations will be integrated within a co-ordinated maintenance programme which may include multiple assets and planned traffic management
- Equipment Identification Labels should be sufficiently clean, legible and secure to allow each item to be individually identified. Damaged or illegible notices should be replaced
- Drawings in controller cabinet should accurately reflect the arrangements to reduce time spent testing and fault finding
- Defects identified during inspection or maintenance work will be reported and recorded in the Asset Management System and include details of any action taken.



SCHEDULE 11
OVERARCHING ASSET MAINTENANCE PLAN

ITS Maintenance Contracts (ITS MCs)

Schedule 11 – Overarching Asset Maintenance Plan

5 February 2014

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Definitions

Defined terms used in this document have the same meaning as those used in the ITS Maintenance Contract document.

Asset Type has the meaning given in section 1.2 of the Asset Definition Specification.

Criticality means, in relation to an Asset / Asset Type, the criticality specified in section 4 of the Asset Definition Specification.

List of Abbreviations

AMP	Asset Management Plan
FWP	Forward Work Package
ITS	Intelligent Transport Systems
ITS MC	Intelligent Transport Systems Maintenance Contract
OEM	Original Equipment Manufacturer
RMS	Roads and Maritime Services
SMC	Stewardship Maintenance Contract
SPP	Special Project Proposals

I Introduction

I.1 Purpose of this document

- I.1.1 The purpose of this document is to set out the overarching Asset Maintenance Plan for the initial Forward Works Program that the Contractor must, as a minimum, comply with in carrying out the Maintenance Services under the ITS MC.
- I.1.2 The ITS Contractor is required to develop and submit for RMS approval Asset Management Plans (AMP) for each Asset Type. These Asset Type specific AMP's shall be prepared in the context of the FWP prepared by the ITS Contractor and, when approved by RMS, shall document the agreed approach to the maintenance services to be provided under the FWP.
- I.1.3 The Asset Type specific AMP's will be developed with reference to the Asset performance requirements in the Contract, ITS Type specific Maintenance Specifications, this Overarching AMP provided by RMS (as updated by RMS), the ITS Contractor's assessment of the asset condition, historical performance of the assets and life cycle cost considerations.
- I.1.4 RMS may, during the course of the Contract, modify, update and re-issue this Overarching Asset Maintenance Plan.
- I.1.5 RMS may, during the course of the Contract, direct the ITS Contractor to update or modify the Asset Type specific AMP's the ITS Contractor has developed.

2 Asset Maintenance Plan

2.1 Overview

- 2.1.1 The AMP's to be developed by the ITS Contractor for each Asset Type and submitted for RMS approval in accordance with Schedule 2 ITS MC Service Requirements section 4.3 must address (as a minimum) the key areas of concern below.
- 2.1.2 For the purposes of this maintenance plan, the criticality of Assets is dependant on the assets safety function, its geographical location, its specific use and its condition. Asset criticality is defined in the Asset Definition Specification.
- 2.1.3 For the Initial FWP the Contractor shall adopt the Asset Inspection and Planned Maintenance frequencies and activities specified by RMS in the ITS Maintenance Specifications and/or this overarching Asset Maintenance Plan. For the subsequent FWP the Contractor may propose alternative approaches that achieve the required asset performance outcomes and offer improved value-for-money for RMS. Such alternative approaches shall be submitted for RMS approval through the Asset Type specific AMP's prepared by the Contractor for the subsequent FWP.

2.2 Asset Inspections

- 2.2.1 The ITS Contractor must determine, based on Asset Type, the Asset Type Maintenance Specifications and asset criticality, the level and frequency of inspections (e.g. visual, functional test, online monitoring, 6 monthly sites visits, etc) is needed to maintain the assets function and availability.
- 2.2.2 The ITS Contractor will monitor and adjust accordingly the frequency of inspections suitable to maintain the asset in good working order and maintain its availability.

2.3 Planned Maintenance Needs

- 2.3.1 The ITS Contractor shall assess and determine for each Asset Type and for each installed asset the Planned Maintenance requirements and frequency. RMS envisages this will be based on the initial ITS Maintenance Specifications, the assets Operations and Maintenance Manuals and the assets criticality.
- 2.3.2 The ITS Contractor will regularly monitor and adjust accordingly the Planned Maintenance arrangements for each asset and Asset Type to maintain the asset in good working order and its level of availability.

2.4 Strategic Asset Renewal / Replacement

- 2.4.1 RMS has a strategic asset renewal/replacement program establishing plans for the replacement or upgrades of some types of assets that have either reached end-of-life, require a change of technology to deliver additional benefits, or are upgraded to deliver functional enhancements.
- 2.4.2 The program forecasts the planned asset renewal/replacement program for the 12 months commencing in July of each year. RMS reviews the program of works and finalises the plans for the following 12 months during the period from May to June each year.
- 2.4.3 RMS typically replaces about 20 to 25 Traffic Sign Controllers per year identified as end-of-life. This is in addition to the replacements/reconfigurations undertaken to accommodate intersection upgrades.
- 2.4.4 RMS typically replaces about 8 to 10 VMS's per year due to end-of-life. RMS may, on an individual site basis, decide to have the structures replaced at the same time as a sign is replaced. Note, VMS signs have a design life of 10 years and VMS structures have a design life of 30 years.
- 2.4.5 Upgrades of other assets including Tidal flow systems are assessed annually within the planning exercise conducted from May through to June each year. Upgrades and renewal of these ITS assets can address whole systems or parts of systems depending on RMS's assessment and decisions.
- 2.4.6 The initial Forward Works Program shall provide ITS Contractors with the scope of works RMS has planned and will include the planned maintenance activities and strategic Asset Renewal / replacement works.

- 2.4.7 The final scope of works for asset renewal/replacement planned for any one year is dependant on the approval and allocation of funds to support the program prepared by RMS during the May to June period.
- 2.4.8 RMS will assess and decide the priorities of the strategic asset renewal/ replacement program and the SPP's either during the annual planning cycle or during the appraisal of the SPP's prepared by the ITS Contractor.

2.5 Resourcing for Reactive Maintenance

- 2.5.1 The ITS Contractor must plan for and provide sufficient and adequate resources (skilled and trained staff, plant, equipment & vehicles, etc) to meet the ITS Contractor obligations for delivering reactive maintenance for each asset type.
- 2.5.2 The ITS Contractor will document these arrangements in each AMP.

2.6 Facilities Support Services

- 2.6.1 The ITS Contractor shall assess and establish the required equipment and resources to support maintenance of each Asset Type.
- 2.6.2 The ITS Contractor shall ensure adequate levels of resources are maintained. These can be located at the ITS Contractors established maintenance workshop or depot and/or in the Contractors Maintenance Vehicles.
- 2.6.3 The ITS Contractor shall assess, equip and maintain the facilities at a level with sufficient capacity for the Contractor to deliver the contracted maintenance services.
- 2.6.4 The ITS Contractor can, by utilising its workshop facilities and resources, be asked to provide repair services for some equipments to support RMS Hunter Valley and Southern Regions.

2.7 Materials and Spares

- 2.7.1 The ITS Contractor is required to assess and determine the level of spare parts, components & materials it requires to stock to maintain each Asset Type to meet the Contract performance requirements. For the the commencement of the initial FWP RMS might suggest minimum stock levels of spares based on STS experience, where possible.
- 2.7.2 The ITS Contractor is required to review and maintain sufficient levels of spare parts, components & materials when changes to the scope of maintenance activities occur and when MIW is requested.
- 2.7.3 Reimbursement by RMS to the Provider of the procurement costs of new spares and materials is only when the repair is complete and the ITS is operational again and integrated back into the network.
- 2.7.4 The allocation and distribution of free issue stock by RMS to ITS Contractors is dependant on a number of factors including an assessment of the numbers of Assets in each maintenance zone and the quantities of free issue stock held by RMS.
- 2.7.5 RMS may require the ITS Contractor to hold additional spares to support RMS Hunter Valley and Southern Regions. The range and quantities of these spares is to be agreed between RMS and the ITS Contractor.
- 2.7.6 For some parts and components the ITS Contractor will be required to establish support from OEM's and suppliers for supply of spare parts or repair services. The arrangements around this support will be documented in each AMP if applicable. For non-hardware related faults (e.g. firmware faults or bugs) then;
- a) If under warranty Provider is to refer to the supplier or OEM; or
 - b) If out of warranty, Provider can refer to RMS. Support will be available via Traffic Signal System Inspectors and/or RMS ITS Manufacturing.
- 2.7.7 The ITS Contractor is encouraged to include in each Asset Type AMP what parts and components within the Asset Type the ITS Contractor wishes to repair, for example printed circuit board assemblies. The ITS Contractors strategy and plans for managing repair will be reviewed and accepted/rejected by RMS as part of the Asset Type AMP approval process.

- 2.7.8 Having an asset as repairable means the items can be repaired using new parts and components or in some cases from parts and components scavenged from other assemblies. RMS's position is that, where practical, new parts and materials will be used but RMS approval could be granted depending on a number of factors including, for example, if replacement components (e.g. electronic semiconductor devices) are no longer manufactured and no longer readily available.
- 2.7.9 The ITS Contractor is accountable for ensuring repaired assets are functionally working and compliant with specifications and manufacturers manuals before placing them in the ITS Contractors stock of repaired parts. Parts and components that cannot be repaired and fail to meet functional specifications will be disposed of by the Contractor.
- 2.7.10 In situations where assets are involved in incidents resulting in asset damage, for example circuit board assemblies located in cabinets or poles & structures hit by vehicles, the recycling of these items into available replacement stock is forbidden without prior RMS written approval and exemption. It is the responsibility of the ITS Contractor to seek and gain RMS approval. Without RMS approval the components and materials are to be isolated from other inventory (e.g. in stores and maintenance vehicles) and properly disposed of.
- 2.7.11 The ITS Contractor is required to establish a spares inventory management system that maintains records of materials and components including the stock of spares. The inventory management system shall address the procurement, storage, deployment and disposal of new parts and components and also repairable parts and components. The ITS Contractor is required to provide status reports of spares inventory (e.g. quantities, status, history and cost) either on a routine basis or as required. The format of reporting will be developed during the initial transition phase.

2.8 Materials and Spares Availability

- 2.8.1 It is the responsibility of the ITS Contractor to assess, determine, establish and maintain sufficient stocks of functionally compliant spare parts, components, equipment and materials to meet its asset maintenance performance requirements under this Contract. This includes having sufficient stock levels at depots and in maintenance vehicles.

2.9 Required skills, resources and training

- 2.9.1 The ITS Contractor is responsible for ensuring its workforce comprising of staff and contractors have the necessary skills, knowledge and capability to undertake the work and tasks required for the maintenance of each Asset Type, especially when working in live traffic;
- 2.9.2 The ITS Contractor shall document in each Asset Type AMP any special skills and training that is required to service and maintain the Asset Type.
- 2.9.3 The ITS Contractor shall document in each Asset Type AMP any special licenses and certifications that is required by the Contractors staff and contractors to service and maintain the Asset Type.
- 2.9.4 The ITS Contractor is required to establish and maintain management systems that include, but not limited to, the following;
- a) Identifies the skills and knowledge required for the types of work or tasks to be undertaken;
 - b) Identifies the license and certification requirements (including compliance to legislation) for each type or work and task and ensures its work force including contractors comply with requirements;
 - c) Assesses, establishes and maintains training and retraining programs to ensure its workforce and individual staff have the required skills and knowledge to undertake the work and tasks required;
 - d) Establish programs for monitoring the training needs for the Contractor's staff and sub-contractors;
 - e) That the ITS Contractors management systems includes training and certification for WHS related issues.
- 2.9.5 RMS may inspect, audit and assess the Contractors skills and training management plans and outcomes. RMS will issue reports detailing findings, observations and suggestions as an outcome of these assessments.

2.10 Work, Health & Safety related to Asset Types

- 2.10.1 The ITS Contractor must include within its Asset Type AMP's consideration of WHS risks and safeguards specific to the Asset Type including reference to the ITS Contractors WHS system including Safe Work Method Statements or parts thereof.
- 2.10.2 The ITS Contractor will assess and document in each Asset Type AMP any special WHS requirements that need to be complied with when servicing and maintaining each Asset Type.
- 2.10.3 Note, some assets may be in locations that need special mention of the unique WHS requirements peculiar to those assets because of their locations or some other risk. For example, if RMS assets are located with or near rail assets. In these situations the WHS requirements will be documented in site specific documentation, for example in the ITS Contractors Safe Work Method Statements or site risk assessments and risk mitigations.

SCHEDULE 12

WORK TERMS

Intelligent Transport Systems Maintenance Contract - Metro East Zone

Work Terms



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Intelligent Transport Systems Maintenance Contract - Metro East Zone

Work Terms

1. SCOPE OF WORK, TEMPORARY WORK AND WORK METHODS

1.1 Scope of work

The scope of work under the Contract (WUC) is described in this document, and includes:

- (a) all the work specifically referred to or described in, or otherwise contemplated by:
 - (i) Item 3; and
 - (ii) the Specifications;
- (b) all items not specifically referred to or described in Item 3 or the Specifications which nonetheless are required to complete the Works and achieve the effective and efficient use and operation of the Works;
- (c) all items referred to in one or more of Item 3 and the Specifications or, if Item 9 specifies that the ITS Contractor will perform Design, otherwise necessary for the Works to be fit for the purposes required by this document but omitted from other Specifications (those omitted items are included in the scope of WUC, unless the context requires otherwise); and
- (d) all items of work reasonably inferred from Item 3 or the Specifications as necessary to properly execute and complete the Works.

1.2 ITS Contractor Acknowledgement

The ITS Contractor acknowledges that the terms of this document and the Contract apply whether WUC is undertaken prior to, on or after the Work Terms Commencement Date.

1.3 All work included

The ITS Contractor must carry out and be responsible for all Temporary Work and carry out, perform, provide and do everything necessary including all ancillary or other work for or in connection with the Design, construction, supply and commissioning (as applicable) of the Works, subject to the following:

- (a) RMS may direct the ITS Contractor at any time to use a particular method or type of Temporary Work and the ITS Contractor must comply with RMS' direction;
- (b) subject to paragraph (d), if RMS' direction directly causes the ITS Contractor to incur necessarily and unavoidably any extra costs when compared with the costs the ITS Contractor would have incurred had RMS not given the direction, the ITS Contractor is entitled to those extra costs as an addition to the Works Fee (if it demonstrates to the reasonable satisfaction of RMS that it incurred such extra costs) and may be entitled to an extension of time under clause 7.1 (if applicable);
- (c) in determining the ITS Contractor's extra costs under paragraph (b), such costs must be valued in accordance with the Pricing Schedule; and

- (d) if the need for the instruction in paragraph (a) arises from the ITS Contractor's own act or omission, then the ITS Contractor is not entitled to those extra costs or extensions of time.

1.4 **Work methods**

- (a) The ITS Contractor may use any work method, subject to paragraph (b) and the following:
 - (i) the ITS Contractor is solely responsible for all work methods, whether specified in this document or the Contract or not;
 - (ii) the ITS Contractor warrants that it has undertaken all necessary investigation and inquiry to satisfy itself that all work methods:
 - (A) specified in this document or the Contract; or
 - (B) which the ITS Contractor otherwise proposes to use,are appropriate for the purposes of WUC;
 - (iii) if a particular work method is specified in the this document or the Contract, the ITS Contractor must use it;
 - (iv) if a particular work method is specified in this document or the Contract but it is not possible to use that method, the ITS Contractor must use another method without entitlement to extra cost or an extension of time; and
 - (v) if a particular work method for which the ITS Contractor is responsible is impractical and the ITS Contractor, with or without the direction of RMS, uses another work method by necessity to complete WUC, the ITS Contractor is not entitled to an extension of time or extra cost.
- (b) RMS may direct the ITS Contractor at any time to use a particular work method and, subject to paragraphs (a)(iv) and (a)(v) above, if RMS' direction directly causes the ITS Contractor to incur necessarily and unavoidably any extra costs when compared with the costs the ITS Contractor would have incurred had RMS not given the direction, the ITS Contractor is entitled to those extra costs as an addition to the Works Fee (if it demonstrates to the reasonable satisfaction of RMS that it incurred such extra costs) and may be entitled to an extension of time under clause 7.1 (if applicable).
- (c) In determining the ITS Contractor's extra costs under paragraph (b), such costs must be valued in accordance with the Pricing Schedule.

1.5 **Quality**

- (a) The ITS Contractor must Design (if so specified in Item 9) and carry out and complete WUC in accordance with all the requisite standards required under this document and the Contract.
- (b) The ITS Contractor must, prior to commencing WUC, demonstrate to the RMS' reasonable satisfaction that the ITS Contractor has in place an appropriate quality system for WUC (including any changes to the Quality Management Plan required in respect of WUC).

2. TIME MANAGEMENT, WORKS PROGRAM AND STAKEHOLDER ENGAGEMENT

2.1 Time management

- (a) The ITS Contractor must commence and carry out WUC in accordance with the Works Program.
- (b) The ITS Contractor must carry out Design and WUC in accordance with Scheduled Progress.
- (c) Whenever requested, the ITS Contractor must demonstrate to RMS that it is achieving Scheduled Progress.
- (d) If the ITS Contractor is not achieving Scheduled Progress, RMS may instruct the ITS Contractor to take all reasonable steps to achieve Scheduled Progress, at the ITS Contractor's cost.
- (e) The parties acknowledge that an instruction under paragraph (d) is not a direction to accelerate.

2.2 Works Program

- (a) The ITS Contractor must submit to RMS a program which complies with clause 2.3 within 10 Business Days of the Work Terms Commencement Date.
- (b) RMS may within 10 Business Days of receipt of the program advise the ITS Contractor if the program does not comply with clause 2.3. If RMS raises no objection and the program submitted by the ITS Contractor under this clause 2.2 complies with clause 2.3, it becomes the Works Program.
- (c) If the program does not comply with clause 2.3, the ITS Contractor must promptly and in any event within 10 Business Days of being notified by RMS of the non-compliance, submit to RMS a further program complying with the requirements in clause 2.3.
- (d) The ITS Contractor must update and resubmit the Works Program when directed by RMS acting reasonably, taking into account:
 - (i) actual progress;
 - (ii) any changed circumstances; and
 - (iii) the effects of delays and approved extensions of time.

2.3 Requirements of Works Program

The Works Program must comply with the following requirements:

- (a) show the dates of, or, in the case of future activities and events, the dates for commencement and completion of Design and other work activities, other significant events, any Milestones and the Date for Completion for all Milestones and the Works;
- (b) show the:
 - (i) date, time, extent and duration of; and
 - (ii) the specific location for,

each Lane closure required for carrying out WUC;

- (c) reflect Scheduled Progress and be consistent with all constraints on access, performance and co-ordination;
- (d) show the logical relationship between activities and events shown in the program, identify time leads and lags, resource and other constraints and the sequence of activities which constitute the critical path or critical paths;
- (e) show the dates when the ITS Contractor will require information, documents, materials or instructions from RMS and the dates when the ITS Contractor will provide information or documents to RMS. These dates are to be consistent with dates which RMS could reasonably have anticipated at the Work Terms Commencement Date that it would be required to provide this information, documents, materials or instructions; and
- (f) be in such form and include such detail as RMS reasonably requires (both hard copy form and electronic form) and be accurate, comprehensive and complete in all respects.

2.4 **Form and provision to RMS**

- (a) When requested by RMS, the ITS Contractor must provide the Works Program to RMS (in hard copy form and electronic form). The electronic form of the Works Program must be accessible and clearly show the requirements listed in this clause 2.
- (b) The software used by the ITS Contractor to create the Works Program must be acceptable to RMS.

2.5 **Extension of time and Works Program**

- (a) The ITS Contractor will not be entitled to Claim an extension of time under clause 7.1 or otherwise, until the ITS Contractor has submitted to RMS a Works Program in conformance with clause 2.3.
- (b) The Works Program submitted in respect of a Claim for an extension of time must be the Works Program current (as adjusted under clause 2.2(d)) at the time of the event or events giving rise to the Claim.
- (c) All extension of time Claims must show how the ITS Contractor has been or will be delayed in reaching Completion by the Date for Completion, by specific reference to an activity or activities on the then current (as adjusted under clause 2.2(d)) critical path or paths of the Works Program.
- (d) Provision of the Works Program does not relieve the ITS Contractor of any of its obligations under this document or the Contract.

2.6 **Stakeholder engagement**

The ITS Contractor must undertake all communication and stakeholder engagement as set out in Item 13 in compliance with section 4.8 of the ITS MC Service Requirements.

3. **INSURANCE**

3.1 **RMS' insurance**

- (a) RMS has effected contract works and public and product liability insurance in accordance with clause 30.1 of the General Conditions.
- (b) Before the ITS Contractor commences any WUC, the ITS Contractor must contact the insurance broker nominated in writing to the ITS Contractor as RMS' insurance broker to provide to that person all details reasonably requested for the purpose of the insurances referred to in paragraph (a) in respect of the Works and the carrying out of any WUC.

4. **DESIGN**

4.1 **Ambiguities**

- (a) The ITS Contractor must, in addition to any responsibility to check RMS' Documents under clause 4.3 (if applicable), check the Specifications and notify RMS of any ambiguities, inconsistencies or discrepancies at least 15 Business Days before the ITS Contractor proposes to use them for Design or the carrying out of any WUC (including procurement, manufacture or fabrication).
- (b) If the ambiguity, inconsistency or discrepancy relates to the quality or standard of the Works, then the requirement which delivers the highest standard is to apply.
- (c) Where it is not possible to resolve the ambiguity, discrepancy or inconsistency by the application of the principles in paragraph (b), RMS must direct the interpretation of the ambiguity, inconsistency or discrepancy in the Specifications which the ITS Contractor must follow.
- (d) Subject to paragraph (e), if RMS' direction under paragraph (c) results in the ITS Contractor incurring increased or reduced costs when compared to the costs the ITS Contractor should reasonably have anticipated at the Work Terms Commencement Date, the Works Fee must be adjusted by the difference in costs agreed or valued under the procedures in clause 8 of the General Conditions.
- (e) In assessing what the ITS Contractor should reasonably have anticipated (as referred to above), RMS must have regard to the provisions of this document, in particular clause 1, and to whether the ambiguity, inconsistency or discrepancy was (or should have been) reasonably apparent to the ITS Contractor at the Work Terms Commencement Date.
- (f) If the ITS Contractor fails to take the steps required in paragraph (a), and RMS issues a direction to resolve an ambiguity, inconsistency or discrepancy which results in the ITS Contractor incurring increased costs when compared to the costs the ITS Contractor should reasonably have anticipated at the Work Terms Commencement Date, any adjustment to the Works Fee under paragraph (d) will not include the ITS Contractor's costs for delay or the cost of any aborted work (including Design).

4.2 **ITS Contractor's Documents**

- (a) Unless specified in Item 9, the ITS Contractor must carry out all necessary design to complete Design of the Works and must produce ITS Contractor's Documents which meet the requirements of all of the following:

- (i) this document;
 - (ii) the Contract, including the General Conditions;
 - (iii) RMS' directions;
 - (iv) Law;
 - (v) relevant Australian Standards; and
 - (vi) good industry standards applicable to the Works.
- (b) The ITS Contractor acknowledges that the ITS Contractor must not change any design in RMS' Documents without RMS' prior written approval. Whenever requested by RMS, the ITS Contractor must promptly confirm in writing that the ITS Contractor's Documents are consistent with and comply with RMS' Documents and other relevant Contract documents.
 - (c) If Item 9 specifies that the ITS Contractor will perform Design, the ITS Contractor must produce ITS Contractor's Documents which will ensure that, when complete, the Works and every part of them are fit for the purposes set out in this document.
 - (d) The requirements of paragraph (c) are not affected by any Change.
 - (e) The ITS Contractor must, at its cost, correct any Fault in the ITS Contractor's Documents.

4.3 **Adopting RMS' Documents**

- (a) If Item 10 specifies that RMS has carried out design prior to the Work Terms Commencement Date, and if Item 9 specifies that the ITS Contractor will perform Design, then this clause 4.3 will apply.
- (b) Before submitting ITS Contractor's Documents to RMS in accordance with clause 4.4 the ITS Contractor (at its own cost) must:
 - (i) check, and notify RMS of details (together with appropriate supporting documents) of any Fault in RMS' Documents;
 - (ii) amend the documents to correct the Faults so that, on Completion, the Works and every part of the Works will be fit for the purposes set out in this document; and
 - (iii) accept and adopt RMS' Documents as if the ITS Contractor prepared them so that they (amended by the ITS Contractor as necessary) become ITS Contractor's Documents when submitted under clause 4.4.
- (c) If ITS Contractor fails to notify RMS of a Fault in RMS' Documents in accordance with this clause 4.3:
 - (i) RMS may instruct a Change if the Fault in RMS' Documents requires a change to the Works; and
 - (ii) the ITS Contractor will not be entitled to any costs in respect of the Fault or Change.
- (d) The ITS Contractor acknowledges and accepts that:

- (i) design in RMS' Documents is incomplete and may contain Faults or conflict with Law or relevant Australian Standards or other codes or standards which the ITS Contractor is required to comply with under this document and the Contract;
- (ii) RMS makes no representation concerning any design in RMS' Documents and the ITS Contractor is not entitled to rely on the completeness or accuracy of such design; and
- (iii) RMS relies on the ITS Contractor to identify and remedy Faults in RMS' Documents.

4.4 **Submitting ITS Contractor's Documents**

- (a) If Item 9 specifies that the ITS Contractor will perform Design, then this clause 4.4 will apply to the extent that the Design is performed by the ITS Contractor.
- (b) The ITS Contractor must:
 - (i) undertake design review and consider the Design with those persons specified in the Specifications, or those persons identified by RMS, including those involved in using or occupying any part of the Works as End Users; and
 - (ii) develop the Design and ITS Contractor's Documents using the outcomes of this review and consideration.
- (c) The ITS Contractor must, if required by RMS, ensure that appropriate personnel are available to explain the Design and provide such information regarding the Design as RMS reasonably requests.
- (d) The ITS Contractor must then submit to RMS for its consideration any necessary amendments to RMS' Documents proposed by the ITS Contractor, including those arising out of the design review and consideration, prior to the ITS Contractor submitting ITS Contractor's Documents, as referred to in paragraph (b).
- (e) The ITS Contractor must submit ITS Contractor's Documents (as developed progressively and in stages, but so that each part is complete and in sufficient detail to explain what is proposed) to RMS:
 - (i) in a manner which, having regard to the quantum of ITS Contractor's Documents submitted, will allow RMS a reasonable opportunity to review the ITS Contractor's Documents having regard to the time period allowed by this document for RMS to review the ITS Contractor's Documents; and
 - (ii) at least 20 Business Days before the date the ITS Contractor proposes to use them for carrying out any WUC (including procurement, manufacture or fabrication).
- (f) The ITS Contractor must provide the number of copies of the ITS Contractor's Documents specified in Item 8 when submitting ITS Contractor's Documents.
- (g) Within 10 Business Days after submission by the ITS Contractor to RMS of the ITS Contractor's Documents, as referred to in paragraph (b), RMS will notify the ITS Contractor that:
 - (i) the ITS Contractor's Documents are "Not Rejected"; or

- (ii) the ITS Contractor's Documents are "Rejected", if in the reasonable opinion of RMS, those ITS Contractor's Documents do not comply with the requirements of this document or the Contract, and provide written reasons for the rejection.
- (h) If RMS does not issue a notice under paragraph (g) within the required timeframe, the relevant ITS Contractor's Documents will be deemed to be "Not Rejected".
- (i) The ITS Contractor must, within 10 Business Days of receipt of notice from the RMS that the ITS Contractor's Documents are "Rejected", amend the ITS Contractor's Documents and submit them to RMS.
- (j) Paragraph (g) will reapply to the amended ITS Contractor's Documents submitted under paragraph (i), except that the amended ITS Contractor's Documents may be "Rejected" by RMS only in respect of a failure by the ITS Contractor to address the reasons given by RMS when it notified the ITS Contractor that the ITS Contractor's Documents were "Rejected".
- (k) Notwithstanding the design review and consideration by others under this clause 4.4, the ITS Contractor remains fully responsible for all ITS Contractor's Documents. The ITS Contractor will not be relieved from:
 - (i) its obligations under this document or the Contract; or
 - (ii) any of its liabilities under this document, the Contract or according to Law,
 as a result of:
 - (iii) complying with its obligations under this clause 4.4; or
 - (iv) RMS, or anyone acting on behalf of RMS, failing to detect any non-compliance in any the ITS Contractor's Documents or the ITS Contractor's obligations under this clause 4.4, including where any failure arises from any negligence on the part of RMS, RMS' Representative or any other person.
- (l) Nothing RMS does or omits to do in connection with this clause 4.4 makes RMS liable for any ITS Contractor's Documents or prevents RMS from relying on or enforcing a right under the Contract, according to Law or otherwise. The ITS Contractor acknowledges and agrees that RMS owes no duty to the ITS Contractor:
 - (i) to review the ITS Contractor's Documents for errors or compliance with the requirements of this document or the Contract; or
 - (ii) in any review undertaken of any ITS Contractor's Documents; or
 - (iii) to consult with the ITS Contractor or to make any comments regarding the ITS Contractor's Documents.
- (m) RMS' exercise of (or failure to exercise) any of its rights under this clause 4.4 will not preclude RMS from subsequently asserting that the ITS Contractor's Documents do not comply with the requirements of this document and the Contract (even if RMS previously gave a "Not Rejected" notice under paragraph (g) in respect of such ITS Contractor's Documents).

4.5 **Subcontractor warranties**

The ITS Contractor must obtain a warranty in favour of RMS in a form and on terms acceptable to RMS (in its absolute discretion) from:

- (a) each Subcontractor; and
- (b) each Subcontractor carrying out the trade or area of WUC,
listed in Item 14.

5. **SITE**

5.1 **No warranty by RMS**

RMS makes no representations and gives no warranty to the ITS Contractor in respect of:

- (a) the condition of:
 - (i) the Site; or
 - (ii) any structure or other thing on, above or adjacent to, or under the surface of, the Site; or
- (b) the existence, location, condition or availability of:
 - (i) any Utility; or
 - (ii) any Asset,

on the Site, but acknowledges that the circumstances described in paragraphs (a) and (b) may constitute a Change Event.

5.2 **Things of value found**

- (a) Any things of value or archaeological or special interest found on the Site are as between the ITS Contractor and RMS, the property of RMS, in order for RMS to be able to return them to their rightful owner.
- (b) The ITS Contractor must:
 - (i) at its cost:
 - (A) immediately notify RMS if any such thing is found; and
 - (B) ensure that any such thing is protected and not disturbed; and
 - (ii) comply with all requirements of any Authority and directions of RMS in relation to the thing.

6. **WUC AND INSPECTION**

6.1 **Setting out the Works**

- (a) The ITS Contractor must set out the Works and carry out WUC at the locations and levels specified in or required by the Specifications.

- (b) The ITS Contractor may request in writing from RMS any necessary additional information to be provided by RMS relating to setting out the Works not included in the Specifications. The ITS Contractor must make the request at least 10 Business Days prior to the date the ITS Contractor proposes to use the information for setting out that part of the Works to which the information applies. As soon as practicable, RMS must provide any additional information which it has or can reasonably obtain.
- (c) While carrying out WUC, if the ITS Contractor discovers or is made aware of any error in the location, level, dimension or alignment of the Works:
 - (i) the ITS Contractor must notify RMS;
 - (ii) RMS need not respond to the ITS Contractor about any error;
 - (iii) RMS may instruct the ITS Contractor regarding necessary rectification work and the ITS Contractor must comply; and
 - (iv) the ITS Contractor must rectify any error to ensure that the Works comply with this document and the Contract.
- (d) The ITS Contractor must give RMS a copy of a survey showing the Works as constructed on the Site, including the relationship of the Works to any relevant property boundaries, easements, (including any right of way) and improvements on the Site.
- (e) If requested in writing by the ITS Contractor, RMS may agree (but is not obliged to do so) by notice in writing that certain matters can be excluded from the survey. The survey must be performed by a registered surveyor or other surveyor to whom RMS has no objection.

6.2 **WUC**

- (a) The ITS Contractor must:
 - (i) supply all Materials and ITS Contractor's Plant required for WUC; and
 - (ii) carry out and complete WUC in accordance with:
 - (A) this document;
 - (B) any requirements under the Contract;
 - (C) the ITS Contractor's Documents;
 - (D) RMS' directions concerning the Works;
 - (E) Law;
 - (F) relevant Australian Standards; and
 - (G) good industry standards applicable to the Works.
- (b) The ITS Contractor must comply with this clause 6.2 and ensure that, when complete:
 - (i) the Works comply with all requirements of this document and the Contract; and

- (ii) if Item 9 specifies that the ITS Contractor will perform Design, the Works and every part of them are fit for the purposes set out in this document to the extent that the Works have been designed by the ITS Contractor.
- (c) The provisions of paragraph (b) are not affected by any Change.

6.3 **Cleaning up**

In carrying out WUC, the ITS Contractor must:

- (a) keep the Site clean and tidy and free of refuse;
- (b) regularly remove rubbish, litter, graffiti and surplus material from the Site; and
- (c) as a condition precedent to Completion of the whole of the Works, remove all rubbish and Temporary Works and any surplus materials, plant (including any ITS Contractor's Plant) or equipment from the Site except where the retention of any of these are required for the correction of Defects and this is approved by RMS.

6.4 **Testing**

- (a) The ITS Contractor must:
 - (i) Test (at its own cost) all parts of the Works specified in the Specifications to be Tested;
 - (ii) give RMS the opportunity to witness the Tests by giving reasonable notice; and
 - (iii) make the results available to RMS.
- (b) RMS may instruct the ITS Contractor at any time to Test any part of the Works in any manner RMS considers necessary. RMS must pay for the Tests (as an addition to the Works Fee) if the results of the Tests show full compliance with this document and the Contract. Otherwise, the ITS Contractor must pay for the Tests.
- (c) The ITS Contractor must repeat the Tests (at its own cost) of all parts of the Works where Defects have been found, until the results of the Tests confirm that all Defects have been made good and that the Works comply with this document and the Contract. The ITS Contractor must make the results of such Tests available to RMS.

6.5 **Defects**

- (a) The ITS Contractor must identify and promptly make good all Defects so that the Works comply with the requirements of this document and the Contract. This requirement does not affect any other remedy or right of RMS.
- (b) At any time before Completion of the whole of the Works, RMS may instruct the ITS Contractor to make good Defects within the time specified in a Defect Notice issued by RMS.
- (c) If the ITS Contractor fails to make good the Defects in the time specified in the Defect Notice, RMS may make good the Defects itself or have the Defects made good by others and then:

- (i) the cost will be a debt due to RMS and may be deducted from any amounts payable to the ITS Contractor under the Contract; and
 - (ii) the ITS Contractor will be responsible for the work involved in making good the Defects as if the ITS Contractor had performed the work.
- (d) Nothing in this clause 6.5:
- (i) reduces the ITS Contractor's warranties and other liabilities and obligations under the Contract; or
 - (ii) affects RMS' rights according to Law or otherwise.

6.6 Acceptance with Defects not made good

- (a) RMS, in its absolute discretion (and at any time, whether before or after Completion), may accept that specific Defects defined by RMS need not be made good.
- (b) Before RMS does so:
 - (i) RMS may propose deductions from the Works Fee (or any part of the Works Fee), and any terms it requires;
 - (ii) if the ITS Contractor agrees with the deductions and the terms, the Works Fee (or relevant part of the Works Fee) will be adjusted accordingly; or
 - (iii) if the ITS Contractor agrees with the terms but not with the proposed deductions, either party may refer the matter for resolution under clause 36 of the General Conditions.
- (c) If the parties do not agree in writing on RMS' terms, the ITS Contractor must make good the Defects defined by RMS.
- (d) The ITS Contractor remains liable for Defects whether known or not known at the time RMS accepts that Defects defined by RMS in paragraph (a) above need not be made good under this clause 6.6.

6.7 RMS Access

- (a) The ITS Contractor must ensure that at all times RMS, and any person authorised by RMS, has safe and convenient access to:
 - (i) the Works;
 - (ii) the Site;
 - (iii) any other place where any WUC is being carried out;
 - (iv) the ITS Contractor's Documents;
 - (v) the current Works Program (as adjusted under clause 2.2(d)); and
 - (vi) any other documentation created for the purposes of the Works.
- (b) The ITS Contractor must at all times retain at the Site a copy of the current Works Program (as adjusted under clause 2.2(d)).

6.8 RMS' right to inspect

- (a) RMS, and any person authorised by RMS, may at any time inspect the Works.
- (b) Neither RMS nor any person authorised by RMS owe a duty to the ITS Contractor to:
 - (i) inspect or otherwise review or monitor WUC or other actions or activities or lack of action; or
 - (ii) review, consider or identify any aspect of the Works for errors, omissions, compliance or non-compliance with the requirements of this document or the Contract (whether or not it does so) or notify the ITS Contractor thereof.
- (c) No inspection, review or monitoring of WUC will in any way lessen or otherwise affect:
 - (i) the ITS Contractor's obligations under:
 - (A) this document; or
 - (B) the Contract; or
 - (ii) RMS' rights under this document, the Contract, according to Law or otherwise.

7. EXTENSIONS OF TIME AND DELAY

7.1 Extensions of time

- (a) If the ITS Contractor is, or will be delayed in reaching Completion by the Date for Completion, the ITS Contractor will be entitled to an extension of time for Completion for the number of days and on the terms assessed by RMS (including additional Lane closures required in addition to those set out in Item 4), if the ITS Contractor satisfies RMS that all the following conditions apply:
 - (i) the delay is the direct result of:
 - (A) an act, default or omission of RMS which is not an act, default or omission:
 - (aa) expressly permitted by this document or the Contract; or
 - (bb) within a time frame expressly permitted by this document or the Contract;
 - (B) a Change;
 - (C) a Force Majeure Event;
 - (D) subject to clause 1.3(d), a direction by RMS under clause 1.3(a);
 - (E) subject to clauses 1.4(a)(iv) and 1.4(a)(v), a direction by RMS under clause 1.4(b);
 - (F) an Change Event;

- (G) a suspension under clause 8.1 provided that the need for the suspension arises pursuant to clause 8.1(c); or
 - (H) a suspension directed by RMS under the General Conditions which arises from RMS' own act or omission or the acts or omissions of the employees or contractors of RMS (other than the ITS Contractor or its Subcontractors);
 - (I) adverse weather conditions,
- and the ITS Contractor has not caused or contributed in any way to that delay, including by:
- (J) the ITS Contractor's breach of this document or the Contract; or
 - (K) any negligent or unlawful act or omission of the ITS Contractor or any person for whom the ITS Contractor is responsible;
- (ii) the ITS Contractor has taken all reasonable steps to avoid and minimise the delay and its effects;
 - (iii) the ITS Contractor has given to RMS each of the notices required under paragraphs (b) and (c); and
 - (iv) the delay occurred to an activity or activities on a critical path of the then current Works Program (as adjusted under clause 2.2(d)), and the ITS Contractor has submitted this Works Program with the notice required under paragraph (c).
- (b) The ITS Contractor must give RMS notice of the delay, its cause, relevant facts, and its expected impact, as soon as practicable after the delay commenced.
 - (c) Within 10 Business Days of commencement of the delay, the ITS Contractor must give RMS notice of the extension of time claimed, together with the information required under clause 2.5(c) and other information sufficient for RMS to assess the Claim. If the delay continues for more than 10 Business Days, the ITS Contractor must give a further notice every 10 Business Days thereafter, until after the delay ends, if the ITS Contractor wishes to claim a further extension of time, together with further information of the kind required by this clause 7.1.
 - (d) An extension of time is only given for delays occurring on days on which the ITS Contractor usually carries out WUC.
 - (e) When concurrent events cause a delay in reaching Completion and one or more of the events is within the control of the ITS Contractor, then to the extent that the events are concurrent, the ITS Contractor will not be entitled to an extension of time for Completion notwithstanding that another cause of the delay is such that the ITS Contractor would have had an entitlement to an extension of time.
 - (f) RMS may in its absolute discretion for the benefit of RMS extend the time for Completion at any time and for any reason, whether or not the ITS Contractor has Claimed an extension of time. The ITS Contractor is not entitled to an extension of time for Completion under this paragraph (f) unless RMS exercises its discretion to extend the time for Completion.

7.2 Delays caused by RMS

The ITS Contractor's only remedy for delay, disruption or interference of any nature whatsoever caused by RMS (including for breach of Contract), whether under the Contract, according to Law or otherwise, is:

- (a) an extension of time for Completion under clause 7.1; and
- (b) **[ALT 1 – which will apply where the Works are being carried out on a Priced Component basis:** the actual, necessary, reasonable and direct costs unavoidably incurred by the ITS Contractor as a result of such delay, disruption or interference if and only if the ITS Contractor has taken all practicable steps to avoid or mitigate such costs.]

[ALT 2 – which will apply where the Works are being carried out on a Target Cost basis: an increase to the agreed estimate of Reimbursable Costs equal to the actual, necessary, reasonable and direct costs unavoidably incurred by the ITS Contractor as a result of such delay, disruption or interference if and only if the ITS Contractor has taken all practicable steps to avoid or mitigate such costs.]

[ALT 3 – which will apply where the Works are being carried out on a Cost Plus basis: not used.]

[Note: the alternative that applies will depend on the Payment Type specified in Item 12 of Schedule 1]

7.3 Delay to Completion

Nothing in this document affects or limits RMS' right to recover any loss, damage, cost or expense suffered or incurred by RMS (including in accordance with the Performance Framework) arising from or in connection with the ITS Contractor's delay in performing WUC, including the ITS Contractor's failure to achieve Completion by the Date for Completion.

8. SUSPENSION

8.1 RMS' suspension

- (a) In addition to RMS' rights under the General Conditions, RMS may instruct the ITS Contractor to suspend the carrying out of the whole or part of WUC and Temporary Work, and the ITS Contractor must comply.
- (b) The ITS Contractor must, as soon as reasonably practicable, resume carrying out WUC when instructed to by RMS.
- (c) If the need for the suspension arises from RMS' own act or omission which is not an act or omission:
 - (i) expressly permitted by this document or the Contract;
 - (ii) within a time frame expressly permitted by this document or the Contract; or
 - (iii) caused or contributed to by:
 - (A) the ITS Contractor's breach of this document or the Contract; or

- (B) any act or omission of the ITS Contractor or any person for whom the ITS Contractor is responsible,

then the ITS Contractor will be entitled to:

- (iv) an extension of time under clause 7.1; and
 - (v) (as an addition to the Works Fee) its reasonable, direct Site and off-Site costs of the suspension, unavoidably incurred, having taken all reasonable steps to minimise and mitigate such costs.
- (d) The ITS Contractor has no other remedies in connection with the suspension.

9. **WORKS FEE**

9.1 **The Works Fee**

- (a) RMS will pay the ITS Contractor the Works Fee as payment for the due and proper performance of WUC adjusted by any additions or deductions made pursuant to this document or the Contract.
- (b) The Works Fee will be payable in accordance with the Payment Schedule based on the Payment Type specified in Item 12.

9.2 **Entitlements**

- (a) Except as otherwise expressly stated under the General Conditions, the Works Fee is only to be increased if required under any of the following clauses:
 - (i) clause 1.3 (Temporary Work);
 - (ii) clause 1.4 (Work methods);
 - (iii) clause 4.1 (Ambiguities);
 - (iv) clause 5.2 (Things of value found);
 - (v) clause 6.4 (Testing);
 - (vi) clause 8.1 (RMS' suspension);
 - (vii) clause 10 of the General Conditions (Changes); and
 - (viii) clause 25.7 of the General Conditions (Interest on overdue monies).
- (b) The Works Fee may be decreased if required by this document or the General Conditions. Clauses that allow decreases in the Works Fee include:
 - (i) clause 4.1 (Ambiguities);
 - (ii) clause 6.5 (Defects);
 - (iii) clause 6.6 (Acceptance with Defects not made good); and
 - (iv) clause 10.3 (Defects Liability Period).
- (c) The ITS Contractor is not entitled to any other payments related to WUC whether under the Contract, according to Law or otherwise, except:

- (i) under clause 12.3;
- (ii) damages for breach of the Contract; or
- (iii) where this exclusion is not permitted by Law.

9.3 **Payment Claims**

- (a) The ITS Contractor may make Payment Claims for the Works Fee under clause 25.3 of the General Conditions.
- (b) The ITS Contractor warrants for itself and for and on behalf of its Subcontractors that no Encumbrance exists over any Materials incorporated into the Works.

10. **COMPLETION**

10.1 **Early use**

- (a) Before the ITS Contractor achieves Completion of the whole of the Works, RMS (and anyone authorised by RMS) may use or occupy any part of the Works which is sufficiently complete, or the whole of the Works. In those circumstances:
 - (i) the ITS Contractor's responsibilities are not affected except if RMS (or anyone authorised by it to use or occupy any part of the Works) causes the ITS Contractor's work to be hindered; and
 - (ii) RMS becomes responsible for any additional insurance required.
- (b) If RMS intends to use or occupy any part or the whole of the Works before the ITS Contractor achieves Completion of the whole of the Works, as provided in paragraph (a) above, RMS must give not less than 15 Business Days' notice in writing to the ITS Contractor that RMS will be using or occupying a part or parts, or the whole of the Works and must specify those parts, or that the whole of the Works is, to be so used or occupied.
- (c) The ITS Contractor must do everything necessary to provide to RMS promptly, but in any event no later than 15 Business Days after receipt of the notice in paragraph (b) above, all documents and other things relevant to the parts to be used or occupied, including those things listed in paragraphs (a) to (d) of the definition of Completion, and to otherwise provide full assistance and cooperation to RMS (and anyone authorised by RMS) in the use and occupation of the Works.

10.2 **Completion**

- (a) The ITS Contractor must achieve Completion by the Date for Completion.
- (b) When the parties agree that Completion has been achieved, each party acting reasonably, RMS must give the ITS Contractor a notice stating the Date of Completion.

10.3 **Defects Liability Period**

- (a) The Defects Liability Period commences on the Date of Completion.
- (b) During the Defects Liability Period:

- (i) RMS may instruct the ITS Contractor to make good Defects within the time specified in a Defect Notice and may state whether there will be a further Defects Liability Period in relation to that work (which may not exceed that specified in Item 6, commencing on the date the Defect is made good and governed by this clause 10.3);
 - (ii) if the ITS Contractor fails to make good the Defects in the time specified in the Defect Notice, the provisions of clauses 6.5(c) and 6.5(d) will apply; and
 - (iii) RMS may instruct a Change in connection with any Defect instead of requiring the Defect to be made good under clause 6.5(b).
- (c) This clause 10.3 does not reduce the ITS Contractor's liability, whether arising under the Contract, according to Law or otherwise. The ITS Contractor's liability continues until any limitation period under statute expires.
 - (d) This clause 10.3 does not affect RMS' rights under clause 6.6.

11. TERMINATION BY RMS

11.1 Termination for ITS Contractor's Work Terms Default

- (a) RMS may terminate this document for a ITS Contractor's Work Terms Default by giving notice, as set out in this clause 11.
- (b) In the case of ITS Contractor's Work Terms Default, RMS must first give notice to the ITS Contractor that it has 7 Business Days after the notice is given to the ITS Contractor to remedy the ITS Contractor's Work Terms Default.
- (c) If the ITS Contractor fails to give RMS a notice containing clear evidence that it has remedied a ITS Contractor's Work Terms Default, or fails to propose steps reasonably acceptable to RMS to remedy a ITS Contractor's Work Terms Default, RMS may give the ITS Contractor a notice terminating this document.
- (d) Nothing in this clause 11 affects or negates RMS' rights according to Law to terminate or for damages.
- (e) Nothing in this clause 11 affects the ITS Contractor's obligation to perform its obligations under the Contract that are separate from its obligations under this document.

11.2 Consequences of termination

If RMS terminates this document under this clause 11, it may at its sole discretion employ others to complete WUC the subject of this document and the following will then apply:

- (a) the ITS Contractor must leave the Site as soon as reasonably practicable and remove all Materials it has brought onto the Site, but must leave any Materials required by RMS to have the Works completed;
- (b) the ITS Contractor must assign to RMS the ITS Contractor's rights and benefits in all its contracts concerning WUC, warranties and bank guarantees, insurance bonds, other security of a similar nature or purpose and retention held by the ITS Contractor, with effect from the date of termination of this document;

- (c) the ITS Contractor must consent to a novation to RMS or its nominee of all Subcontracts and its other contracts concerning WUC, as required by RMS and must procure at the time of entering into each Subcontract and other contracts, the consent in writing of all of its Subcontractors to such novation;
- (d) the ITS Contractor must do everything and sign all documents necessary to give effect to this clause, and it irrevocably appoints RMS as its attorney to do this in its name if it fails to do so;
- (e) if, the cost of appointing others to complete WUC exceeds the amount that would have been paid to the ITS Contractor to complete WUC, then the difference will be a debt due by the ITS Contractor to RMS; and
- (f) RMS may make provisional assessments of the amounts payable to RMS under paragraph (e) and may deduct, withhold or set off any such amounts from amounts otherwise payable to the ITS Contractor under the Contract or from the Security given by the ITS Contractor to RMS under the Contract.

12. **TERMINATION BY RMS FOR CONVENIENCE**

12.1 **RMS may terminate this document for convenience**

RMS may terminate this document, by giving notice with effect from the date stated in the notice, for its convenience and without the need to give reasons.

12.2 **ITS Contractor's obligations**

- (a) The ITS Contractor must comply with any directions of RMS to wind down and stop work.
- (b) The ITS Contractor must leave the Site as soon as reasonably practicable and remove all Materials it has brought onto the Site, but must leave any Materials required by RMS to have the Works completed.

12.3 **Payments on termination for convenience**

- (a) After termination under clause 12.1, subject to its rights under the Contract, including any right of set-off, RMS must pay the ITS Contractor:
 - (i) for WUC carried out to the date the termination notice takes effect, after taking into account previous payments and any deductions, retentions or set-offs;
 - (ii) the cost of Materials reasonably ordered by the ITS Contractor for WUC which it is legally liable to accept, but only if on payment these unfixed Materials become the property of RMS, free of any Encumbrances;
 - (iii) the reasonable, direct costs of removal of any Temporary Works and other things from the Site incurred by the ITS Contractor, but only if the ITS Contractor complies with a strict duty to minimise and mitigate such costs;
 - (iv) an amount of 2% of the unpaid portion (after taking into account the amount payable under paragraphs (a)(i) to (iii)) of the Works Fee; and
 - (v) where the Works Fee includes payment of any Reimbursable Costs in accordance with the Amortised Cost Principle, such Reimbursable Costs for a period of 2 months following the date of termination.

- (b) The payments referred to in paragraph (a) are in full compensation for termination under this clause 12, and the ITS Contractor has no claim for damages or other entitlement whether under the Contract, according to Law or otherwise.

13. TERMINATION AND EXPIRY OF THE CONTRACT

13.1 Termination under clauses 7.4(a)(ii), 40 and 43 of the General Conditions

- (a) Subject to paragraph (b), if the Contract:
 - (i) terminates under clause 7.4(a)(ii) of the General Conditions; or
 - (ii) is terminated under clauses 40 or 43 of the General Conditions,
 - (iii) this document is terminated with effect at the date of termination of the Contract, and the relevant clauses of the General Conditions will apply.
- (b) This document will not terminate in the circumstances contemplated by paragraph (a), where:
 - (i) the Works have not achieved Completion;
 - (ii) the Defects Liability Period has not expired; or
 - (iii) all Defects notified prior to the expiry of the Defects Liability Period have not been made good.

13.2 Termination under clause 41 of the General Conditions

- (a) Subject to paragraph (b), if the Contract is terminated under clause 41 of the General Conditions, this document is terminated with effect at the date of termination of the Contract, and the relevant clauses of the General Conditions will apply.
- (b) This document will not terminate in the circumstances contemplated by paragraph (a), where, in a notice issued under clause 41.1(a) of the General Conditions, RMS specifies that the Works the subject of this document must be carried out and completed notwithstanding the termination of the Contract under clause 41 of the General Conditions.

13.3 Expiry of the Contract Term

To the extent that the ITS Contractor has not satisfied any of its obligations under this document prior to the expiry of the Contract Term, such obligations will survive the expiry of the Contract Term.

14. INTERPRETATION

14.1 Definitions

Unless otherwise specified, capitalised terms in this document have the meaning set out in the General Conditions. The following definitions apply in this document:

Claim means a claimed entitlement of the ITS Contractor under or arising out of or connected with WUC, in tort, in equity, under any statute, or otherwise. It includes a claimed entitlement to an extension of time or for breach of this document by RMS.

Completion mean the state of the Works or a Milestone (as applicable) being complete, except for Defects not known. This includes, in respect of the Completion of the whole of the Works, the ITS Contractor delivering to RMS:

- (a) all Subcontractor's warranties required under clause 4.5 (duly executed by the relevant Subcontractor and (if applicable) the ITS Contractor), any operating manual or maintenance manuals, licences, access codes, as-built drawings or work-as-executed drawings in respect of the Works;
- (b) all certificates, authorisations, approvals and consents relating to the Works required from any Authority;
- (c) those certificates required for the occupation, use and maintenance of the Works; and
- (d) all other documents, Testing, training and other requirements specified in the Contract in respect of the Works.

Contract means the document entitled " Intelligent Transport Systems Maintenance Contract - Metro East Zone" between RMS and the ITS Contractor dated 30 May 2014.

Date for Completion means the date (or the last day of the period) specified in Item 5 on, or by which, the ITS Contractor must achieve Completion of the Works or of a Milestone (as applicable), as may be adjusted under clause 7.1.

Date of Completion means the date on which Completion of the Works or of a Milestone (as applicable) is achieved by the ITS Contractor.

Defect means an error, omission, shrinkage, blemish in appearance or other fault in the Works or which affects the Works, which results from a failure of the ITS Contractor to comply with the requirements of this document or the Contract.

Defect Notice means a notice issued by RMS under clause 6.5(b) or 10.3(a) instructing that specified Defects be made good within a given period.

Defects Liability Period means the period specified in Item 6.

Design means:

- (a) all necessary design for or in respect of the Works, including the completion of any design which is described in RMS' Documents; and
- (b) if Item 10 specifies that RMS has carried out design prior to the Work Terms Commencement Date, any design which is described in RMS' Documents.

Designed, the Design, and other derivatives of Design have a corresponding meaning.

End Users means persons to be involved in using or occupying any part of the Works.

Fault means ambiguity, inconsistency, discrepancy, omission, error or other fault.

General Conditions means clauses 1 to 48 of the Contract.

Item means and Item of the Work Terms Information.

ITS Contractor's Documents means:

- (a) drawings, specifications, calculations and other documents and information, meeting the requirements of clause 4.2, which the ITS Contractor must produce

to Design and complete the Works in accordance with the requirements of this document and the Contract; and

- (b) documents which become ITS Contractor's Documents under this document, including RMS' Documents checked, accepted and adopted under clause 4.3.

ITS Contractor's Work Terms Default means a substantial breach by the ITS Contractor, including any of the following:

- (a) abandoning the carrying out of WUC;
- (b) suspending progress of the carrying out of WUC in whole or part without the written agreement of RMS;
- (c) significantly failing to achieve Scheduled Progress; or

failing to complete the Works or a Milestone (as applicable) by the Date for Completion.

Milestone means a part of the Works specified as such in Item 6.

RMS' Documents means the design and design work prepared by RMS in respect of the Works and included in the Specifications.

Scheduled Progress means the rate of progress to be achieved by the ITS Contractor in Designing and carrying out WUC, such that the ITS Contractor is proceeding with due expedition and without undue delay (other than a delay for which the Date for Completion is adjusted under this document), so that it will complete the Works and all Milestones by their respective Date for Completion.

Site means the lands and other places to be made available by RMS to the ITS Contractor for the purpose of executing WUC, and including any existing buildings, services or other improvements, as specified in Item 2.

Specifications means all documents listed in Item 7.

Temporary Work means temporary structures, amenities, physical services and other work, including Materials, ITS Contractor's Plant and equipment used in or in relation to the carrying out of WUC but not forming part of the Works.

Test means to examine, inspect, measure, prove and trial, including opening up of any part covered up, if necessary. Testing and other derivatives of Test have a corresponding meaning.

Work Terms Commencement Date means the date set out in Item 1.

Work Terms Information means the information set out in Schedule 1.

Works means the work to be Designed, constructed, supplied and commissioned (as applicable) by the ITS Contractor in accordance with this document, but excluding Temporary Work.

Works Fee means the amount specified in Item 11 for performing WUC, subject to adjustment in accordance with the Contract.

Works Program means the program described in clause 2.3.

WUC (from 'work under the Contract') means the work which the ITS Contractor is or may be required to carry out and complete under this document and includes Design, Changes, the making good of Defects and Temporary Works.

SCHEDULE 1

Work Terms Information

[Note: The parties will agree the terms of Schedule 1 for all Project Works]

No.	Work Terms Item	Details		Clause reference
Dates and times, Site and description of WUC				
1.	Work Terms Commencement Date			N/A
2.	Site			5, 14.1
3.	Scope of WUC To include: (a) relevant details of the scope of WUC, including details of RMS specifications applicable to the Works; and (b) a description of the purpose of the Works			1.1
4.	Agreed Lane Closures (if applicable)	1	Date for Lane closure: Period of Lane closure: Details (including location) of Lane closure:	2.3, 7.1
		2	Date for Lane closure: Period of Lane closure: Details (including location) of Lane closure:	

No.	Work Item	Terms	Details	Clause reference
		3	Date for Lane closure: Period of Lane closure:..... Details (Including location) of Lane closure:	
5	Date for Completion	Date for Completion Milestone 1 (if applicable) Description: Date for Completion: Milestone 2 (if applicable) Description: Date for Completion: Milestone 3 (if applicable) Description: Date for Completion:	10, 14.1
6	Defects Liability Period	12 months		10.3

No.	Work Item	Terms	Details	Clause reference
Documents				
7	Specifications <i>[Note: RMS to include all specifications required for the Works]</i>	Title	Exhibit Number	14.1
		<i>[RMS to insert]</i>	<i>[RMS to insert]</i>	
		<i>[RMS to insert]</i>	<i>[RMS to insert]</i>	
		<i>[RMS to insert]</i>	<i>[RMS to insert]</i>	
8	Number of copies of ITS Contractor's Documents to be provided to RMS: copies (5 applies if not filled in) <i>[Note: RMS to specify number of copies required]</i>		4.4(f)
Scope of Activities (Design and Construct)				
9	Extent of Design by the ITS Contractor	[ALT 1] All necessary design for or in respect of the Works, as described in RMS' Documents including but not limited to all design development, documentation and coordination of the design of the various engineering and architectural disciplines, workshop detailing and finalisation of the Design in all respects, in accordance with the Specifications. [ALT 2] No design responsibility - ITS Contractor to deliver Works in accordance with RMS' Documents and clause 4.2 does not apply.		4, 14.1
10	Responsibility for Design	Has RMS carried out design prior to the Work Terms Commencement Date?	[Yes / No] (No applies if not filled in)	4.3
Payments				
11	Works Fee	<i>[Note: Parties to insert details of the amounts that will be payable to the ITS Contractor for performance of the Works having regards to the Payment Type specified in Item 12]</i>		9.1, 9.2, 14.1

No.	Work Terms Item	Details		Clause reference
12	Payment Type	[Note: RMS to specify the Payment Type that will be applicable to the Project Works]		9.1
Miscellaneous				
13	Communication and Stakeholder Engagement	Requirements: [Note: RMS to insert]		2.6
14	Subcontractor warranty	Requirements: [Note: RMS to insert details of those Subcontractors (or areas of WUC) for which it requires the ITS Contractor to procure a subcontractor warranty]	(No applies if not filled in)	4.5

EXHIBIT 1

Specifications

[Note: The Specifications should be included as Exhibits to this document.]

SCHEDULE 13

KEY PERSONNEL

Name	Position
Ferdie Mostert	Management Review Group Member
Victor Hensley	Management Review Group Member
Jim Matangi	Program Manager
Paula McKnight	Mobilisation and Transition Manager
Ekatarina Sidorova	WHS & Environment Manager
David Fyvie	Asset Maintenance Planning Manager
Brijesh Sharma	Commercial Manager
Mark Gregory	Field Services Manager
Sheila Maidment	Stakeholder Consultation Lead
Clinton Ogier	Program Estimator
Rocky Wolters	ICMS Quality Assurance Manager

SCHEDULE 14

PROCEDURE FOR EXPERT DETERMINATION

1. GENERAL

- (a) The expert determination must be conducted:
 - (i) by an expert appointed in accordance with clause 2; and
 - (ii) in accordance with:
 - (A) the IAMA Expert Determination Rules; and
 - (B) the procedure set out in this Schedule 14.
- (b) To the extent of any inconsistency between the terms of this document and the IAMA Expert Determination Rules, the terms of this document prevail.
- (c) The parties must do all things reasonably necessary for the proper, expeditious and cost-effective conduct of the expert determination process.

2. APPOINTMENT OF THE EXPERT

- (a) The expert will be appointed by:
 - (i) agreement in writing between the parties; or
 - (ii) if such agreement is not reached within 10 Business Days of the issue of a notice under clause 36.5(b) of the General Conditions, the President of the Institute of Arbitrators and Mediators Australia.
- (b) The expert must:
 - (i) be independent and impartial; and
 - (ii) have appropriate technical, commercial and industry experience relevant to the issues in dispute.
- (c) The expert must disclose to the parties any:
 - (i) interest he or she has in the outcome of the determination;
 - (ii) conflict of interest;
 - (iii) conflict of duty;
 - (iv) personal relationship that the expert has with either party, or either party's representatives, witnesses or experts; and
 - (v) other fact, matter or thing which a reasonable person may regard as giving rise to the possibility of bias.

3. AGREEMENT WITH EXPERT

- (a) The expert will not be liable to the parties for anything arising out of, or in any way connected with, the expert determination process, except in the case of fraud.

- (b) The parties must enter into an agreement with the appointed expert on such terms as are reasonable having regard to the qualifications of the expert, the functions the expert is to perform, the expertise that the expert is to bring to the task and the responsibility that the expert is to undertake.

4. NOT ARBITRATION

- (a) An expert determination conducted under this Schedule 14 is not an arbitration and the expert is not an arbitrator.
- (b) The expert may reach a decision from his or her own knowledge and expertise.

5. PROCEDURE FOR DETERMINATION

The expert:

- (a) will not be bound by the rules of evidence;
- (b) must act fairly and impartially as between the parties, giving each party a reasonable opportunity to:
 - (i) put its case and deal with the case of any opposing party; and
 - (ii) make submissions on the conduct of the expert determination;
- (c) subject to clause 5(b), may;
 - (i) proceed in any manner he or she thinks fit;
 - (ii) conduct any investigation which he or she considers necessary to resolve the Dispute;
 - (iii) examine such documents, and interview such persons, as he or she may require and may make such directions for the conduct of the determination as he or she considers necessary; and
- (d) must not communicate with one party without the knowledge of the other party.

6. COSTS

Each party will:

- (a) bear its own costs in respect of any expert determination; and
- (b) pay an equal portion of the expert's costs.

7. CONCLUSION OF EXPERT DETERMINATION

- (a) Unless otherwise agreed between the parties, the expert must notify the parties of his or her decision upon an expert determination conducted under this Schedule 14 within 20 Business Days from the acceptance by the expert of his or her appointment or such longer period as the parties may agree.
- (b) Subject to clause 8(b), the parties must do all things necessary to give effect to and comply with the determination of the expert.

8. DETERMINATION OF EXPERT

- (a) The determination of the expert:

- (i) must be in writing and must include the expert's opinion with respect to the matters in question and the reasons for the decision; and
 - (ii) subject to paragraph (b), will be final and binding on the parties.
- (b) The determination of the expert will not be final and binding where:
- (i) the determination of the expert is in respect of a monetary amount in excess of \$500,000 (exclusive of GST); and
 - (ii) within 10 Business Days of the determination of the expert being notified to the parties:
 - (A) a party gives notice to all other parties that it is dissatisfied with the determination of the expert; and
 - (B) that party commences court proceedings in respect of the Dispute the subject of the determination of the expert,

in which case, the determination of the expert will be binding on an interim basis, and the parties agree to do all things necessary to give effect to and comply with the determination of the expert until the Dispute the subject of the determination of the expert is finally resolved by court proceedings.

SCHEDULE 15

FORM OF SECURITY BOND

On behalf of the Contractor

Name of Financial Institution:

The Principal:

The Contractor:

.....
ABN

Security Amount:

.....

The Contract:

Contract Name:

.....

Contract Number:

.....

Undertaking

1. At the request of the Contractor and the Financial Institution, and in consideration of the Principal accepting this *Undertaking* from the Financial Institution in connection with the Contract, the Financial Institution unconditionally undertakes to pay on demand any amount or amounts demanded by the Principal to the maximum aggregate sum of the Security Amount.
2. The Financial Institution unconditionally agrees that, if notified in writing by the Principal signed or purporting to be signed by the Principal or for and on behalf of the Principal that it requires all or some of the Security Amount, the Financial Institution will pay the Principal at once, without reference to the Contractor and despite any notice from the Contractor not to pay.
3. The Principal must not assign this *Undertaking* without the prior written agreement of the Financial Institution, which must not be unreasonably withheld.
4. This *Undertaking* continues until one of the following occurs:
 - (a) the Principal notifies the Financial Institution in writing that the Security Amount is no longer required;
 - (b) this *Undertaking* is returned to the Financial Institution;
 - (c) the Financial Institution pays the Principal the whole of the Security Amount, or as much as the Principal may require overall;
 - (d) 30th June 2019.
5. At any time, without being required to, the Financial Institution may pay the Principal the Security Amount less any amounts previously paid under this *Undertaking* (or a lesser sum specified by the Principal), and the liability of the Financial Institution will then immediately end.
6. This undertaking is governed and construed in accordance with the law of New South Wales (Australia).

Dated at

Execution by the Financial Institution:

SCHEDULE 16
DEED OF GUARANTEE AND INDEMNITY

Deed of Guarantee and Indemnity

Roads and Maritime Services

ABN 76 236 371 088

and

Tyco Projects (Australia) Pty Limited

ABN 70 092 471 737

and

Lend Lease Construction Australia Holdings Pty Limited

ABN 50 147 880 966



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THIS Deed is made on

2014

BETWEEN:

- (1) **Roads and Maritime Services** ABN 76 236 371 088 (the **Beneficiary**); and
- (2) **Tyco Projects (Australia) Pty Limited** ABN 70 092 471 737; and
Lend Lease Construction Australia Holdings Pty Limited ABN 50 147 880 966,
(jointly and severally the **Guarantor**).

RECITALS:

- (A) The Beneficiary has agreed to enter into the Contract with the Contractor on the condition that the Guarantor provides this Deed.
- (B) The Guarantor considers that by providing this Deed there will be a commercial benefit flowing to the Guarantor.

THE PARTIES AGREE AS FOLLOWS:

1. **INTERPRETATION**

1.1 **Definitions**

The following definitions apply in this document.

Contract means the deed dated on or before the date of this Deed between the Beneficiary and the Contractor entitled "Intelligent Transport Systems Maintenance Contract – Metro East Zone".

Contractor means LT Joint Venture Pty Limited ACN 169 720 718.

Contractor's Obligations means the due and punctual performance by the Contractor of all of its liabilities, obligations and agreements (present or future, actual or contingent) to the Beneficiary pursuant to or in connection with the Contract and each other Transaction Document but excluding all of the Contractor's Obligations with respect to payment of the Guaranteed Money.

Encumbrance means a mortgage, charge, pledge, lien, hypothecation, guarantee (including the guarantee under this Deed), indemnity, letter of credit, letter of comfort, performance bond or other avoidance against loss which secures any obligation which is or may be or becomes owing by any other Relevant Person to the Guarantor.

Government Agency means a government or government department, a governmental, semi-governmental or judicial person or a person (whether autonomous or not) charged with the administration of any applicable law.

Guaranteed Money means all money which the Contractor (whether alone or with any other person) is or at any time becomes actually or contingently liable to pay to, or for the account of, the Beneficiary on any account whatsoever under or in connection with the Contract or other Transaction Document including, without limitation, by way of interest, fees, costs, indemnities, charges, duties and expenses, or through payment of damages under or in relation to, or as a consequence of any breach or default of, the Contract or any other Transaction Document.

Guaranteed Obligations means the due and punctual payment of the Guaranteed Money and the due and punctual performance of the Contractor's Obligations.

Material Adverse Effect means, in respect of a person, a material adverse effect on:

- (a) its business, assets or financial condition; or
- (b) its ability to perform its obligations under any Transaction Document.

Relevant Person means the Contractor, the Guarantor and any person who has executed a Security in favour of the Beneficiary.

Security means a mortgage, charge, pledge, lien, hypothecation, guarantee (including the guarantee under this Deed), indemnity (including the indemnity under this Deed), letter of credit, letter of comfort, performance bond, or other assurance against loss which secures the Guaranteed Money, and whether existing at the date of this Deed or at any time in the future.

Specified Rate means 2% above the Overdraft Index Rate fixed from time to time by the Commonwealth Bank of Australia.

Tax means any present or future tax, GST, levy, impost, deduction, charge, duty, compulsory loan or withholding (together with any related interest, penalty, fine and expense in connection with any of them) levied or imposed by any Government Agency, other than any imposed on overall net income.

Transaction Document means each of:

- (a) this Deed;
- (b) the Contract;
- (c) the ITS Maintenance Transitional Agreement;
- (d) any other document which the Guarantor and the Beneficiary so designate in writing;
- (e) each other document contemplated by or required in connection with any of the above or the transactions they contemplate; and
- (f) each document entered into for the purpose of amending, novating, restating or replacing any of the above.

Unpaid Amount means an amount which is not paid on the date on which it is due and payable under this Deed.

1.2 **The Contract**

Defined words and expressions used in this Deed have the meanings given to them in the Contract.

1.3 **Interpretation**

In this Deed unless the context indicates a contrary intention:

- (a) if the "Contractor" is more than one person, "Contractor" means each of them severally and every two or more of them jointly;
- (b) if the Guarantor is more than one person, "Guarantor" means each of them severally and every two or more of them jointly;

- (c) "person" includes an individual, a body politic, a corporation and a statutory or other authority or association whether incorporated or unincorporated;
- (d) a reference to any party includes that party's executors, administrators, successors, substitutes and assigns, including any person taking by way of novation;
- (e) a reference to any document or agreement is to such document or agreement as amended, novated, supplemented or replaced from time to time;
- (f) the singular includes the plural (and vice versa) and words denoting a given gender include all other genders;
- (g) headings are for convenience only and do not affect interpretation; and
- (h) unless otherwise stated, a reference to any amount is a reference to all or part of the amount.

1.4 **No contra proferentem**

No term or provision of this Deed shall be construed against a party on the basis that the Deed or the term or provision in question was put forward or drafted by that party.

2. **GUARANTEE**

2.1 **Guarantee**

The Guarantor irrevocably and unconditionally guarantees to the Beneficiary:

- (a) the due and punctual payment by the Contractor of the Guaranteed Money; and
- (b) the due and punctual performance by the Contractor of all of the Contractor's Obligations.

2.2 **Payment of Guaranteed Money**

- (a) Subject to clause 2.2(b), if the Contractor does not pay the Guaranteed Money when due, the Guarantor must on demand pay to the Beneficiary the Guaranteed Money which is then due and payable.
- (b) An entity that comprises the Guarantor shall not be liable to pay to the Beneficiary any part or parts of the Guaranteed Money which have been paid to the Beneficiary by another entity that comprises the Guarantor.

2.3 **Perform obligations**

- (a) Subject to clause 2.3(b), if the Contractor defaults in the performance or observance of any of the Contractor's Obligations, the Guarantor shall, in addition to its obligations under clause 2.2 of this Deed, on demand from time to time by the Beneficiary, immediately perform (or procure the performance of) any of the Contractor's Obligations then required to be performed by the Contractor in the same manner and on the same terms as the Contractor is required to perform the Contractor's Obligations.
- (b) An entity that comprises the Guarantor shall not be responsible for performing the Contractor's Obligations to the extent that the relevant Contractor's obligations have been performed by another entity that comprises the Guarantor.

3. INDEMNITY

Subject to clause 3A, as a covenant separate and distinct from that contained in clause 2.1, the Guarantor irrevocably and unconditionally agrees to indemnify the Beneficiary and at all times to keep the Beneficiary indemnified against any loss or damage suffered by the Beneficiary arising out of or in connection with:

- (a) any failure by the Contractor to pay the Guaranteed Money duly and punctually; or
- (b) any failure by the Contractor to observe or perform any of the Contractor's Obligations; or
- (c) any Transaction Document being wholly or partly void, voidable or unenforceable against the Contractor for any reason and whether or not the Beneficiary knew or ought to have known of that reason, with the result in any such case that:
 - (i) sums which would (but for the voidness, voidability or unenforceability) have been Guaranteed Money are not recoverable by the Beneficiary under clause 2; or
 - (ii) obligations which would (but for the voidness, voidability or unenforceability) have been Contractor's Obligations are not guaranteed under clause 2.3; or
- (d) a disclaimer of any contract (including the Contract) or property made by a liquidator of the Contractor pursuant to Part 5.6 Division 7A of the *Corporations Act 2001* (Cth) or any other applicable laws.

3A. LIMITATION

- (a) Notwithstanding any other clause in this Deed but subject to paragraphs (b) and (c) below:
 - (i) the aggregate liability of the Guarantor under this Deed will not exceed the aggregate liability of the Contractor under the Contract;
 - (ii) the liability of the Guarantor under this Deed in respect of a breach of the Contract by the Contractor shall not be greater than the liability of the Contractor under the Contract in respect of the breach;
 - (iii) nothing in this Deed is intended to render the Contractor and the Guarantor liable for the same loss twice for the one breach of the Contract by the Contractor; and
 - (iv) payment by one of the Contractor or the Guarantor to or in favour of the Beneficiary shall be deemed to be good discharge against the Beneficiary in respect of that payment.
- (b) The limitation of liability under this clause 3A does not apply to liability to pay any GST in accordance with clause 7.3 of this Deed or otherwise.
- (c) Nothing in this clause shall limit the Guarantor's liability for Contractor's Obligations which arise from or would have arisen from unenforceable Contractor's Obligations referred to in clause 3(c) of this Deed (if those Contractor's Obligations had not been voided, avoided or unenforceable), subject to such liability not exceeding the liability that the Contractor would have had if the Contractor's Obligations had not been unenforceable Contractor's Obligations.

4. NATURE AND PRESERVATION OF LIABILITY

4.1 Absolute liability

The liability of the Guarantor under this Deed arises immediately on execution and delivery of this Deed by the Guarantor and:

- (a) arises notwithstanding that any person expressed to be a party to this Deed does not execute and deliver this Deed, that there is any invalidity, forgery or irregularity in the execution or purported execution of this Deed by any person, or that this Deed is or becomes unenforceable against any such person for any reason; and
- (b) is not conditional on the entering into by any other person of any other document or agreement which might benefit (directly or indirectly) the Guarantor, or on the satisfaction of any other condition.

4.2 Unconditional liability

Except to the extent contemplated by clauses 2.2(b) or 2.3(b), the liability of the Guarantor under this Deed will not be affected by any thing which, but for this clause 4.2, would release the Guarantor from or reduce that liability, including but not limited to:

- (a) (**Invalidity etc.**): any Security or any Transaction Document being terminated or discharged (whether by any party thereto or by operation of law) or being or becoming void, voidable or unenforceable for any reason;
- (b) (**Other Securities**): the Beneficiary accepting or declining to accept any Security from any person;
- (c) (**Time or indulgence**): the Beneficiary granting or agreeing with the Guarantor or the Contractor to grant time, waiver or other indulgence or concession to, or making any composition or compromise with any person whether or not pursuant to any Transaction Document;
- (d) (**Forbearance**): the Beneficiary not exercising or delaying in the exercise of any remedy or right it has at any time to terminate or enforce its rights under this Deed, any Transaction Document or any Security;
- (e) (**Variation**): any variation, novation or alteration to or substitution of this Deed, any Transaction Document or any Security, whether or not that variation, novation or alteration permits or results in a change in the Guaranteed Obligations including the amount of the Guaranteed Money or a change in the date by which it must be paid, or a change in the identity of the Contractor;
- (f) (**Release**): the partial or conditional release or discharge by the Beneficiary or by operation of law of any Relevant Person from its obligations under any Transaction Document or any Security except only to the extent that the Beneficiary has, in writing, provided a release or discharge which has the effect of reducing the obligations of the Relevant Person;
- (g) (**Securities**): the Beneficiary enforcing, releasing, disposing of, surrendering, wasting, impairing, destroying, abandoning, prejudicing, or failing or delaying to perfect, maintain, preserve, realise or enforce any Transaction Document or any Security, whether negligently or otherwise;
- (h) (**Accounts**): the opening or operation of any new account with the Beneficiary by the Contractor;

- (i) (**Change of constitution**): any change for any reason in the name or manner in which the Beneficiary or any Relevant Person carries on business, including any change in any partnership, firm or association of which the Beneficiary or any Relevant Person is a member;
- (j) (**Disclosure**): any failure by the Beneficiary to disclose to the Guarantor any material or unusual fact, circumstance, event or thing known by, or which ought to have been known by, the Beneficiary relating to or affecting any Relevant Person before or at any time after the date of this Deed;
- (k) (**Prejudicial conduct**): any breach by the Beneficiary of any term of any Transaction Document or Security or any other act or omission (negligent or otherwise) of the Beneficiary with regard to any Transaction Document, any Security or any Relevant Person which is prejudicial to the interests of the Guarantor;
- (l) (**Preference**): any claim by any person that a payment to, receipt by, or other transaction in favour of the Beneficiary in or towards satisfaction of the Guaranteed Money is void, voidable or capable of being set aside under any law relating to bankruptcy, insolvency or liquidation being upheld, conceded or compromised;
- (m) (**Assignment**): the transfer, assignment or novation by the Beneficiary or any Relevant Person of all or any of its rights or obligations under any Transaction Document or Security to which it is a party;
- (n) (**Death or incapacity**): (where the Guarantor is an individual) the death or mental incapacity of the Guarantor;
- (o) (**Administration**): the provisions of section 440J of the *Corporations Act 2001* (Cth) so operating as to prevent or delay:
 - (i) the enforcement of this Deed against the Guarantor; and/or
 - (ii) any claim for contribution against the Guarantor; or
- (p) (**Disclaimer**): a disclaimer of any contract (including the Contract) or property made by a liquidator of the Contractor pursuant to Part 5.6 Division 7A of the *Corporations Act 2001* (Cth) or other applicable laws.

4.3 **No marshalling**

The Beneficiary is under no obligation to marshal or appropriate in favour of the Guarantor or to exercise, apply, transfer or recover in favour of the Guarantor any Security or any funds or assets that the Beneficiary holds, has a claim on, or is entitled to receive.

4.4 **Void or voidable transactions**

If:

- (a) the Beneficiary has at any time released or discharged:
 - (i) the Guarantor from its obligations under this Deed or any Security executed by the Guarantor; or
 - (ii) any assets of the Guarantor from a Security,

in either case in reliance on a payment, receipt or other transaction to or in favour of the Beneficiary;

- (b) that payment, receipt or other transaction is subsequently claimed by any person to be void, voidable or capable of being set aside for any reason, including under a law relating to bankruptcy, insolvency or liquidation; and
- (c) that claim is upheld, conceded or compromised,

then:

- (d) (**Restitution of rights**): the Beneficiary will immediately become entitled against the Guarantor to all such rights (including under any Security) as it had immediately before that release or discharge;
- (e) (**Restore Beneficiary's position**): the Guarantor must immediately do all things and execute all documents as the Beneficiary may reasonably require to restore to the Beneficiary all those rights; and
- (f) (**Indemnity**): the Guarantor must indemnify and keep indemnified the Beneficiary against costs, losses and expenses suffered or incurred by the Beneficiary as a result of the upholding, concession or compromise of the claim.

4.5 **No double proof**

This Deed constitutes a guarantee of the whole of the Guaranteed Obligations, even if the Beneficiary and the Guarantor have agreed or agree at any time that the Guarantor's liability under this Deed will be limited to a maximum amount. Accordingly, the Guarantor is not entitled to:

- (a) lodge any proof of debt in the winding up of the Contractor;
- (b) exercise any right of subrogation; or
- (c) otherwise be entitled to the benefit of any Security held by the Beneficiary,

with respect to any claim arising as a result of the Guarantor making a payment under this Deed, unless and until the Guaranteed Obligations have been paid, discharged or recovered by the Beneficiary in full.

4.6 **Suspense account**

The Beneficiary may retain and carry to a suspense account and appropriate at the discretion of the Beneficiary any dividend received by the Beneficiary in the winding up of any Relevant Person, plus any other sums received by the Beneficiary on account of the Guaranteed Money, until the Beneficiary has received the full amount of the Guaranteed Money.

4.7 **Proof of debt in competition with Beneficiary**

The Guarantor must prove in the winding up of any Relevant Person in respect of any claim it has against that Relevant Person other than a claim arising as a result of the Guarantor making a payment under this Deed, and agrees to hold any dividend received in respect of that proof on trust for the Beneficiary in or towards satisfaction of the Guarantor's obligations under this Deed.

4.8 **Claim on the Guarantor**

The Beneficiary is not required to take any steps to enforce its rights under any Transaction Document or any Security before enforcing its rights against the Guarantor under this Deed.

4.9 **No representation by Beneficiary**

The Guarantor acknowledges that in entering into this Deed it has not relied on any representation, warranty or statement by the Beneficiary.

4.10 **No contribution**

The Guarantor must not make a claim under or enforce any right of contribution it may have against any other Relevant Person unless and until the Guaranteed Obligations have been paid, discharged or recovered by the Beneficiary in full.

5. **CORPORATE REPRESENTATIONS AND WARRANTIES**

5.1 **Representations and warranties**

If the Guarantor is a body corporate, it represents and warrants to the Beneficiary that:

- (a) (**Constitution**): the execution, delivery and performance of this Deed does not violate its constitution or any other document, agreement, law or rules by which it is bound;
- (b) (**Corporate power**): it has taken all action required to enter into this Deed and to authorise the execution and delivery of this Deed and the performance of its obligations under this Deed;
- (c) (**Filings**): it has filed all notices and effected all registrations with the Australian Securities and Investments Commission or similar office in its jurisdiction of incorporation and in any other jurisdiction as required by law, and those filings and registrations are current, complete and accurate;
- (d) (**Corporate benefit**): the execution of this Deed is in the best commercial interests of the Guarantor;
- (e) (**Consideration**): this Deed is executed for valuable consideration, the receipt and adequacy of which the Guarantor acknowledges;
- (f) (**Status**): it is not in liquidation, provisional liquidation or receivership, or under administration, and no matter relating to it or any of its subsidiaries is the subject of a direction under, or having effect as if it were a direction under, section 14 of the *Australian Securities and Investments Commission Act 2001* (Cth) ('**ASC Law**'), or the subject of an investigation under, or taken to be under, the ASC Law;
- (g) (**Ownership of property**): it has full legal capacity and power to own its property and assets and carry on its business as it is now being conducted;
- (h) (**Ranking of obligations**): this Deed constitutes a valid and legally binding obligation, enforceable in accordance with its terms, to rank at all times at least equally with all of its other present and future unsecured payment obligations (including, without limitation, contingent obligations), other than those which are mandatorily preferred by law and that the Guarantor has taken all action required to ensure that its obligations under this Deed so rank and will continue to so rank;
- (i) (**No litigation**): no litigation, arbitration or administrative proceedings are taking place, pending or, to the knowledge of any of its officers, threatened against it or any of its subsidiaries or any of its or their property which, if adversely determined, would be likely to have either separately or in aggregate a Material Adverse Effect on it or any of its subsidiaries;

- (j) **(Financial statements):** its financial statements current as at the date of this Deed have been prepared in accordance with the laws of Australia and (except where inconsistent with those laws) generally accepted accounting principles consistently applied, and give a true and fair view of the financial condition of it and its subsidiaries as at the date to which they are made up, and of the results of operations for the financial year then ended, and there has been no change since that date having a Material Adverse Effect on it, or on it and its subsidiaries on a consolidated basis;
- (k) **(Other information):** the written information and reports (if any) which it has given to the Beneficiary in connection with the negotiation and preparation of this Deed:
 - (i) was, when given, true and accurate in all material respects and not misleading, whether by omission or otherwise; and
 - (ii) contain forecasts and opinions all of which were made or formed after due and careful consideration on the part of its relevant officers based on the best information available to it and were fair and reasonable when made or formed; and
- (l) **(No filings or Taxes):** it is not necessary or desirable to ensure the legality, validity, enforceability or admissibility in evidence of this Deed that this Deed or any other instrument be filed or registered with any Government Agency or that any Taxes be paid.

5.2 **Reliance on representations and warranties**

The Guarantor acknowledges that the Beneficiary entered into the Contract in reliance on the representations and warranties in this clause 5.

5.3 **No representations to Guarantor**

The Guarantor confirms that it has not executed this Deed as a result of or in reliance upon any promise, representation, statement or information of any kind or nature whatever given or offered to it by or on behalf of the Beneficiary whether in answer to any inquiry by or on behalf of the Guarantor or not.

6. **PAYMENTS**

6.1 **On demand**

All money payable by the Guarantor under this Deed must be paid on demand by the Beneficiary in immediately available funds to the account and in the manner notified from time to time by the Beneficiary to the Guarantor.

6.2 **Payment in gross**

All money received or recovered by the Beneficiary on account of the Guaranteed Money will be treated as payments in gross.

6.3 **Appropriation of payments**

The Beneficiary may appropriate any money received by it under or in respect of this Deed, any Transaction Document or any Security in the manner and order and at all times as the Beneficiary in its absolute discretion determines.

6.4 Interest

The Guarantor must on demand by the Beneficiary from time to time pay interest on all Unpaid Amounts. Interest will accrue on those amounts from day to day from the due date up to the date of actual payment at the Specified Rate and, if not paid when due, will itself bear interest in accordance with this clause 6.4. Interest is calculated on the basis of the actual number of days on which interest has accrued and on a 365 day year.

6.5 Merger

If the liability of the Guarantor to pay to the Beneficiary any money under this Deed becomes merged in any judgment or order, then as an independent obligation the Guarantor must pay interest on the amount of that money at the rate which is the higher of that payable under clause 6.4 and that fixed by or payable under the judgment or order.

6.6 Withholding for Taxes

All payments by the Guarantor under this Deed will be without deduction or withholding for any present or future Taxes unless the Guarantor is compelled by law to make any deduction or withholding and if this is the case, the Guarantor must pay to the Beneficiary any additional amounts as are necessary to enable the Beneficiary to receive, after all those deductions and withholdings, a net amount equal to the full amount which would otherwise have been payable had no deduction or withholding been required to be made.

7. EXPENSES, STAMP DUTY AND GST

7.1 Expenses

The Guarantor must on demand indemnify and keep indemnified the Beneficiary against all reasonable expenses, including legal fees, costs and disbursements on a solicitor/own client basis, incurred by the Beneficiary in connection with the successful enforcement, attempted enforcement or preservation of any rights under this Deed.

7.2 Stamp duties

The Guarantor must:

- (a) **(Payment of all duties):** pay all stamp duties, registration and similar Taxes, including fines and penalties, financial institutions duty (if any) and debits tax (if any) in connection with the execution, delivery, performance, enforcement or attempted enforcement of this Deed or any payment or other transaction under or contemplated in this Deed; and
- (b) **(Indemnity):** indemnify and keep indemnified the Beneficiary against any loss or liability incurred or suffered by it as a result of the delay or failure by the Guarantor to pay Taxes.

7.3 Goods and Services Tax

- (a) Capitalised expressions which are not defined in this clause 7.3 but which have a defined meaning in the GST Law have the same meaning in this clause 7.3.
- (b) In this clause 7.3 and elsewhere in this Deed where relevant:
 - (i) **GST** means the goods and services tax imposed by the GST Law including, where relevant, any related interest, penalties, fines or other charge arising directly as a result of a default by the Guarantor of an obligation under this Deed;

- (ii) **GST Amount** means, in relation to a Payment, an amount arrived at by multiplying the Payment (or the relevant part of a Payment if only part of a Payment is the consideration for a Taxable Supply) by the prevailing rate of GST;
- (iii) **GST Law** has the meaning given to that term in *A New Tax System (Goods and Services Tax) Act 1999* (Cth) or, if that Act is not valid or does not exist for any reason, means any Act imposing or relating to the imposition or administration of a goods and services tax in Australia and any regulation made under that Act; and
- (iv) **Payment** means:
 - (A) the amount of any monetary consideration (other than a GST Amount payable under this clause 7.3); and
 - (B) the GST Exclusive Market Value of any non-monetary consideration, paid or provided by the Guarantor for any Supply made under or in connection with this Deed or the Contract and includes an amount payable by way of indemnity, reimbursement, compensation or damages.
- (c) The parties agree that:
 - (i) all Payments have been set or determined at an amount which is net of GST;
 - (ii) if the whole or any part of a Payment is the consideration for a Taxable Supply made by the Beneficiary, the GST Amount in respect of the Payment must be paid by, or on behalf of, the Guarantor to the Beneficiary as any additional amount, either concurrently with the Payment or as otherwise agreed in writing; and
 - (iii) the Beneficiary will provide a Tax Invoice, before any GST Amount is payable under this clause 7.3.
- (d) If a payment (including a Payment as defined in this clause 7.3) to the Beneficiary by the Guarantor under this Deed is a reimbursement or indemnification, calculated by reference to a loss, cost or expense incurred by the Beneficiary, then the payment will be reduced by the amount of any input tax credit to which the Beneficiary is entitled for that loss, cost or expense.

8. **ASSIGNMENTS**

The Beneficiary may at any time assign or otherwise transfer all or any part of its rights under this Deed to any person to whom it validly assigns the benefit of the Contract and may disclose to a proposed assignee or transferee any information in the possession of the Beneficiary relating to the Guarantor.

9. **GOVERNING LAW AND JURISDICTION**

9.1 **Governing law**

This Deed is governed by and will be construed in accordance with the laws of the State or Territory which govern the Contract.

9.2 Jurisdiction

- (a) **(Acceptance of jurisdiction):** The Guarantor irrevocably submits to and accepts, generally and unconditionally, the non-exclusive jurisdiction of the courts and appellate courts of the State or Territory whose laws govern this Deed with respect to any legal action or proceedings which may be brought at any time relating in any way to this Deed.
- (b) **(No objection to inconvenient forum):** The Guarantor irrevocably waives any objection it may now or in the future have to the venue of any action or proceeding, and any claim it may now or in the future have that any action or proceeding has been brought in an inconvenient forum.

10. MISCELLANEOUS

10.1 Certificate of Beneficiary

A certificate in writing of the Beneficiary certifying the amount payable by the Contractor or the Guarantor to the Beneficiary or stating any other act, matter or thing relating to this Deed, any Transaction Document or any Security will be prima facie evidence of the contents of the certificate.

10.2 Notices

Every notice or other communication to be given or made under or arising from this Deed:

- (a) must be in writing;
- (b) must be signed by a person duly authorised to do so by the sender;
- (c) will be deemed to have been duly given or made to a person if delivered or posted by prepaid post to the address, or sent by fax to the fax number of that person set out in clause 10.3 (or any other address or fax number as is notified in writing by that person to the other parties from time to time); and
- (d) will be deemed to be given or made:
 - (i) (in the case of prepaid post) on the fifth day after the date of posting;
 - (ii) (in the case of delivery by hand) on delivery; and
 - (iii) (in the case of fax) on receipt of a transmission report confirming successful transmission.

10.3 Address for notices

The addresses and fax numbers of the parties for the purposes of clause 10.2 are:

The Guarantor

Address: Level 4, 30 The Bond
30 Hickson Road
Millers Point NSW 2000

Fax No: (02) 9383 8154

Attention: David Saxelby, Chief Executive Officer - Construction & Infrastructure, Australia

With a copy to:

Address: Unit 38, 38 South Street
Rydalmere NSW 2116

Fax no: (02) 9947 7749

Attention: General Counsel

The Beneficiary

Address: Level 9, 101 Miller Street
North Sydney NSW 2060

Fax No.: (02) 8588 4134

Attention: Stephen Cowdery, General Manager, Contract Management Office
(With a copy to Christine Lithgow, General Counsel)

10.4 Continuing obligation

This Deed will be a continuing obligation notwithstanding any termination by the Guarantor, settlement of account, intervening payment, a disclaimer of any contract (including any Transaction Document) or property made by a liquidator of the Contractor pursuant to Part 5.6 Division 7A of the *Corporations Act 2001* (Cth) or other applicable laws, express or implied revocation or any other matter or thing, and continues to entitle the Beneficiary to the due and punctual payment of any of the Guaranteed Money which becomes due or owing or is incurred after termination, settlement of account, payment, revocation or other matter or thing until a final discharge has been given to the Guarantor.

10.5 Further assurance

The Guarantor will immediately on demand by the Beneficiary, and at the entire cost and expense of the Guarantor, perform all things and execute all agreements, assurances and other documents as the Beneficiary reasonably requires, to perfect or give effect to the rights and powers of the Beneficiary created, or intended to be created, by this Deed.

10.6 Form of demand

A demand on the Guarantor for performance under this Deed may be in the form and contain any information as the Beneficiary determines. Where the demand relates to the payment of Guaranteed Money it shall specify the amount demanded and the basis of the calculation.

10.7 Severability of provisions

If at any time any provision of this Deed is or becomes illegal, invalid or unenforceable in any respect under the law of any jurisdiction, that will not affect or impair:

- (a) the legality, validity or enforceability in that jurisdiction of any other provision of this Deed; or
- (b) the legality, validity or enforceability under the law of any other jurisdiction of that or any other provision of this Deed.

10.8 Remedies cumulative

The rights and remedies conferred by this Deed on the Beneficiary are cumulative and in addition to all other rights or remedies available to the Beneficiary by law or by virtue of any Transaction Document or any Security.

10.9 Waiver

- (a) Failure to exercise or enforce or a delay in exercising or enforcing or the partial exercise or enforcement of any right, power or remedy provided by law or under this Deed by the Beneficiary will not in any way preclude, or operate as a waiver of, any exercise or enforcement, or further exercise or enforcement of that or any other right, power or remedy provided by law or under this Deed.
- (b) Any waiver, consent or approval given by the Beneficiary under this Deed will only be effective and binding on the Beneficiary if it is given or confirmed in writing by the Beneficiary, or given verbally and subsequently confirmed in writing by the Beneficiary.
- (c) No waiver by the Beneficiary of a breach of any term of this Deed will operate as a waiver of another breach of that term or of a breach of any other term of this Deed.

10.10 Consents and approvals

Where under this Deed the consent or approval of the Beneficiary is required to any act or thing then, unless expressly provided otherwise in this Deed, that consent or approval may be given or withheld in the absolute and unfettered discretion of the Beneficiary.

10.11 Moratorium legislation

To the fullest extent permitted by law, the provisions of all legislation whether existing now or in the future, operating directly or indirectly:

- (a) to lessen or otherwise to vary or affect in favour of the Guarantor any obligation under this Deed; or
- (b) to delay or otherwise prevent or prejudicially affect the exercise of any rights or remedies conferred on the Beneficiary under this Deed,

are expressly waived and excluded.

10.12 Debit accounts and set-off

The Beneficiary may, without prior notice to the Guarantor, set-off any amount which is owing on any account whatsoever by the Beneficiary to the Guarantor against any liability of the Guarantor to the Beneficiary under this Deed. The rights of the Beneficiary under this clause 10.12 are without prejudice and in addition to any other right or remedy to which it is at any time entitled.

10.13 Counterparts

This Deed may be executed in any number of counterparts and by the different parties on different counterparts, each of which constitutes an original of this Deed, and all of which together constitute one and the same instrument.

10.14 Execution by less than all parties

This Deed binds each of the persons executing it notwithstanding:

- (a) that one or more of the persons named in this Deed as a Guarantor may not execute or may not become or may cease to be bound by this Deed; or
- (b) that the Beneficiary may not execute or may only subsequently execute this Deed.

10.15 Resolution of disputes binding

The settlement or the final resolution of any dispute arising under or in connection with the Contract, including any dispute as to the Contractor's liability under or in connection with the Contract, in accordance with the procedures provided for in the Contract or otherwise as agreed between the parties in the Contract, will be final and binding on the Guarantor and the Guarantor will not reopen, revisit or otherwise dispute that settlement or resolution and the subject matter of that settlement or resolution.

10.16 No right to be heard

To the fullest extent permitted by law, the Guarantor waives and expressly disclaims any right to be heard at or appear in any proceedings (whether judicial, arbitral, administrative or of any other nature including but not limited to any alternative dispute resolution) conducted for the purpose of settling or resolving or attempting to settle or resolve any dispute referred to in clause 10.15 or otherwise to be involved in the settlement or resolution of any such dispute.

10.17 Civil Liability Act

- (a) It is agreed that the operation of Part 4 of the *Civil Liability Act* 2002 (NSW) is excluded in relation to all and any rights, obligations and liabilities under this Deed whether such rights, obligations or liabilities are sought to be enforced as a breach of contract or a claim in tort or otherwise.
- (b) Without limiting the generality of clause 10.17(a), it is further agreed that the rights, obligations and liabilities of the Beneficiary and the Guarantor (including those relating to proportionate liability) are as specified in this Deed and not otherwise whether such rights, obligations and liabilities are sought to be enforced by a claim in contract, tort or otherwise.

EXECUTED as a deed.

Each person who executes this document on behalf of a party under a power of attorney declares that he or she is not aware of any fact or circumstance that might affect his or her authority to do so under that power of attorney.

SIGNED for ROADS AND MARITIME SERVICES (ABN 76 236 371 088), by its duly authorised officer, in the presence of:

Signature of officer

Signature of witness

Name

Name

EXECUTED by TYCO PROJECTS (AUSTRALIA) PTY LIMITED (ABN 70 092 471 737):

Signature of director

Signature of director/secretary

Name

Name

EXECUTED by LEND LEASE CONSTRUCTION AUSTRALIA HOLDINGS PTY LIMITED (ABN 50 147 880 966):

Signature of director

Signature of director/secretary

Name

Name

SCHEDULE 17

INSURANCE SCHEDULE AND POLICY SUMMARIES

	TYPES OF INSURANCES	MINIMUM SUM INSURED	PERIOD OF INSURANCE	INSURANCE COVER IS TO INCLUDE THE FOLLOWING
Principal Arranged Insurance (RMS)				
The details of the policy are provided in the AON certificate of currency. A copy of the policy may be inspected by appointment at the offices of RMS' insurance broker.				
1.	Contract works	Contract works – as per declared value	Duration of the works – covering RMS, ITS Contractor and subcontractors and other parties as specified in the works contract	RMS has arranged standard policies of insurance for contract works insurance (reinstatement cost) insurance under its principal-arranged insurance.
Excess for contract works	<p>The ITS Contractor is responsible for meeting the amount of any excess payable under the principal-arranged insurance. The excess amounts current at the date of this document are:</p> <ul style="list-style-type: none"> • Contract works value (up to \$5m) - \$15,000 each occurrence • Contract works value (between \$5m & \$20m) – \$50,000 each occurrence • Contract works value (between \$20m & \$50m) – \$100,000 each occurrence • Except tunnelling contracts – \$250,000 each occurrence <p>The ITS Contractor may effect insurance to cover the amount of these excesses.</p>			
2.	Public and products liability	Public and products liability - \$200m each and every occurrence for public liability claims and \$200m any one occurrence and in the aggregate for all occurrences for product liability claims	Duration of the works – covering RMS, ITS Contractor and subcontractors and other parties as specified in the works contract	RMS has arranged standard policies of insurance for contract works insurance (reinstatement cost) and third party liability insurance under its principal-arranged insurance.
Excess for public and product liability	<p>The ITS Contractor is responsible for meeting the amount of any excess payable under the principal-arranged insurance. The excess amounts current at the date of this document are:</p> <ul style="list-style-type: none"> • Public Liability - \$10,000 each occurrence • Worker to Worker Liability –\$50,000 each occurrence 			

	TYPES OF INSURANCES	MINIMUM SUM INSURED	PERIOD OF INSURANCE	INSURANCE COVER IS TO INCLUDE THE FOLLOWING
	<ul style="list-style-type: none"> • Products Liability – \$50,000 each occurrence • Underground Services – \$50,000 each occurrence <p>The ITS Contractor may effect insurance to cover the amount of these excesses.</p>			
3.	Professional indemnity	RMS has effected a principal professional indemnity policy for its own benefit.		
ITS Contractor Arranged Insurances				
4.	Motor vehicle comprehensive or third party property damage effected with an approved insurer as defined in Definitions and Notes clause 1 below	\$20 million for each and every occurrence	Annual	<p>(a) Motor Vehicles owned or used by the ITS Contractor or subcontractors directly or indirectly engaged in performance of the Services.</p> <p>(b) Is governed by the law of New South Wales and subject to Australian jurisdiction as defined in Definitions and Notes clause 2 below.</p> <p>(c) If applicable to this document – all plant and equipment owned or used by the ITS Contractor or subcontractors directly or indirectly in the performance of the Services.</p>
5.	Workers compensation effected with an approved insurer as defined in Definitions and Notes clause 1 below unless the ITS Contractor or subcontractors are licenced self-insurers for this risk in the relevant jurisdiction.	As per the relevant workers compensation legislation	Annual	As per State and Territory workers compensation legislation.

	TYPES OF INSURANCES	MINIMUM SUM INSURED	PERIOD OF INSURANCE	INSURANCE COVER IS TO INCLUDE THE FOLLOWING
6.	Professional indemnity	RMS will not set any requirements for the minimum sum insured for professional indemnity in this document. The ITS Contractor should make its own independent decision regarding their own professional indemnity requirements.		

Definitions and Notes:

1. Approved insurer means:
 - (a) An insurance company which is authorised by the Australian Prudential Regulatory Authority (APRA) to conduct general insurance business in Australia;
 - (b) An insurer licenced to write workers compensation insurance in the relevant jurisdiction; or
 - (c) Registration as required under the statutory regime governing workers compensation in in the relevant jurisdiction; or
 - (d) Lloyds Underwriters; or
 - (e) A Treasury Managed Fund insurance scheme with the NSW State Government; or
 - (f) The Comcover insurance scheme for the Australian Federal Government.

Note that where the insurance risk is insured by an insurer not listed in Note 1(a) or 1(b) then a 'fronting' placement is acceptable from an insurer listed in Note 1(a) or 1(b).
2. Insurances policies must be subject to the laws of an Australian State or Territory and subject to the jurisdiction of the courts of that Australian State or Territory.
3. A severability clause which provides:
 - (a) that the policy operates as if there was a separate policy of insurance covering each of the insureds;
 - (b) that each insured has access to the full limit of indemnity of the policy (subject to that limit of indemnity not thereby being increased);
 - (c) that the insurer will not impute pre-contractual non-disclosures or acts or omissions or states of knowledge of one insured to any other insured for the purposes of determining rights to indemnity; and
 - (d) that the liability of one insured to another insured is covered by the policy.

SCHEDULE 18

STATUTORY DECLARATION AND SUBCONTRACTORS STATEMENT

RMS Form No 592 (Modified)

Schedule

Statutory Declaration

I, _____ of

Insert name of Declarant

_____ do solemnly and sincerely declare that:

Insert address

1. I am a representative of _____ ("ITS Contractor") in the Office Bearer capacity of _____

Insert name of Contractor and ABN if applicable

2. The ITS Contractor is a party to a ITS Maintenance Contract with the Roads and Maritime Services in respect of the Metro East Zone ("Contract").

Insert position title of Declarant

3. Attached to and forming part of this declaration is a Subcontractor's Statement given by the ITS Contractor in its capacity as 'Subcontractor' (as that term is defined in the Workers Compensation Act 1987, Pay-roll Tax Act 2007 and Industrial Relations Act 1996) which is a written statement:

Insert name of Contract

- a. under the Workers Compensation Act 1987, section 175B, in the form and providing the detail required by that legislation;
- b. under the Pay-roll Tax Act 2007, Schedule 2 Part 5, section 18, in the form and providing the detail required by that legislation; and
- c. under the Industrial Relations Act 1996, section 127, in the form and providing the detail required by that legislation.

4. I personally know the truth of the matters which are contained in this declaration and the attached Subcontractor's Statement.

5. The obligations of the ITS Contractor under the Contract relating to Security of Payment, if any, including payment of employees, workers and subcontractors of the ITS Contractor have been complied with by the ITS Contractor.

6. The ITS Contractor has received from each of those subcontractors a statutory declaration and Subcontractor's Statement in equivalent terms to this declaration (made no earlier than 14 days before the date of this declaration).

7. All statutory declarations and Subcontractor's Statements received by the ITS Contractor from subcontractors referred to in clause 6 were:

- (a) given to the ITS Contractor in its capacity as 'Principal Contractor' as defined in the Workers Compensation Act 1987, the Pay-roll Tax Act 2007 and the Industrial Relations Act 1996 ('Acts'); and
- (b) given by the subcontractors in their capacity as 'Subcontractors' as defined in the Acts.

8. I am not aware of anything that would contradict the statements made in the statutory declarations and Subcontractor's Statements provided to the ITS Contractor by its subcontractors.

9. The period of the Contract covered by this declaration and the attached Subcontractor's Statement is from _____ to _____.
10. The ITS Contractor is not, under any law, insolvent or unable to pay its debts as and when they fall due.

Insert the relevant payment period

And I make this solemn declaration conscientiously believing the same to be true and by virtue of the provisions of the *Oaths Act 1900*.

Declared on _____ **at**
 Sydney in the State of New South Wales

[signature of declarant] _____

in the presence of an authorised witness, who states:

I, _____ a

[name of authorised witness] *[qualification of authorised witness]*

certify the following matters concerning the making of this statutory declaration by the person who made it: *[*please cross out any text that does not apply]*

1. *I saw the face of the person OR *I did not see the face of the person because the person was wearing a face covering, but I am satisfied that the person had a special justification for not removing the covering, and

2. *I have known the person for at least 12 months OR *I have confirmed the person's identity using an identification document and the document I relied on was _____
[describe identification document relied on]

[signature of authorised witness] *[date]*

SUBCONTRACTOR'S STATEMENT

REGARDING WORKER'S COMPENSATION, PAYROLL TAX AND REMUNERATION (Note1 – see back of form)

For the purposes of this Statement a "subcontractor" is a person (or other legal entity) that has entered into a contract with a "principal contractor" to carry out work.

This Statement must be signed by a "subcontractor" (or by a person who is authorised, or held out as being authorised, to sign the statement by the subcontractor) referred to in any of s175B *Workers Compensation Act 1987*, Schedule 2 Part 5 *Payroll Tax Act 2007*, and s127 *Industrial Relations Act 1996* where the "subcontractor" has employed or engaged workers or subcontractors during the period of the contract to which the form applies under the relevant Act(s). The signed Statement is to be submitted to the relevant principal contractor.

SUBCONTRACTOR'S STATEMENT (Refer to the back of this form for Notes, period of Statement retention, and Offences under various Acts.

Subcontractor: ABN:
(Business name)

of
(Address of subcontractor)

has entered into a contract with ABN:
(Business name of principal contractor) (Note 2)

Contract number/identifier (Note 3)

This Statement applies for work between:/...../..... and/...../..... inclusive, (Note 4)

subject of the payment claim dated:/...../..... (Note 5)

I, a Director or a person authorised by the Subcontractor on whose behalf this declaration is made, hereby declare that I am in a position to know the truth of the matters which are contained in this Subcontractor's Statement and declare the following to the best of my knowledge and belief:

- (a) The abovementioned Subcontractor has either employed or engaged workers or subcontractors during the above period of this contract. Tick [] if true and comply with (b) to (g) below, as applicable. If it is not the case that workers or subcontractors are involved or you are an exempt employer for workers compensation purposes tick [] and only complete (f) and (g) below. You must tick one box. (Note 6)
- (b) All workers compensation insurance premiums payable by the Subcontractor in respect of the work done under the contract have been paid. The Certificate of Currency for that insurance is attached and is dated/...../..... (Note 7)
- (c) All remuneration payable to relevant employees for work under the contract for the above period has been paid. (Note 8)
- (d) Where the Subcontractor is required to be registered as an employer under the *Payroll Tax Act 2007*, the Subcontractor has paid all payroll tax due in respect of employees who performed work under the contract, as required at the date of this Subcontractor's Statement. (Note 9)
- (e) Where the Subcontractor is also a principal contractor in connection with the work, the Subcontractor has in its capacity of principal contractor been given a written Subcontractor's Statement by its subcontractor(s) in connection with that work for the period stated above. (Note 10)

(f) Signature Full name.....

(g) Position/TitleDate/...../.....

NOTE: Where required above, this Statement must be accompanied by the relevant Certificate of Currency to comply with section 175B of the Workers Compensation Act 1987.

Notes

1. This form is prepared for the purpose of section 175B of the *Workers Compensation Act 1987*, Schedule 2 Part 5 *Payroll Tax Act 2007* and section 127 of the *Industrial Relations Act 1996*. If this form is completed in accordance with these provisions, a principal contractor is relieved of liability for workers compensation premiums, payroll tax and remuneration payable by the subcontractor.

A principal contractor can be generally defined to include any person who has entered into a contract for the carrying out of work by another person (or other legal entity called **the subcontractor**) and where employees of the subcontractor are engaged in carrying out the work which is in connection with the principal contractor's business.

2. For the purpose of this Subcontractor's Statement, a principal contractor is a person (or other legal entity), who has entered into a contract with another person (or other legal entity) referred to as the subcontractor, and employees/workers of that subcontractor will perform the work under contract. The work must be connected to the business undertaking of the principal contractor.
3. Provide the unique contract number, title, or other information that identifies the contract.
4. In order to meet the requirements of s127 *Industrial Relations Act 1996*, a statement in relation to remuneration must state the period to which the statement relates. For sequential Statements ensure that the dates provide continuous coverage.

Section 127(6) of the *Industrial Relations Act 1996* defines remuneration 'as remuneration or other amounts payable to relevant employees by legislation, or under an industrial instrument, in connection with work done by the employees.'

Section 127(11) of the *Industrial Relations Act 1996* states 'to avoid doubt, this section extends to a principal contractor who is the owner or occupier of a building for the carrying out of work in connection with the building so long as the building is owned or occupied by the principal contractor in connection with a business undertaking of the principal contractor.'

5. Provide the date of the most recent payment claim.
6. For Workers Compensation purposes an exempt employer is an employer who pays less than \$7500 annually, who does not employ an apprentice or trainee and is not a member of a group.
7. In completing the Subcontractor's Statement, a subcontractor declares that workers compensation insurance premiums payable up to and including the date(s) on the Statement have been paid, and all premiums owing during the term of the contract will be paid.
8. In completing the Subcontractor's Statement, a subcontractor declares that all remuneration payable to relevant employees for work under the contract has been paid.
9. In completing the Subcontractor's Statement, a subcontractor declares that all payroll tax payable relating to the work undertaken has been paid.
10. It is important to note that a business could be both a subcontractor and a principal contractor, if a business 'in turn' engages subcontractors to carry out the work. If your business engages a subcontractor you are to also obtain Subcontractor's Statements from your subcontractors.

Statement Retention

The principal contractor receiving a Subcontractor's Statement must keep a copy of the Statement for the periods stated in the respective legislation. This is currently up to seven years.

Offences in respect of a false Statement

In terms of s127(8) of the *Industrial Relations Act 1996*, a person who gives the principal contractor a written statement knowing it to be false is guilty of an offence if:

- (a) the person is the subcontractor;
- (b) the person is authorised by the subcontractor to give the statement on behalf of the subcontractor; or (c) the person holds out or represents that the person is authorised by the subcontractor to give the statement on behalf of the subcontractor.

In terms of s175B of the *Workers Compensation Act* and clause 18 of Schedule 2 of the *Payroll Tax Act 2007* a person who gives the principal contractor a written statement knowing it to be false is guilty of an offence.

For more information, visit the WorkCover website www.workcover.nsw.gov.au, Office of State Revenue website www.osr.nsw.gov.au , or Office of Industrial Relations, Department of Commerce website www.commerce.nsw.gov.au . Copies of the *Workers Compensation Act 1987*, the *Payroll Tax Act 2007* and the *Industrial Relations Act 1996* can be found at www.legislation.nsw.gov.au.

SUPPORTING STATEMENT

REGARDING PAYMENT TO SUBCONTRACTORS

This statement must accompany any payment claim served on a principal to a construction contract by a head contractor.

For the purposes of this statement, the terms "principal", "head contractor", "subcontractor", and "construction contract" have the meanings given in section 4 of the *Building and Construction Industry Security of Payment Act 1999*.

*Head contractor: [*business name of head contractor*] ABN [*insert ABN*] has entered into a contract with [*business name of subcontractor*] ABN [*insert ABN*], contract number/identifier [*insert*].

OR

*Head contractor [*business name of head contractor*] ABN [*insert ABN*] has entered into a contract with the subcontractors listed in the attachment to this statement.

*[*delete whichever of the above does not apply*]

This statement applies for work between [*start date*] and [*end date*] inclusive (the construction work concerned), subject of the payment claim dated [*date*].

I, [*full name*] being the head contractor, a director of the head contractor or a person authorised by the head contractor on whose behalf this declaration is made, hereby declare that I am in a position to know the truth of the matters that are contained in this supporting statement and declare that, to the best of my knowledge and belief, all amounts due and payable to subcontractors have been paid (not including any amount identified in the attachment as an amount in dispute).

Signature: _____ Date: _____

Full Name: _____ Position/Title: _____

(a) **Attachment to the Supporting Statement**

Schedule of subcontractors paid all amounts due and payable				
Subcontractor	ABN	Contract number/identifier	Date of works (period)	Payment claim dated (head contractor claim)

Schedule of subcontractors for which an amount is in dispute and has not been paid				
Subcontractor	ABN	Contract number/identifier	Date of works (period)	Payment claim dated (head contractor claim)

(b) **Notes for Supporting Statement**

Offences for False Statement

In terms of section 13(8) of the *Building and Construction Security of Payment Act 1999*, a head contractor who serves a payment claim accompanied by a supporting statement knowing that the statement is false or misleading in a material particular in the particular circumstances is guilty of an offence.

Further Information

These notes are not intended as legal advice and Contractors should obtain their own professional advice if they have any questions about this Statement or these Notes. Copies of relevant legislation can be found at www.legislation.nsw.gov.au.

SCHEDULE 19

RMS INTERFACE AGREEMENTS

The agreements listed and set out in this Schedule 19 are RMS Interface Agreements. All of these agreements were contained in the online data room for the Request for Proposals titled "Road Maintenance Contestability Reform Program ITS Maintenance Contracts (ITS MCs)".

The RMS Interface Agreements include the following agreements:

1. Maintenance Agreement between Blue Mountains City Council and the Roads and Traffic Authority of New South Wales dated 29 November 2005; and
2. Memorandum of Understanding between Ausgrid and the Roads and Traffic Authority of New South Wales and Department of Transport dated August 2011.

Maintenance Agreement between

RTA and Blue Mountains City Council

1 PURPOSE

The purpose of this document is to ensure that a common understanding exists between the Roads Traffic Authority (RTA) and Blue Mountains City Council in regard to maintenance responsibility for physical assets located within the road reserves.

This document applies within the Blue Mountains local government area and has effect from 1st December 2005 to 31st December 2008.

2 OBJECTIVE

The objective of this document is to clearly define the maintenance functions of the roads authority that are to be exercised by the RTA and Council.

It is also noted that the objective of this document is **not** to define:

- .1 The apportionment of project costs for enhancement works or new works. For information related to this subject consult the YELLOW BOOK.
- .2 Financial assistance grants to councils under section 207 and 208 of the ROADS ACT.
- .3 RTA assistance for declared natural disasters.
- .4 The exercise of RTA regulatory functions.

3 VARIATIONS

The general terms and conditions of this maintenance agreement are to be a subject to a revision at the completion of 12 months of operation from the commencement date.

Further refinement may occur subsequent to this date at the request of either party.

4 DEFINED TERMS

4.1 General

The terms and definitions contained in the ROADS ACT will apply to this document.

1 of 27

Maintenance Responsibility for Road Assets
Version: 1.1
Last updated November 2005

Effective date: 29/11/2005
Approved by: Neil Forrest - Sydney Asset Manager (RTA)

UNCONTROLLED WHEN PRINTED

Additional terms used in this document are indicated by way of small capitalisation (EXAMPLE) and have the meaning set out below.

4.2 Reference documents

Term	Definition
ROADS ACT	Means the Roads Act, 1993.
YELLOW BOOK	Means the RTA publication 'Arrangements with Councils for Road Management'.

4.3 Types of road

Term	Definition
ROADS AUTHORITY	Roads Act 1993 No 33 Part 1 Section 7
STATE ROADS	Administrative classification of road as defined in the YELLOW BOOK. Roads listed in Table 1.
REGIONAL ROADS	Administrative classification of road as defined in the YELLOW BOOK. REGIONAL ROADS are identified in the RTA's ROADLOC and spatial mapping systems as listed in schedule 2 of the Annual Block Grant Agreement.
LOCAL ROADS	Administrative classification of road as defined in the YELLOW BOOK.
ROAD WORKS	Roads Act 1993 No 33 Part 6
HIGHWAY	Roads Act 1993 No 33 Part 5 Division 1 Section 47
CLASSIFIED ROAD	Roads Act 1993 No 33 Part 5 Division 1
RESTRICTED ACCESS ROAD	Means lengths of road designated as freeway, transitway or controlled access road under the 'RESTRICTED ACCESS ROAD' as in Table 1.
PRIVATE ACCESS ROAD	Means the road, for the exclusive use of adjoining private property owners, to gain access to and from their land and a classified road.

4.4 Road cross-sections

Term	Definition
MOTORWAY	Means lengths of road designated as 'MOTORWAY' in Diagram 1 (See section 7)

Term	Definition
• FORMATION	Means lengths of road designated as 'FORMATION' in Diagram 1.
• KERB	Means lengths of road designated as 'KERB' in Diagram 1.

4.5 Assets and traffic

Term	Definition
• COUNCIL ASSETS	Certain assets designated as the responsibility of the Council and listed in Table 5
• RTA ASSETS	Certain assets designated as the responsibility of the RTA and listed in Tables 1, 2 & 4
• STATE TRAFFIC	Means through-traffic travelling on a TRAVELLED WAY.
• OTHER PARTY ASSETS	Certain assets designated as the responsibility of a third party and listed in Table 6
• NOMINAL WORK LIMITS	The physical limits within a road reserve that define the areas for which the RTA is generally responsible for maintenance are known as the nominal work limits (NWL). These NWL are shown diagrammatically in Section 7. It is noted that exceptions to this may apply and are defined in other sections of this document. The Roads that this applies to are listed in section 6.2 Table 1
• HINGE POINT	In the cross-section of a road, the point at which the batter, if extended, would intersect the verge. (refer Diagram 1)
• TRAVELLED WAY	The portion of the carriageway that is assigned to moving STATE TRAFFIC (not local traffic). Specifically it means the number of traffic lanes.

4.6 Maintenance activities

The following maintenance activities define the extent of work that is the responsibility of the named party. The responsibility for undertaking the different types of tasks, as described below, varies depending on the asset element under consideration.

Term	Definition
• CLEAN or CLEANING	Includes the removal of litter, abandoned vehicles and articles, debris, loose or deposited material from within or on the asset element to either improve safety, serviceability or the appearance of the asset element.
• FUND or FUNDING	Indicated party has the responsibility for funding works including planning, design, and repair work to the extent described but does not necessarily undertake the physical work.

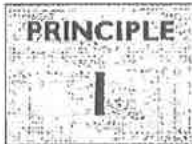
Term	Definition
• MAINTAIN or MAINTENANCE	Unless the context specifically restricts otherwise, scope of work includes all asset preservation and sustainable tasks necessary to keep each road or structure in a serviceable condition.
• OPERATE or OPERATION	These are the undertakings that provide day-to-day services on a continuing basis to road users. Includes the electrical, mechanical and service aspects of keeping an asset functioning as intended (eg operating a ferry service).
• REPAIR	Means the rectification of defects necessary to keep an asset element in a serviceable and sustainable condition but excludes REPLACEMENT and CLEANING.
• DEFECT	A defect is a fault, failure or other undesirable condition that may affect the safety, serviceability or structural capacity of the asset element.
• REPLACE or REPLACEMENT	Includes the complete removal of an asset element and reinstatement with new.

5 GENERAL PRINCIPLES

The following general principles provide practical guidance for reaching agreement on maintenance responsibility if the details provided in section 6 fail to adequately accomplish this aim.

These principles may not represent the total responsibility of either party but relate to common areas where shared responsibilities exist. Any Act or Regulation is unaffected, and common law rules and duties of care apply.

The principles:



General responsibility for roads

Council has maintenance responsibility for the road reserve of public roads, except:

- .1 Any freeway/motorway
- .2 Any State Work (as defined under section 52 of Roads Act 1993) and
- .3 Any public road for which some other public authority is declared to be the roads authority.

Council is the roads authority for all roads within the Blue Mountains LGA with the exception of Freeways.

The RTA may carry out work on a road:

- .a Where the RTA and Council have made an agreement under section 62 of the ROADS ACT.
- .b Where the Minister has directed under section 63 of the ROADS ACT.
- .c Under general powers under section 64 of the ROADS ACT.

The RTA exercises these functions to the extent necessary for the roads to perform a State arterial function.



RTA is responsible for the **TRAVELLED WAY**

The RTA is generally responsible for an asset where non rectification of a defect on that particular asset will adversely affect the :

- 1 Availability of a TRAVELLED WAY for travel.
- .2 Transport efficiency of STATE TRAFFIC.
- .3 Safety of pedestrians and traffic on a TRAVELLED WAY.

PRINCIPLE
3

Functional use of an asset

Responsibility for maintenance of an asset will generally correspond with the dominant use of the facility. Councils are generally responsible for maintenance where local traffic rather than STATE TRAFFIC primarily use a facility. Examples include service roads, off-road cycleways and pedestrian footways or footpaths.

The RTA is responsible for traffic lanes designated as clearways.

PRINCIPLE
4

Basic level of service

Generally the RTA manages assets under its care to a basic level of service or to a consistent standard (eg RTA M3 Short Term Intervention Standards).

A higher level of service may be agreed between RTA and Council on a site by site basis if required.

PRINCIPLE
5

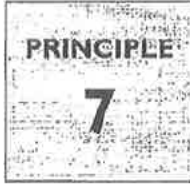
The responsibility for 'construction' may differ from the responsibility for ongoing 'maintenance'

The responsibility for maintenance may differ from construction due to policy, functionality, practicality and administrative simplicity. Where a party has responsibility for construction of an asset but not its ongoing maintenance (as described in Section 7, Diagrams 1 through 10), the newly constructed asset should generally be transferred to the other party at the time of practical completion, as notified in writing to the other party. However, a defects liability period will often apply after this date. The items to be transferred to Council are to be agreed upon before the final design is complete by the RTA. Handover of the constructed assets shall be by reasonable agreement in terms of the quality of the completed work.

PRINCIPLE
6

Make good damage

Where the RTA or Council perform construction, maintenance or other work which impacts on infrastructure assets under the control of the other party, the functionality of any element affected must be reinstated to at least a similar standard as existed previously.



Communication

Council and the RTA shall establish and maintain protocols to ensure good customer service delivery between the two parties and the general community in relation to the responsibility for asset maintenance,



Dispute resolution

The parties will attempt to resolve disputes speedily by negotiation in good faith.

Where the individual responsibilities for RTA and Council overlap and/or are not clearly defined, the respective responsibilities will be resolved by consultation using these principles as a basis of negotiation,

If a dispute cannot be resolved by negotiation between the parties the dispute will be referred for further discussion and negotiation to an appropriate senior executive nominated by each party. If the senior executives are unable to resolve the dispute within 14 days of commencement of discussion (or such longer time as is agreed between them), either party may refer the dispute to the Local Government/RTA Steering Committee, who will then endeavour to resolve it,

6 MAINTENANCE RESPONSIBILITY FOR STATE ROADS

6.1 Statutory context

Under section 62 of the ROADS ACT, the RTA and Council may enter into an agreement under which some or all of the functions of the roads authority with respect to a classified road become, to the extent provided by the agreement, the responsibility of the RTA.

Table 1 below defines the roads that are subject to this agreement and the maintenance responsibilities for the roads.

Section 62 (3) of the ROADS ACT states "This section does not limit the power of the RTA to exercise any function conferred on it by or under any other provision of the ROADS ACT with respect to a classified road."

6.2 Roads subject to this agreement

Table 1 – STATE ROADS

Road No.	Road Name	From	To	Side	Nominal Work Limits	OTHER COMMENTS
5	Great Western Highway	Governors Dr, Lapstone	Victoria Pass, Mount Victoria	Both	FORMATION /KERB	NWL of KERB generally apply in urban areas
184	Bells Line of Road/Darling Causeway/Station Street	Council Boundary at Berambing	SH5 Great Western Highway, Mount Victoria	Both	FORMATION /KERB	NWL of KERB generally apply in urban areas
570	Hawkesbury Road (Including parts of Macquarie Rd, George St, Silva Rd)	Council Boundary at Yarramundi, near Shaws Ck	SH5 Great Western Highway, Springwood	Both	FORMATION /KERB	NWL of KERB generally apply in urban areas
516	Chifley Road	Council Boundary at Dargan	MR184, Darling Causeway, Bell	Both	FORMATION	
6004	Motorway 4 (M4)	Knapsack Gully rail bridge, Leonay (Ccl Bdry)	Governors Dr, Lapstone	Both	MOTORWAY	Restricted access road

6.3 Maintenance functions exercised by RTA and Council

This section indicates the functions of the roads authority, to the extent described, that are exercised by the RTA and Council. The general maintenance responsibilities specified in s.6.3 may be refined or replaced by the specific information provided in Tables 2, 3, 4 & 5 & 6.

6.3.1 Specifically identified assets

- .1 RTA Assets The RTA MAINTAINS assets listed in Table 2 regardless of what may be implied or stated elsewhere in s6.3.
- .2 Council Assets The Council MAINTAINS assets listed in Table 3 regardless of what may be implied or stated elsewhere in s6.3.
- .3 Other Party Assets The RTA does not MAINTAIN assets listed in Table 6, regardless of what may be implied or stated elsewhere in s6.3.

6.3.2 Pavement, shoulders and paved areas

Description	Responsible Authority
.1 Road pavement and shoulders (within the NOMINAL WORK LIMITS)	RTA
.2 Bus stopping areas (sealed and unsealed)	RTA
.3 Overtaking, turning and acceleration lanes	RTA
.4 Rest areas (light vehicle and truck)	COUNCIL
.5 Stockpile (including access roads) sites listed in table 2	RTA
.6 On-road cycleways (adjacent to through carriageway and within the NOMINAL WORK LIMITS)	RTA
.7 Off-road cycleways (Off-road cycleway means that the cycleway is physically separate from the through carriageway.)	
Within MOTORWAYS	RTA
Other	COUNCIL
.8 Paved medians and traffic islands (within the NOMINAL WORK LIMITS)	RTA
.9 Footways and footpaths	
On RTA maintained bridges, within RTA maintained road tunnels and within the NOMINAL WORK LIMITS	RTA
Other	COUNCIL
.10 Service Roads, located parallel to a STATE ROAD that service local residents, and accepted by Council in the design process of RTA construction projects.	COUNCIL (Refer table 5)
.11 Access Ramps and Slip Lanes, on and off a State Road	RTA (Refer Diagram 4)

6.3.3 Vegetation

Description	Responsible Authority
.1 Vegetation control to ensure safe travel on State Roads including grass cutting, lopping, trimming and removal of trees and shrubs)	RTA
.2 Grassed or landscaped medians and traffic islands	RTA
.3 Noxious or environmental weeds –	
Within MOTORWAY	RTA
Within NOMINAL WORK LIMITS	RTA
.4 Landscaped areas outside kerb (Maintenance includes watering, weeding, minor tree surgery as required, and such other action as is necessary to ensure that the areas will be neat and attractive.)	COUNCIL
Within town centres	COUNCIL
Between towns where landscape has been disturbed as a result of a highway upgrading projects (until vegetation is re-established)	RTA
Between towns where landscape has not been disturbed by highway upgrading project	COUNCIL
<i>Note: all items refer to after the agreed maintenance period for a project has lapsed</i>	
.5 Bushfire control within MOTORWAY	RTA
.6 Roadside growth adjacent to National Parks or nature reserves	The RTA continues to MAINTAIN roadside growth as per s.6.3.3.1 but shall consult with the NPWS before removing trees.

6.3.4 Pests, litter, detritus and obstacles

Description	Responsible Authority
.1 Removing roadside litter, loose material and debris	
Within MOTORWAY	RTA
Kerb, gutters and intersection within NOMINAL WORK LIMITS on STATE ROADS	RTA
Blocking or interfering with drainage of STATE ROAD	RTA

Description	Responsible Authority
From within landscaped areas maintained by RTA	RTA
From within landscaped areas maintained by COUNCIL	COUNCIL
From within RTA ASSETS	RTA
From within COUNCIL ASSETS	COUNCIL
Generally, litter removal for aesthetic reasons is councils' responsibility (except as otherwise indicated above).	
.2 Removal and disposal of carcasses	
Within MOTORWAY	RTA
Other	COUNCIL
.3 Graffiti and poster removal	
RTA Assets	RTA
COUNCIL Assets	COUNCIL
Note: The term 'Graffiti' includes posters and stickers.	
.4 Abandoned, illegally parked, vehicles or articles	
That obstruct STATE TRAFFIC	RTA
If abandoned article does not constitute a danger or obstruction to traffic	COUNCIL
.5 Roadside hazard elimination. The RTA is responsible for the progressive elimination from the roadside of hazardous fixed objects that STATE TRAFFIC are exposed to such as drainage structures, steep slopes, trees and other obstructions.	

6.3.5 Drainage

Description	Responsible Authority
.1 Gully pits and associated pipes	RTA
.2 Transverse drainage	RTA
.3 Longitudinal stormwater drainage systems (including associated gully pits, junctions and sumps that are installed predominantly for the drainage of discharge from within the NOMINAL WORK LIMIT.	Combined drainage system - RTA/COUNCIL

Description	Responsible Authority
.4 Cross channels controlled by others	The owning authority
.5 Kerb and guttering	RTA
.6 Drainage structures across private access roads located within the NOMINAL WORK LIMITS for MOTORWAY or FORMATION.	RTA
.7 Surface drains within motorway or where function is predominately to protect the road formation, either by draining discharge away from the NOMINAL WORK LIMITS (eg table drains) or prohibiting discharge from entering the NOMINAL WORK LIMITS (eg catch drains).	RTA
.8 Subsurface drains provided solely for the protection of the road formation of STATE ROADS.	RTA
.9 Stormwater improvement devices For MOTORWAY or FORMATION Kerb or Lane	RTA Jointly RTA/COUNCIL dependent on ratio of runoff from within the NOMINAL WORK LIMITS and remainder of catchment, or as agreed between RTA and COUNCIL.
.10 Floodways within NOMINAL WORKS LIMIT	RTA

6.3.6 Structures and slope stability

Description	Responsible Authority
<p>.1 Structural stability of cut/fill batters and retaining walls:</p> <p>MOTORWAY and FORMATION: cut/fill batters and retaining walls to ensure structural integrity necessary to support ROAD FORMATION AND STATE TRAFFIC or where the need for the batter or retaining walls was created by the construction of the MOTORWAY or FORMATION ROAD.</p>	RTA
<p>KERB and LANE: cut/fill batters and retaining walls to ensure structural integrity necessary to support ROAD FORMATION and STATE TRAFFIC or where consequences of failure will impact directly on STATE TRAFFIC</p>	RTA
<p>.2 Rock falls and slips:</p> <p>Within the NOMINAL WORK LIMITS.</p>	RTA
<p>Unstable slopes in order to prevent rock falls and slips where debris is likely to fall within the NOMINAL WORK LIMITS. See also s.5.3.6.1.</p>	RTA
<p>.3 Cut/fill batters surface scour and lack of vegetation cover within the NOMINAL WORK LIMITS.</p>	RTA
<p>.4 Noise barriers that function to ameliorate STATE TRAFFIC noise</p>	RTA
<p>.5 Road tunnels through which a STATE ROAD passes.</p>	RTA
<p>.6 Bridges and bridge sized culverts:</p> <p>That form part of a STATE ROAD (including bridge, expansion joints, associated components and abutments)</p>	RTA
<p>On LOCAL or REGIONAL ROADS that cross a STATE ROAD</p>	RTA
<p>Road approaches to bridges, road surface on bridge on local or regional roads that cross a state road.</p>	COUNCIL
<p>Foot bridges</p>	RTA

6.3.7 Fencing and Barriers

Description	Responsible Authority
-------------	-----------------------

Description	Responsible Authority
.1 Boundary fencing: Where an existing agreement with landowner states that this is the case.	RTA
For RESTRICTED ACCESS ROADS the RTA is responsible for boundary fencing	RTA
.2 Pedestrian grab rails or safety fences	
Within central medians	RTA
Adjacent between STATE ROAD and LOCAL ROAD	RTA – Fronting State Road
	COUNCIL – Fronting Local Road
.3 Fauna fencing that functions to prevent native fauna from crossing STATE ROADS	RTA
.4 Fauna under /overpasses that function to prevent native fauna from crossing STATE ROADS, and risking collision with vehicles	RTA
.5 Safety barriers	
Attached to RTA maintained bridges	RTA
Where there is a nexus for the need for the fencing or handrail with the highway	RTA
Safety barriers where it is located on the outside of council maintained:	
.1 Road pavement.	COUNCIL/RTA Refer table 2
.2 Cycleway.	
.3 Footway or footpath including approaches to RTA maintained bridges.	

6.3.8 Signs and delineation

Description	Responsible Authority
.1 Signs installed to warn, direct or inform public travelling, exiting or entering a STATE ROAD.	RTA see diagram 10
Signs erected on RTA bridge structures and associated advance load restriction signs	RTA
Signs and devices associated with pedestrian school crossings.	RTA

	Description	Responsible Authority
	Other signs specifically listed as RTA ASSETS.	RTA
	Street and road name signs of Type G5-1 (as in AS 1742) and information	COUNCIL
	Town entry signs erected by Council.	COUNCIL
.2	Unauthorised third-party signs, posters and structures:	
	On RTA ASSETS where RTA has not given concurrence (see section 138 of the ROADS ACT).	RTA
	On Council ASSETS where Council has not given concurrence	COUNCIL
	Or where the opinion of the RTA the work or structure is a traffic hazard	RTA
.3	Pavement delineation:	
	Provided for the operation of STATE TRAFFIC (see Diagram 9 and 10).	RTA
	Associated with traffic movements at intersections for up to 50 metres on side roads from through kerb line (see Diagram 9 and 10).	RTA
.4	Guide posts and reflectors on State Roads	RTA

6.3.9 Operation and use

	Description	Responsible Authority
.1	Railway level crossings approach road warning signposting, delineation and safety barriers for road safety.	RTA – on STATE Road <i>Note: There are no level crossings on State Roads within BMCC</i> COUNCIL – on Local Road
.2	Traffic control signals and associated systems including facilities associated with traffic and pedestrian movements at intersection for up to 50 metres from through kerb line on side roads (see Diagram 9).	RTA
.3	Road lighting for highway user and pedestrian safety at required areas and intersections – including capital cost and ongoing running costs	RTA (until completion of RTA policy on matter)
.4	Highway Furniture	
	When safety or traffic management related eg. Bollards	RTA
	When general community facility eg. Bus shelters.	COUNCIL

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Maintenance Responsibility for Road Assets

Version: 1.4

Last updated November 2005

Effective date: 29/11/2005

Approved by: Neil Forrest - Sydney Asset Manager (RTA)

UNCONTROLLED WHEN PRINTED

6.4 Local variations / clarification of functions

Table 2 – Additional functions or clarification of functions that are to be exercised by RTA (additional to limits of responsibility described in s6.3)

Description of asset	Additional functions or clarification of functions that are to be exercised by the RTA
Great Western Highway	Litter collection on verges visible from the road limited to 4 scheduled visits annually Additional Patrols
Bells line of Road/ Darling Causeway	Litter collection on verges visible from the road limited to 2 scheduled visits annually Additional Patrols
Hawkesbury Road	Litter collection on verges visible from the road limited to 2 scheduled visits annually Additional Patrols
Steel pedestrian footway attached to retaining wall at Linden	All maintenance
Retaining walls at Warrimoo	Stability
Retaining wall at Faulconbridge near St Georges Cres	Stability and Graffiti
Retaining wall at Faulconbridge near Meeks Cres	Stability
Great Western Highway	Grass mowing of verge Mount Street, Lapstone
Great Western Highway	Grass mowing of verge Ferguson Road to Coomassie shops WB
Great Western Highway	Grass mowing of verge at Queens Road, Katoomba until reconstruction is complete.
Great Western Highway	Landscape maintenance of verge to cutting face Bulls Camp to Woodford Station both directions
Cycle fence Centenary bridge Parkes Cres to WB at Faulconbridge	All maintenance
Great Western Highway	Maintain GPT at Meeks Cres/Russel Ave, Faulconbridge
Great Western Highway	Maintain GPT at Parkes Cres, Faulconbridge
Great Western Highway	Maintain pavement and islands heavy vehicle checking area and U-turn bay near Martin Place, Linden including landscaping
Great Western Highway	Maintain pavement and islands heavy vehicle checking area near Mt Boyce Weigh Station, Soldiers Pinch including landscaping
Stockpile site at Bullaburra	Maintain including litter removal
Stockpile site at Soldiers Pinch	Maintain including litter removal – to be rehabilitated and returned to council

Description of asset	Additional functions or clarification of functions that are to be exercised by the RTA
Retention basins at Soldiers Pinch	All maintenance
Retention basins at Linden Bends	All maintenance
Retention basin at Shell Corner	All maintenance
Retention basins at Woodford Bends	All maintenance
Retention Basin at Valley Heights near Sun Valley intersection	All maintenance

Table 3 – Functions of the roads authority, to the extent described, that rest with Council (replaces limits of responsibility described in s6.3)

Description of asset	Functions of roads authority the responsibility of council
Pedestrian subway at Lawson	Lighting and removal of graffiti.
Ramp to Hazelbrook railway station	All maintenance –scheduled to be removed 2005/06 as part of SH5 upgrade
Great Western Highway	Sorenson Bridge Leura – Landscaping (Digger Cooper Reserve)
Pedestrian subway at Lawson	Graffiti and lighting

6.5 Specifically identified assets

The information in Table 4, 5 and 6 either supplement the limits of responsibility described in s6.3 or replaces requirements described in s6.3.

Table 4 – RTA Assets

Description of asset	Location(s)
Knapsack Gully Bridge	Lapstone
Pedestrian tunnel	Lapstone (RAAF base)
Bridge over SH5	Fletcher Street, Glenbrook ¹⁾
Parking bays SH5	Blaxland Shopping Centre
SH5 Bridge over service road and railway line	Near the Avenue Warrimoo
Bus Bay SH5	Warrimoo Railway Station
Tollgate Drive bridge over SH5	Linden
SH5 bridge over railway line	Near Bulls Camp Reserve

Description of asset	Location(s)
Bridge over SH5	The Appian Way Woodford
Old highway bridge over railway line	Lawson at Somers St
Pedestrian Tunnel	Lawson Structure only
Road Underpass and Structure	Leura
Bridge over railway line	Katoomba (Shell Corner)
Bridge over SH5 at Shell Corner	Katoomba (Shell Corner) at Old Bathurst Rd
SH5 bridge over railway line	Medlow Bath
Bridge over railway line	Mt Victoria near Victoria falls Road

¹⁾ Subject to Council providing "as built" drawings and maintenance history for the structure

Table 5 – COUNCIL ASSETS

Description of asset	Location(s)
Level crossing	Falconbridge (shared with RIC)
Yeoman Bridge	Katoomba
Level crossing	Blackheath (shared with RIC)
Service Bay/Information Bay	Glenbrook (near information centre)
Ramp from Rural Fire Service onto SH5 East bound – Eley Hawkins Drive	Warrimoo
Access Road West Bound – Station Street	Woodford
Access Road East Bound – Station Street	Woodford
Access Ramp from Station Street onto SH5	Medlow Bath
Trees within parking area, eastbound between Hat Hill Road and Gardiner Cr	Blackheath
Macquarie Monument	Blackheath
Palm trees in blisters and median landscaping Hope St to View St	Blaxland

Table 6 – OTHER PARTY ASSETS

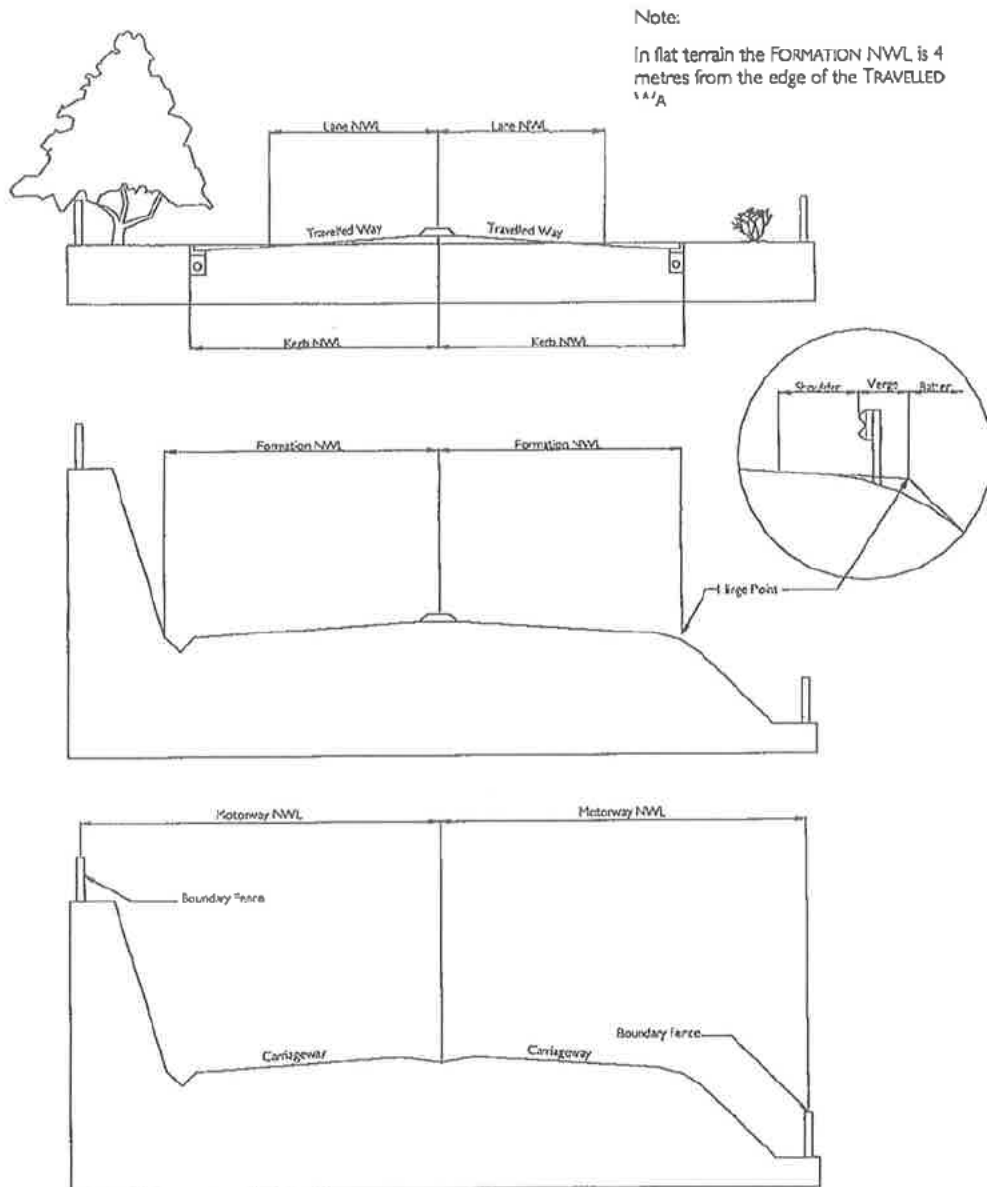
Description of asset	Owner	Location(s)
SH5 bridge over railway line	RIC	near Street Johns Road, Blaxland
Bridge over railway line	RIC	Green Parade Valley Heights
Railway Bridge over Macquarie Road	RIC	Springwood

Description of asset	Owner	Location(s)
Level crossing	RIC	Faulconbridge (shared BMCC)
SH5 West Bound bridge over railway line	RIC	Near Martin Pl, Linden West Bound
Bridge over railway line	RIC	Park road Woodford
SH5 bridge over railway line	RIC	Near Somers Street, Lawson
Railway Bridge over SH5	RIC	Paul Sorenson Bridge Leura
Pedestrian bridge over railway	RIC	Medlow Bath
Bridge over railway line	RIC	Blackheath (Station Street onto SH5)
Level crossing	RIC	Blackheath (shared with BMCC)
SH5 bridge over railway line	RIC	At Mt Victoria
MR1B4 bridge over railway line	RIC	At Bell
Old Highway Bridge over Railway Line	RIC	Lapstone
Tollgate Drive bridge over Railway Line	RIC	Linden
Great Western Highway	RIC	Sorenson Bridge Leura – Rock retraining wall
San Jose bridge	RIC	Lawson
Bridge over railway line	RIC	Mt Victoria near Victoria falls Road

7 DIAGRAMS

Diagram 1 – Cross section for Lane, Kerb, Formation and Motorway Nominal Work Limits

Lane, Kerb, Formation and Motorway NWL - Cross Sections



- * Lane, Kerb, Formation and/or Motorway NWL does not imply RTA maintenance responsibility (refer to MI for further clarification).
- * LANE, KERB, FORMATION and/or MOTORWAY NWL does not imply RTA maintenance responsibility (refer to MI (6 to 16) for further clarification).

Diagram 2 – Lane and Kerb Nominal Work Limits (State road traffic)

Lane and Kerb NWL - State road traffic

- Within NWL
- Not within NWL

Note:
 1. May include adjacent lanes signposted as clearway or having other parking restrictions imposed to provide traffic or passing opportunity for peak hour demands; and adjacent lanes catering predominantly for State road traffic appropriate for the traffic volumes.
 2. May include 24 hour parking lanes, local service roads, and unreserved or sealed road shoulders.
 3. May include bus stopping areas, turning and acceleration/deceleration lanes essential to preserve State road traffic flow or safety; adjacent overtaking lanes, or other lanes and areas defined in 21/1/05.
 4. Kerbs excluded for Lane NWL

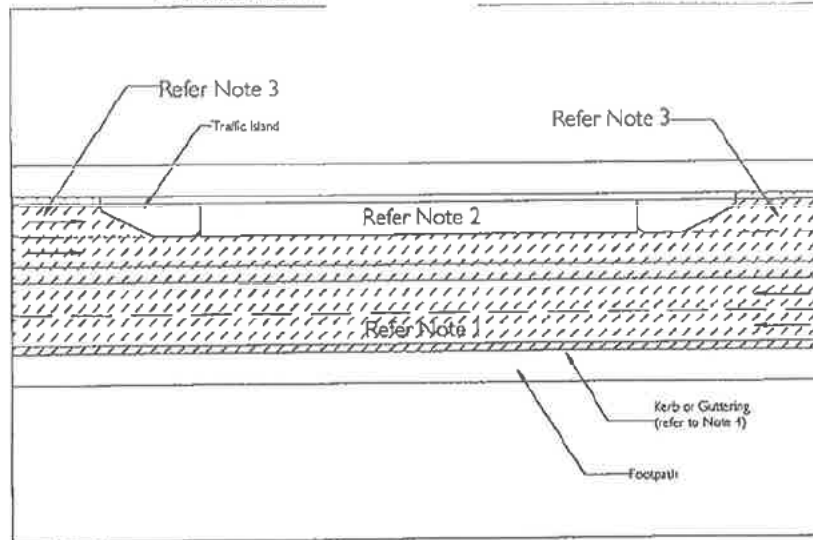


Diagram 3 – Kerb Nominal Work Limits (Minor intersection on State and Regional/Local Road)

Kerb NWL - Minor Intersection: State and Local/Regional Roads

- Within NWL
- Not within NWL

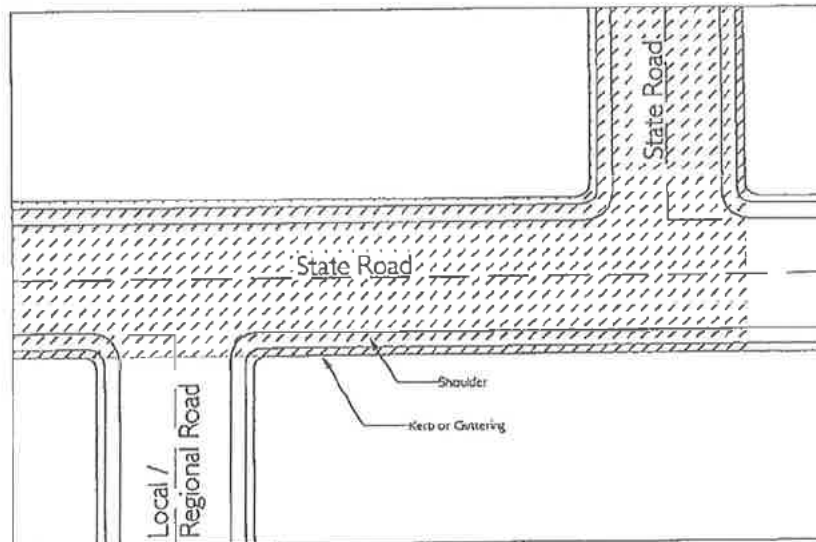


Diagram 4 – Kerb Nominal Work Limits (Major intersection on State and Regional/Local Road)

Kerb NWL - Major Intersection: State and Local/Regional Roads

- Within NWL
- Not within NWL

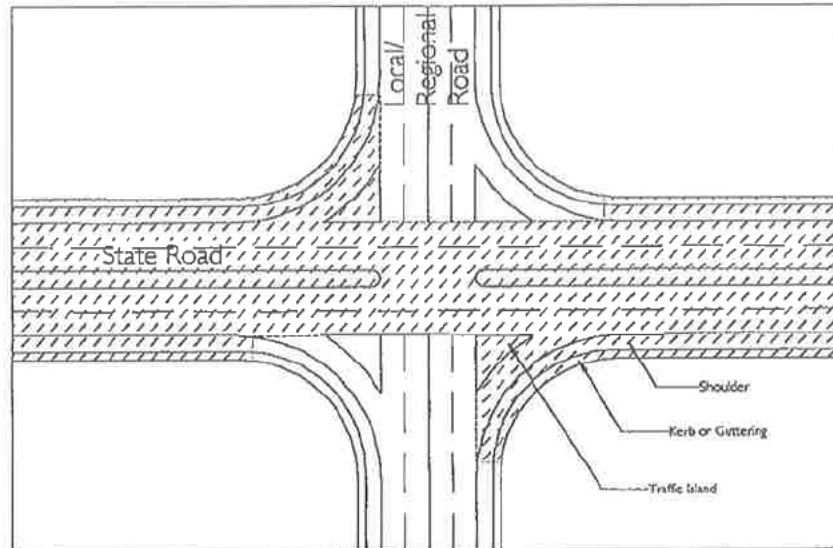


Diagram 5 – Kerb Nominal Work Limits (Roundabout on State and Regional/Local Road)

Kerb NWL - Intersection (Roundabout): State and Local/Regional Roads

- Within NWL
- Not within NWL

Note:
1. Landscaping areas to be maintained as defined in M1 (9.5). M1

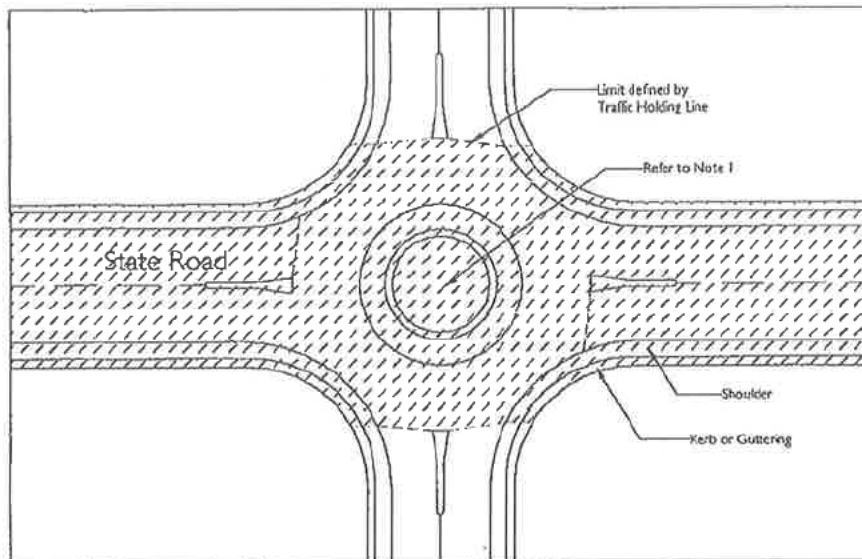


Diagram 6 – Formation Nominal Work Limits (Roundabout on State and Regional/Local Road)

Formation NWL - Intersection (Roundabout): State and Local/Regional Roads

- Within NWL
- Not within NWL

Note:
1. Landscaping areas to be maintained as defined in MI (9.5).

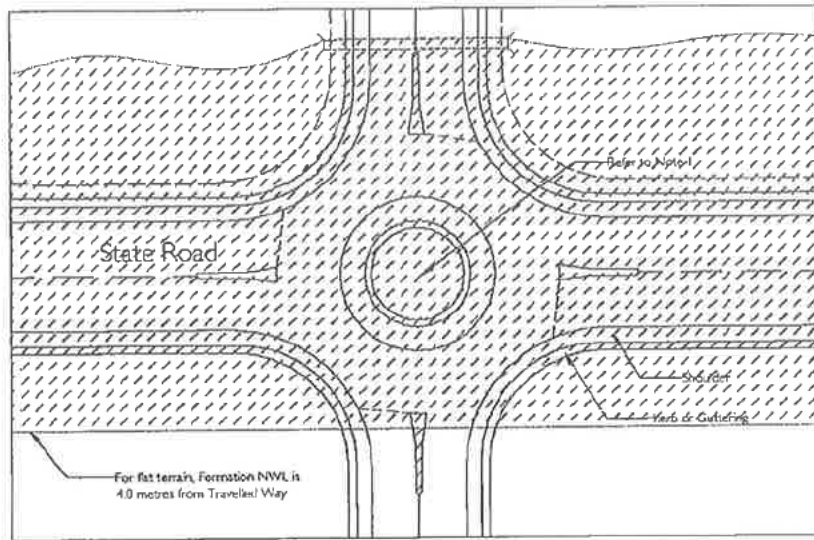


Diagram 7 – Formation Nominal Work Limits (Intersection on State and Regional/Local Road + Private Access Roads)

Formation NWL - Intersection: State, Local/Regional, and Private Roads

- Within NWL
- Not within NWL

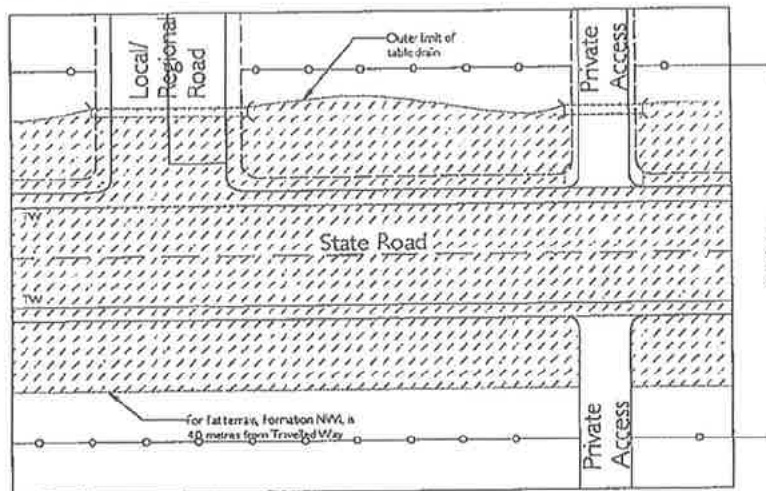


Diagram 8 – Motorway Nominal Work Limits (Intersection Regional/Local Road Overpass)

Motorway NWL - Intersection: Local/Regional Road Overpass

- Within NWL
- Not within NWL

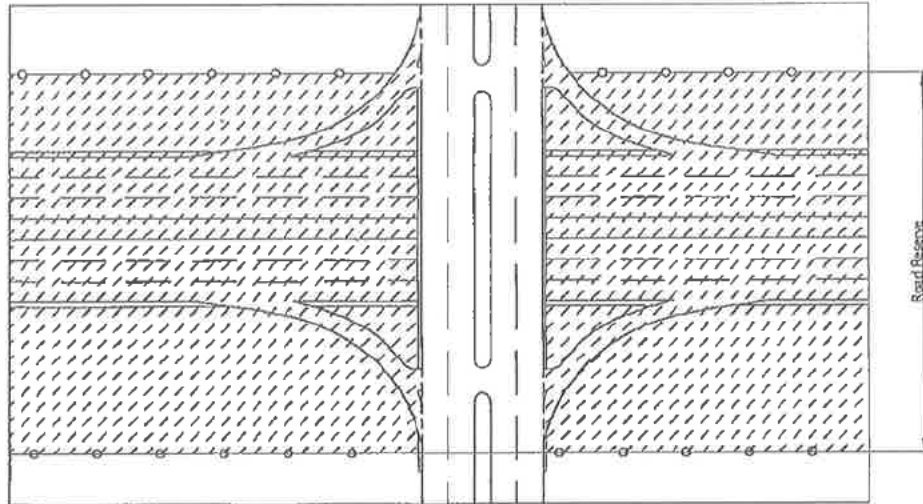


Diagram 9 – Traffic control signal facilities

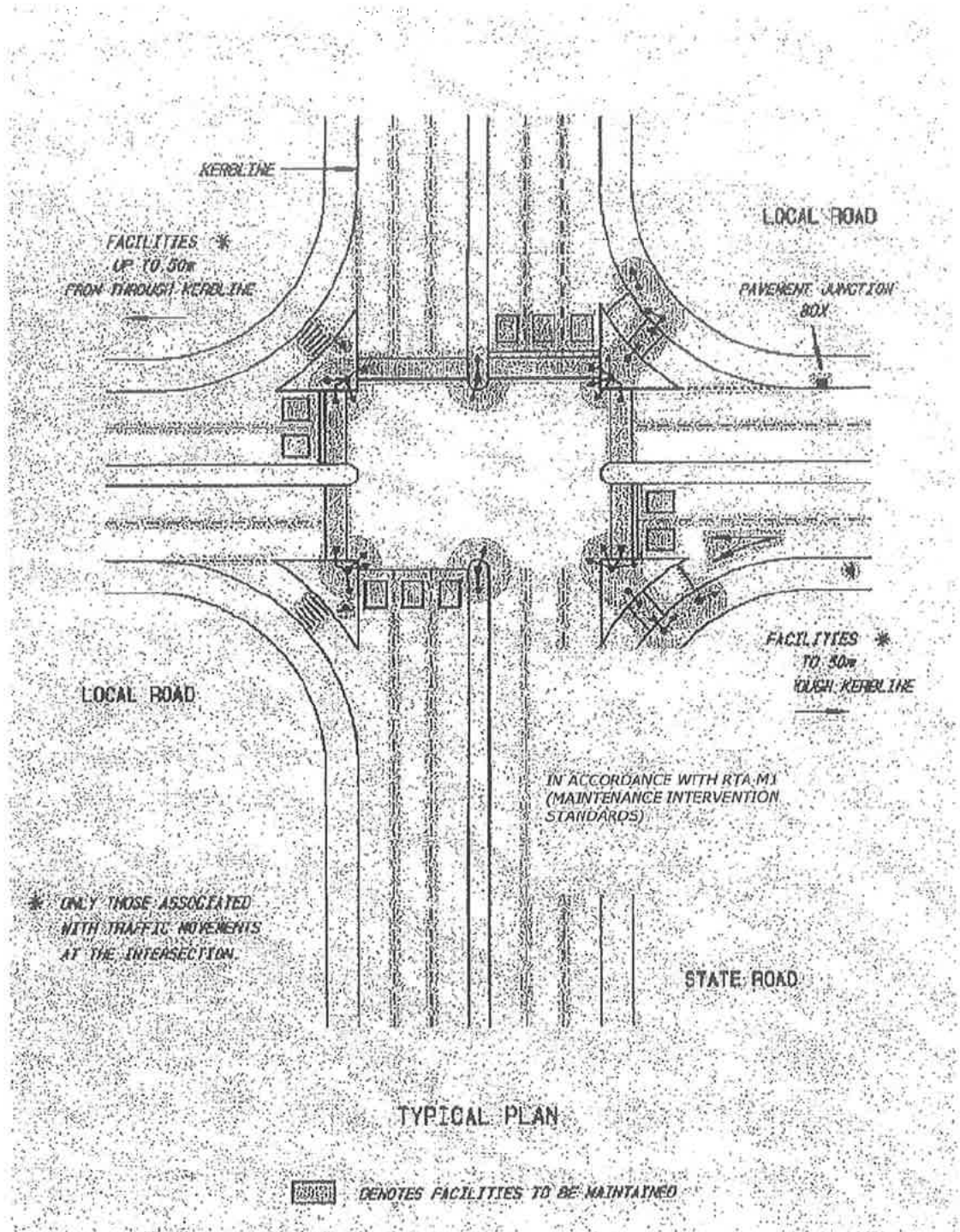
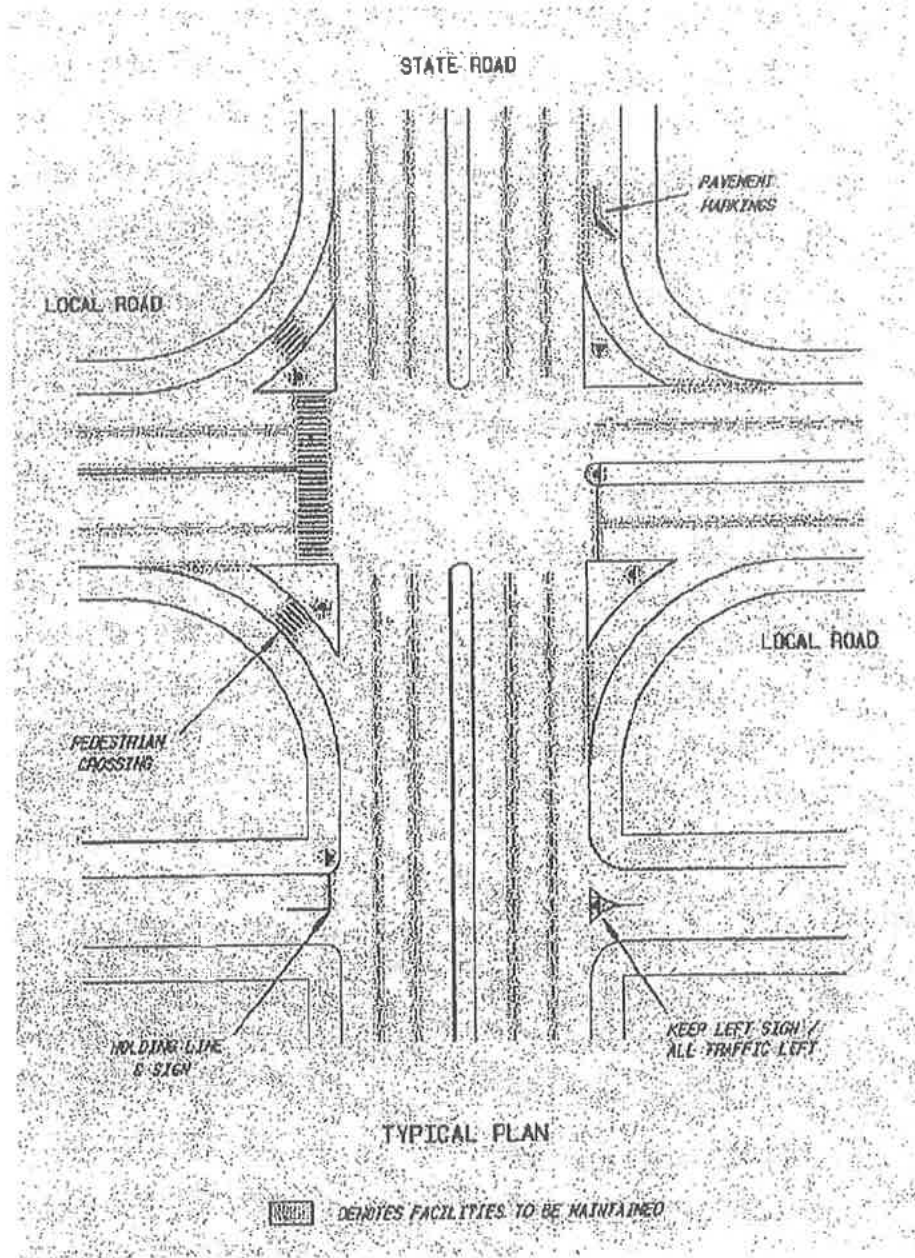


Diagram 10 – Non-signalised traffic facilities





Transport
Roads & Traffic
Authority



Transport

MEMORANDUM OF UNDERSTANDING

BETWEEN

AUSGRID

AND

**THE ROADS AND TRAFFIC AUTHORITY OF
NSW**

AND

DEPARTMENT OF TRANSPORT

August 2011

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PART A – OVERVIEW

1. BACKGROUND

- 1.1 The Roads and Traffic Authority of NSW (RTA) is a statutory authority representing the Crown established under the *Transport Administration Act 1988 (NSW)* with primary responsibilities to, among others, operate, manage and maintain the NSW road network including its road assets. The RTA exercises functions under the *Roads Act 1993 (NSW) (Roads Act)*.
- 1.2 Ausgrid is a statutory State owned corporation established under the *Energy Services Corporations Act 1995 (NSW)* with primary responsibilities to, among others, establish, maintain and operate facilities for the distribution of electricity and other forms of energy, and to supply electricity and other forms of energy to other persons and bodies.
- 1.3 The Department of Transport of NSW (DOT) is the lead public transport agency of the NSW Government, with primary responsibility for transport policy, planning and coordination functions as well as oversight of infrastructure delivery and asset management.
- 1.4 DOT incorporates the Transport Management Centre (TMC), which was formerly part of the RTA organisational structure. The TMC has primary responsibilities in relation to traffic management of events and incidents and coordination of traffic control devices to maximise the safety and efficiency of the road network. DOT is a party to this MOU to acknowledge and give effect only to the TMC's traffic management responsibilities under this Memorandum of Understanding (MOU).
- 1.5 The RTA and Ausgrid discharge functions under their respective Acts, and in doing so, own land and works and undertake specific projects. From time to time, each party, in the discharge of its statutory functions, is required to enter the land of the other or to disturb or relocate works of the other. This also impacts on the TMC's traffic management responsibilities.
- 1.6 The purpose of this MOU is to establish a framework for the parties when undertaking their respective projects and works or responding to incidents that have an impact on the assets of RTA or Ausgrid and the traffic management functions of the TMC.
- 1.7 The framework established by this MOU forms the basis of a cooperative and productive relationship between the parties so as to meet the needs of their customers, road users and the wider community generally.

2. OBJECTIVES

- 2.1 The objectives of this MOU are to:
 - (a) Clarify the roles and responsibilities of the parties during the planning, investigation, design, construction, installation, commissioning, relocation, modification, maintenance or decommissioning of assets which involve entry onto or interference with the land or assets of another party;
 - (b) Assist Ausgrid in the exercise of its statutory powers and functions pursuant to the *Energy Services Corporations Act 1995 (NSW)*, the *Electricity Supply Act 1995 (NSW) (Electricity Supply Act)* and the environmental assessment and approval requirements under the *Environmental Planning and Assessment Act 1979 (NSW)*

- (EP&A Act) including ownership and management of electricity network assets within Ausgrid's network area;
- (c) Assist Ausgrid to maximise the availability of electricity supply and minimise the risk of loss of supply to customers;
 - (d) Assist the RTA and DOT in the exercise of their respective statutory functions and powers relating to traffic management, road projects and road safety and maintenance of the road network infrastructure and the environmental assessment and approval requirements under the EP&A Act to the extent that this impacts on Ausgrid's land or assets;
 - (e) Better coordinate the activities of Ausgrid and the RTA in relation to the provision and maintenance of both parties' infrastructure;
 - (f) Establish the basis for determining the appropriate apportionment of costs between the parties where assets are being planned, investigated, designed, constructed, installed, commissioned, moved, modified or maintained;
 - (g) Ensure the potential delays to projects arising from the other party's requirements are minimised and that any problems are resolved quickly;
 - (h) Facilitate the replacement of Ausgrid infrastructure as a result of road crashes;
 - (i) Obtain synergies between projects by either RTA or Ausgrid to provide improved cost, safety, environmental and community outcomes; for example the installation of ducts during road works via a co-ordinated approach;
 - (j) Facilitate access to road reserves and assets for which the RTA is responsible, for the purpose of installing and maintaining Ausgrid assets;
 - (k) Facilitate access to Ausgrid land and assets where such access is required to facilitate RTA projects or the discharge of the RTA's functions;
 - (l) Reasonably minimise the impact of certain categories of works (see Section 3 below) on road users;
 - (m) Minimise the administrative burden for the parties;
 - (n) Minimise the costs to parties and the community; and
 - (o) Achieve a cooperative and ongoing working relationship between the parties as a matter of routine and during the management of incidents and projects affecting all parties.

3. SCOPE

- 3.1 Subject to clauses 3.3 to 3.7 below, this MOU will apply to all Ausgrid owned infrastructure installed or to be installed in classified roads within the Ausgrid network area bounded by the Local Government Areas noted in **Appendix 2**. The Ausgrid network area falls wholly within the Sydney and Hunter Regions of the RTA as shown in **Appendix 2**.
- 3.2 This MOU applies to the following categories of works undertaken by Ausgrid or its agents or contractors (together known as the **Ausgrid Works**):
 - (a) New electricity infrastructure projects;

- (b) Planned maintenance, augmentation and relocation of existing electricity infrastructure;
 - (c) Emergency response to electricity network and related incidents -
 - (i) Initial response works to address safety, environmental and loss of supply issues;
 - (ii) Second phase works to restore the integrity of the network impacted by an incident; and
 - (d) Minor works including pole inspections and replacements, street lighting maintenance, pit inspections, network switching and tree trimming.
- 3.3 This MOU applies to the following categories of works undertaken by the RTA or its agents or contractors (together known as the **RTA Works**):
- (a) Major and medium size road projects including new road construction and road network augmentations;
 - (b) Road, bridge, tunnel and traffic facilities (including without limit traffic cameras) maintenance;
 - (c) Minor road works including road upgrades; and
 - (d) Any works required as a result of realignments and road widening, traffic management of unplanned incidents or road safety works.
- 3.4 This MOU also applies to any other categories of work as agreed by the parties to be included in this MOU from time to time during the term of the MOU.
- 3.5 This MOU applies to Ausgrid Works and RTA Works where either party is the designated Principal of those works. For example, this MOU applies to works undertaken by day labour, design and construct contracts, maintenance contracts and alliance contracts. However developer initiated works, including BOO and BOOT contracts, are excluded from the scope of this MOU.
- 3.6 This MOU does not supersede or replace any specific agreements executed by the parties, whether prior to the commencement of this MOU or from time to time after execution of this MOU, including for example:
- (a) The RTA's Works Authorisation Deed (**WAD**); or
 - (b) Any specific WAD for work undertaken by Ausgrid to be negotiated and agreed with Ausgrid (see Section 11.4 below);
 - (c) The Service Level Agreement between the RTA and DOT for Road Occupancy Licences dated _____;
 - (d) Ausgrid's standard form ES-9A (**ES-9A**);
 - (e) Any customised version of the ES-9A which Ausgrid develops specifically for Contestable Works Agreements between Ausgrid, RTA and the ASP/1 retained by RTA (**ES-9A for RTA**) (see Section 11.5 below); and
 - (f) Any Ausgrid Non-Contestable Relocation Works Agreement for RTA to be negotiated and agreed with RTA specifically for use between Ausgrid and RTA, which Ausgrid proposes to refer to as **ES-12 for RTA** (see Section 11.6 below).

- 3.7 The MOU is intended to complement such agreements. In particular, this MOU does not change the terms, conditions or otherwise affect the legal operation of any ES-9A, ES-12 or WADs. To the extent that this MOU is inconsistent with the terms or conditions of any such agreement then the terms and conditions of that agreement (and not the MOU) prevail to the extent of the inconsistency.
- 3.8 This MOU does not apply to circumstances arising from natural disasters, bushfires, floods and major storms where the NSW Government may put in place temporary measures to deal with the incident and appoints a coordinator with powers to direct agencies.

4. CLASSIFIED ROADS

- 4.1 For the purposes of this MOU, the term "classified roads" has the meaning given in the Roads Act. In addition to the statutory definition, classified roads fall into two main administrative classes being State and Regional roads. The RTA maintains a Schedule of Classified Roads and State and Regional Roads (**Schedule**) and a copy can be accessed at the following RTA website:
- <http://www.rta.nsw.gov.au/doingbusinesswithus/lqr/downloads/information/administration.html>
- 4.2 The RTA may update the Schedule from time to time and it is the responsibility of Ausgrid to ensure that the current copy of the Schedule is reviewed when determining whether proposed Ausgrid works will impact on a Classified State or Regional road. If in doubt, Ausgrid's relevant Management Representative under the MOU should make enquiries with the relevant Management Representative of the RTA to expedite any query concerning the classification of a road the subject of proposed Ausgrid Works.
- 4.3 These administrative categories were introduced under the *Arrangements with Councils for Road Management* document signed in 1993. Details at the website below replace that manual and provide more comprehensive information for local government and the RTA to assist in the management of the NSW road network:
- <http://www.rta.nsw.gov.au/doingbusinesswithus/lqr/index.html>
- 4.4 State roads are defined as roads forming "*the primary arterial network of classified roads in the State and some special purpose classified roads*". The RTA manages State roads and has primary responsibility for funding, priorities and outcomes.
- 4.5 Regional roads are defined as comprising "*the lesser trafficked classified roads which are not State roads and some of the more important unclassified roads*". Council exercises roads authority powers, has financial and asset management responsibility and determines roadwork priorities for Regional roads.

PART B – GOVERNANCE

5. MANAGEMENT ARRANGEMENTS

Representatives

- 5.1 Each of the parties has nominated its own Senior Management Representative and Management Representative, as detailed in **Appendix 1**.

- 5.2 The parties agree that day-to-day management of matters relating to this MOU will be the responsibility of their Management Representatives who will act as a single point of contact for this MOU and the resolution of urgent issues relevant to Ausgrid Works or RTA Works.
- 5.3 The nominated Senior Management Representatives and Management Representatives of each party will be supported by the relationships described in Section 6.

Meetings of the Management Representatives

- 5.4 The nominated Management Representatives of each party will meet **monthly** or such other frequency as considered necessary, to discuss and progress issues covered by this MOU. At these meetings, the Management Representatives should discuss:
- (a) Upcoming planned or proposed projects that fall within the scope of the MOU and the best course to ensure the respective approvals of the RTA and Ausgrid are delivered as efficiently and quickly as possible. For example, this may include determining if Ausgrid works on RTA land or assets require a ROL, a section 138 consent or a WAD;
 - (b) If RTA Works require an ES-9A or ES-12 or Ausgrid works require a WAD, then the key terms of those commercial approvals should be discussed and identified to help expedite the negotiation and execution of those documents;
 - (c) Issues with the implementation and operation of the MOU and any areas where the procedures in the MOU can be improved or simplified;
 - (d) In particular, identify and discuss any operational and procedural improvements for the better coordination of Ausgrid Works and RTA Works and the issuing of the parties' respective approvals; and
 - (e) Any updated crash data that has become available and any issues arising from the identification of hazardous poles and works proposed by Ausgrid to relocate hazardous poles.

Meetings of the Senior Management Representatives

- 5.5 The nominated Senior Management Representatives will meet **quarterly**, or such other frequency as considered necessary, to:
- (a) Discuss strategic issues and work priorities that are likely to have a significant impact on the shared operating environment of all parties and, in particular Ausgrid's and the RTA's land and assets;
 - (b) Explore opportunities arising from Ausgrid's and the RTA's planned major projects including opportunities to better coordinate works and approval processes to ensure the project is expedited and delays are avoided;
 - (c) Discuss, where appropriate, the impact of any proposed legislative change that may impact on this MOU;
 - (d) Resolve escalated issues;
 - (e) Review the application of the MOU and associated Appendices, agree to enhancements to existing Appendices as well as the inclusion of new Appendices, as appropriate; and
 - (f) Any programs proposed by either Ausgrid or the RTA in relation to traffic safety and particularly programs for the identification and relocation of hazardous poles including those identified from RTA crash data.

Responsibilities of Senior Management Representatives

- 5.6 The Senior Management Representatives will be responsible for:
- (a) Liaising at an early stage in the development of strategic plans and concept designs for Ausgrid and RTA Works where there is likely to be a direct and substantial clash between the respective interests and objectives of the parties and particularly where works proposed by one party arising from the strategic plans of that party are likely to have a substantial impact on the land, works or assets of the other party;
 - (b) Identifying reasonably practicable opportunities to improve Ausgrid's and the RTA's project delivery, cost effectiveness and overall project quality;
 - (c) Developing opportunities for improved information sharing between the parties and joint professional development that assists the staff of the parties to better understand the operational environment and relevant procedures of the other parties, with a particular emphasis on regulatory works approvals and negotiation of works contracts such as Ausgrid's **ES-9A, ES-9A for RTA, ES-12 and ES-12 for RTA** agreements, ROLs, section 138 consents and WADs.

Amendments to the MOU agreed by Senior Management Representatives

- 5.7 Any enhancements agreed by the Senior Management Representatives will be given effect through the updating of the Appendices or the development of a new Appendix which once agreed shall be signed and dated by the relevant parties and incorporated into this MOU.
- 5.8 If necessary the Senior Management and Management Representatives will meet more often to resolve escalated issues that are unable to be resolved at the project level as detailed in Section 18 and Appendix 14.

6. RELATIONSHIPS

- 6.1 The parties are committed to the establishment of effective relationships to facilitate outcomes to the mutual benefit of the parties and the community. In addition to the management relationships established under Section 5, relationships and interfaces will be established on a Regional basis to cover areas of interest and responsibility. It is expected that the areas of interest will include:
- (a) planning and environmental assessment;
 - (b) design;
 - (c) construction;
 - (d) safety of road users, electricity network users and the general public;
 - (e) safety of agency personnel during works (including maintenance);
 - (f) operation; and
 - (g) maintenance.
- 6.2 Relationships will be focussed on supporting the efficient and effective progress of issues including escalation as appropriate.
- 6.3 Appendix 3 details the current responsibilities and interfaces.

PART C – WORKS

7. REQUIREMENTS

- 7.1 The party seeking to undertake the Works will need to:
- (a) Obtain all necessary regulatory approvals (see Section 8 of the MOU);
 - (b) Prepare all necessary environmental assessment documentation (see Section 9 of the MOU);
 - (c) Obtain necessary land tenure or exercise the party's land access rights under applicable Acts (see Section 10 of the MOU); and
 - (d) Enter into an agreement with the other party, where necessary, regulating the cost and risk in undertaking the works (see Section 11 of the MOU).

8. APPROVALS

- 8.1 The party proposing to undertake the Works is responsible for obtaining all necessary regulatory and other approvals.

Section 138 of Roads Act

- 8.2 Ausgrid must apply for consent under section 138(1) of the Roads Act ("section 138 consent") before undertaking any Ausgrid Works on a classified road where they comprise activities within the meaning of section 138(1) of the Roads Act¹.
- 8.3 RTA has a role in the section 138 consent process in relation to a classified road as either:
- (a) determining the section 138 consent as the 'roads authority' (pursuant to its powers under section 64 of the Roads Act) for the purposes of section 138(1) of the Roads Act; or
 - (b) granting its concurrence in accordance with section 138(2) of the Roads Act.
- 8.4 As Ausgrid is a "public authority" for the purposes of the Roads Act, under section 138(3), the RTA is also required to consult with Ausgrid before deciding whether or not to grant its consent or concurrence.
- 8.5 Where, in the exercise of its functions under section 64 of the Roads Act, the RTA elects to determine Ausgrid's application for a section 138 consent rather than exercise its concurrence role, the RTA shall use its best endeavours to notify the applicable roads authority (eg. relevant local council) of its election to determine such application.
- 8.6 The RTA has granted a general concurrence, for the purposes of section 138(2) of the Roads Act, to any section 138 consent granted by local council to Ausgrid in respect of any Ausgrid Works on classified Regional roads ("General Concurrence"). A copy of the RTA's General Concurrence is set out in Appendix 11. Ausgrid must provide a copy of this instrument to the relevant local council when seeking a local council's section 138 consent. To avoid doubt, the RTA's General Concurrence does not affect Ausgrid's obligation to

NOTE: Clause 5 of Schedule 2 of the Roads Act 1993 exempts Ausgrid from the requirement to obtain a roads authority's consent to the exercise of its functions in, on or over an unclassified road other than a Crown road

seek a local council's section 138 consent if any Ausgrid Works on classified Regional roads comprise activities within the meaning of section 138(1) of the Roads Act.

- 8.7 Ausgrid may require a section 138 consent from the RTA or the local council for Ausgrid works on classified State roads. Where consent is required from the local council under section 138(1) of the Roads Act, the concurrence of the RTA will be required under section 138(2) of the Roads Act. The Roads Act does not stipulate a time by which a roads authority (like the RTA) must respond to requests for consent or concurrence under section 138. The parties recognise the importance of discussing any proposed Ausgrid Works early in the project planning cycle to help both Ausgrid manage potential delays in project delivery and RTA assess the impacts of those works on RTA's road network management functions.
- 8.8 The RTA shall use its best endeavours to respond to Ausgrid within 10 business days of receiving a request for a section 138 consent. To facilitate a response by the RTA within this timeframe, Ausgrid's request for consent must include all necessary supporting documents. If the RTA does not respond within this timeframe and Ausgrid considers that such delay may adversely impact on its project planning cycle for the relevant Ausgrid Works, the matter will be escalated to the Management Representatives for consideration and where necessary, dealt with in accordance with the dispute resolution procedure in **Appendix 14**. A template letter which Ausgrid must send to the RTA in relation to Ausgrid's request for a section 138 consent and a follow up letter are provided in **Appendix 4**.

Road Occupancy Licensing

- 8.9 The parties acknowledge that Ausgrid may require a ROL before it can occupy the road and associated traffic management facilities. **Appendix 6** sets out certain activities that may require Ausgrid to obtain a ROL and desired TMC response times for issuing a ROL.
- 8.10 The TMC is responsible for issuing ROLs in the Sydney Region.¹
- 8.11 The RTA's Hunter Regional Office is responsible for issuing ROLs for planned work in the Hunter and Central Coast Regions.²
- 8.12 Ausgrid shall deal directly with the TMC or the RTA Hunter Regional Office as appropriate for matters relating to ROLs.
- 8.13 Regardless of the road, Ausgrid must notify the TMC or the RTA's Hunter Regional Office (as appropriate) when planned outages will interrupt electricity supply to traffic management infrastructure (eg traffic signals, variable message signs, traffic cameras) on all roads and negotiate an agreed time to undertake the works so as to minimise any interruption to the supply to traffic management infrastructure.
- 8.14 A copy of the standard form for a ROL (Form N) is available at:
http://www.rta.nsw.gov.au/publicationsstatisticsforms/downloads/45062797_internet.pdf
- 8.15 Explanatory notes to assist with completing the Form N are available at:
<http://www.rta.nsw.gov.au/publicationsstatisticsforms/downloads/45062797notes.pdf>
- 8.16 A copy of the standard form for a Speed Zone Authorisation Application is available at:
http://www.rta.nsw.gov.au/publicationsstatisticsforms/downloads/45062796_internet.pdf
- 8.17 Explanatory notes to assist with completing the Speed Zone Authorisation Application are available at:
<http://www.rta.nsw.gov.au/publicationsstatisticsforms/downloads/45062796notes.pdf>

- 8.18 The ROL Checklist (Form C) must be completed and submitted with each ROL application. A copy of Form C is available at:

<http://www.rta.nsw.gov.au/publicationsstatisticsforms/downloads/45062800.pdf>

- 8.19 The TMC has introduced a streamlined ROL application and licensing process for the bulk approval of minor impact and mobile work activities on certain roads within the TMC's area of responsibility. Any work carried out under this system will be subject to the conditions of approval agreed by the TMC. The TMC's conditions of approval are detailed in **Appendix 15**.

Ausgrid Approval of proposed RTA Works

- 8.20 Where the RTA proposes to commence any RTA Works, the RTA may be required to obtain consent from Ausgrid if the works require relocation or alteration of any of Ausgrid's conduits, cables and associated equipment used by Ausgrid in the carrying out of its business (**Ausgrid Infrastructure**).
- 8.21 RTA is required to fund all works that involve relocation or alteration of Ausgrid Infrastructure and Ausgrid is entitled at its discretion to decide whether such proposed works will be **Contestable Works** or **Non-Contestable Works** within the meaning of the *Code of Practice - Contestable Works*, April 2007 published on the web site of Industry & Investment NSW.
- 8.22 This section of the MOU sets out the procedures to be followed by Ausgrid and RTA when seeking consent from Ausgrid.
- 8.23 The parties recognise the importance of discussing any proposed RTA Works early in the project planning cycle to help both RTA manage potential delays in project delivery and Ausgrid assess the impacts of RTA's requests on its electricity network management functions.
- 8.24 RTA shall apply for consent from Ausgrid where RTA Works require any Ausgrid Infrastructure to be relocated or altered. To facilitate a response by Ausgrid, the RTA's request must include all necessary supporting documents, including, but not limited to, complete details of the Ausgrid Infrastructure proposed to be relocated or altered; the land or premises on which Ausgrid Infrastructure is proposed to be installed; and land access arrangements made by the RTA with each registered proprietor of such land.
- 8.25 Ausgrid shall use its best endeavours to respond to RTA within 10 business days of receiving RTA's application and in its response it shall notify RTA whether the proposed works will be Contestable Works or Non-Contestable Works. Major network alterations may require a longer timeframe to assess, in which case Ausgrid will negotiate with RTA an agreed response time within 10 business days of receiving RTA's application.
- 8.26 Where the proposed works are Contestable Works, the RTA is to submit a design of the alterations to the Ausgrid Infrastructure (the **Design**) for certification by Ausgrid. The Design should be prepared by a person accredited as an Accredited Service Provider Level 3 (ASP/3) under the *Electricity Supply (General) Regulation 2001 (NSW)*.
- 8.27 Ausgrid shall use its best endeavours to inform RTA within 10 business days of submission of a complete Design whether it has been certified or requires amendment. If Ausgrid does not respond within this timeframe and RTA considers that such delay may adversely impact on its project planning cycle for the relevant RTA Works, the matter will be escalated to the Management Representatives for consideration and where necessary, dealt with in accordance with the dispute resolution procedure in **Appendix 14**. The RTA may send Ausgrid follow up letters similar to the template letters in **Appendix 4**.

- 8.28 Once the Design has been certified and before the works are commenced, Ausgrid, the RTA and the ASP/1 who will construct the Contestable Works shall enter into an ES-9A Agreement the form of which when finalised will be included in **Appendix 12B**.
- 8.29 Where Ausgrid has decided that the proposed works are Non-Contestable, Ausgrid and RTA shall enter into an ES-12 the form of which when finalised will be included in **Appendix 12C**. Ausgrid will then prepare the Design and perform the necessary relocation works in accordance with the timeframes in the ES-12 for those relocation works.

9. ENVIRONMENTAL ASSESSMENT

- 9.1 The party proposing to undertake the Works is responsible for preparing all necessary environmental assessment documentation at its cost.
- 9.2 Both the RTA and Ausgrid may be determining authorities for works under Part 5 of the EP&A Act. The parties agree, where necessary, to consult and share information to enable each party to comply with their obligations under Part 5 of the EP&A Act. This may include, for example, the party proposing the Works providing to the other party, on request of the other party, environmental assessment documentation for review and comment before the determination of any approvals in relation to the proposed works. The other party may require further information and assessment and the party proposing to undertake the Works shall provide the additional information at its cost. The requirement to share information will be subject to any confidentiality / commercial-in-confidence requirements of either party.

10. LAND ACCESS

Responsibility for Land Access

- 10.1 Subject to this clause, as between Ausgrid and the RTA, the party proposing to undertake the Works is responsible for obtaining all required land access rights to undertake the proposed works at its cost. This may involve:
- (a) Exercising the party's powers under relevant Acts; or
 - (b) Obtaining the consent or entering into an agreement with the owner of the land.

Ausgrid Infrastructure in Land Proposed to be Acquired by RTA

- 10.2 The parties have agreed to adopt a joint approach to the installation of electricity infrastructure in land owned by third parties which is proposed to be acquired by RTA for a public road in order to facilitate road construction and electricity network augmentation to the overall benefit of the community. The joint approach will allow:
- (a) existing Ausgrid infrastructure to be relocated onto land which is intended to be dedicated as a public road reserve without the need for RTA to procure registrable interests in land in the name of Ausgrid; and
 - (b) new Ausgrid Infrastructure to be installed prior to or in conjunction with RTA Works on land which is intended to be dedicated as a public road reserve.
- 10.3 Ausgrid is empowered under the Electricity Supply Act to install and maintain electricity infrastructure on public roads and public reserves. Where RTA Works are proposed and RTA requests Ausgrid's consent to relocate Ausgrid infrastructure onto land before that land is dedicated as public road, RTA will arrange the provision of legal access that will enable the RTA to undertake the relocation works with Ausgrid's consent or, where Ausgrid

has determined that the works are Non-Contestable Works, will enable Ausgrid to undertake the works. Where RTA has provided an appropriate indemnity, Ausgrid will modify its usual tenure requirements in relation to the installation of electricity works in private land for relocation works in land that RTA intends to dedicate as a public road so that the electricity works can be completed and electrified before the road is constructed and dedicated.

- 10.4 Ausgrid's requirements for projects involving contestable asset relocations requested by RTA will be separately agreed, in the first instance under an edited version of Ausgrid's standard form agreement ES-9A and, when negotiations are complete, in the form of an agreement to be known as ES-9A Agreement with RTA for Contestable Asset Relocations (and referred to below in clause 11.5), which when finalised will be included in **Appendix 12B**.
- 10.5 Ausgrid's requirements for projects involving non-Contestable asset relocations requested by RTA will be separately agreed, when negotiations are complete, in the form of an agreement to be known as Ausgrid Non-Contestable Relocation Works Agreement for RTA (and referred to below in clause 11.6), which when finalised will be included in **Appendix 12C**.
- 10.6 From time to time, Ausgrid may choose to install new assets in conjunction with asset relocations due to RTA works. In these circumstances, Ausgrid and RTA will negotiate an agreement, to be developed as a simplified version of the deed dated 16 December 2009 between RTA and Ausgrid, Central Coast Highway: Carlton Road to Willoughby Road – Installation of Ausgrid Works, which will include a licence substantially in the form of the licence in clause 3 of the Deed of Indemnity and Licence for the proposed Central Coast Highway Upgrade Stage 2 road project dated 22 December 2010, between Ausgrid and the RTA (**Deed of Indemnity and Licence**).
- 10.7 Where there are no Ausgrid asset relocations involved due to proposed RTA works but Ausgrid considers it appropriate to install new infrastructure in land which is intended to be dedicated as a public road reserve, Ausgrid and RTA will negotiate suitable project-specific agreements.

11. WORKS AGREEMENTS

- 11.1 It is the intent of the parties to agree standard form documents for Ausgrid Works and RTA Works including:
- (a) a standard form WAD where Ausgrid is proposing to undertake Ausgrid Works on a road, on RTA land or which may impact on RTA assets;
 - (b) a standard form ES-9A Agreement with RTA for Contestable Asset Relocations where RTA is proposing to undertake RTA Works on Ausgrid land or which may impact on Ausgrid assets (such as a relocation of Ausgrid's assets in public road reserves or land intended to be dedicated as public road); and
 - (c) a standard form ES-12 Agreement with RTA where Ausgrid has declared the proposed RTA Works on Ausgrid Infrastructure to be Non-Contestable Works.
- 11.2 Once finalised, it is the intent of the parties to include these documents as Appendices to the MOU. However, the precise terms and conditions of the standard form agreements will still be negotiated by the parties to suit the circumstances of each work or project.
- 11.3 Whether a proposed Ausgrid Works will require a WAD or RTA Works will require either an ES-9A agreement or an ES-12 Agreement will be determined by the RTA and Ausgrid respectively on a case-by-case basis. This issue should be discussed by the relevant

Management Representatives at the monthly Management Representatives meetings. As a general principle, only more complex Ausgrid Works are likely to trigger the requirement for a WAD.

Works Authorisation Deeds

- 11.4 As noted in Section 11.1, the RTA agrees to produce a specific WAD for work undertaken by Ausgrid to be negotiated and agreed with Ausgrid. The WAD being developed for Ausgrid will include the following details:
- (a) the level of seniority required for sign off acceptable to both Ausgrid and the RTA;
 - (b) when a security deposit will be required. It is expected that the RTA will in most circumstances not require a security deposit to be provided by Ausgrid;
 - (c) of the insurances required to be provided by Ausgrid. It is expected that Ausgrid will be required to produce evidence of the currency of the relevant insurance policies on an annual basis only; and
 - (d) of the indemnities required to be provided by Ausgrid. The WAD will include a pro forma indemnity. Until such time as the Ausgrid Works specific WAD is agreed, any indemnity to be provided by Ausgrid to the RTA in relation to Ausgrid Works will be negotiated between Ausgrid and RTA on a case-by-case basis in the ordinary course of negotiating the terms of the work-specific WAD.

ES-9A Agreement

- 11.5 Ausgrid agrees to produce a specific ES-9A Agreement with RTA for Contestable Asset Relocations to be negotiated and agreed with the RTA which when finalised will be included in **Appendix 12B**. The ES-9A Agreement being developed for RTA will include the following details:
- (a) the level of seniority required for sign off acceptable to both Ausgrid and the RTA;
 - (b) when a security deposit will be required. It is expected that Ausgrid will in most circumstances not require a security deposit to be provided by RTA;
 - (c) of the insurances required to be provided by RTA. It is expected that RTA will be required to produce evidence of the currency of the relevant insurance policies on an annual basis only; and
 - (d) of the indemnities required to be provided by RTA.

ES-12 Agreement

- 11.6 Ausgrid agrees to produce a specific ES-12 Non-Contestable Relocation Works Agreement for RTA to be negotiated and agreed with the RTA which when finalised will be included in **Appendix 12C**. The ES-12 being developed for RTA will include the following details:
- (a) the level of seniority required for sign off acceptable to both Ausgrid and the RTA;
 - (b) when a security deposit will be required. It is expected that in most circumstances neither party will require the other to provide a security deposit;
 - (c) of the insurances required to be provided by each party. It is expected that each party will be required to produce evidence of the currency of the relevant insurance policies on an annual basis only;
 - (d) of the pricing principles applicable to the work under the Agreement; and
 - (e) of the indemnities required to be provided by RTA.
- 11.7 At the time of signing this MOU, the documentation required to facilitate achieving the above objectives was being developed.

12. BRIDGES IN PUBLIC ROADS

Special circumstances for Ausgrid Works on RTA controlled bridges

- 12.1 The parties acknowledge that bridges on public roads have characteristics that set them apart from ordinary pavements.
- 12.2 The parties have agreed to sign and implement the terms of this MOU without the arrangements in respect of bridges being agreed, but have done so on the basis that arrangements for the carrying out of works on RTA controlled bridges will be negotiated and agreed as soon as possible after the signing of this MOU. Once these arrangements are agreed, this MOU will be amended accordingly.

13. USE OF SURPLUS CONDUITS AND SHARED INFRASTRUCTURE

- 13.1 Ausgrid and the RTA agree in principle to grant access to each other's spare conduits, ducts, pits and similar infrastructure for the installation of electrical or communication cabling where such conduits, ducts or pits are considered surplus to the owner's requirements and satisfactory access protocols can be agreed.
- 13.2 Access to such conduits, pits and ducts will be assessed on a case-by-case basis. In some cases access may not be viable in the circumstances due to factors including, but not limited to, future use planning, network constraints, security arrangements and OH&S risks.
- 13.3 Ausgrid and the RTA will use their best endeavours to develop procedures and protocols for:
- (a) Identifying surplus conduits and other infrastructure that are suitable for use by the other party that does not own the conduit or infrastructure.
 - (b) Clarification of ownership of the conduit or other infrastructure, including whether the conduit is jointly owned by Ausgrid and the RTA;
 - (c) Determination of a formal agreement in relation to use of the conduit or other infrastructure (including terms regarding a party's plans (if any) for future use of the conduits and requirements on the other party to relinquish use of the conduit); and
 - (d) Take-back procedures including procedures for removal or relocation of infrastructure within the conduit or other infrastructure in the event that either party requires the use of the conduit or other infrastructure or in the event that the conduit or other infrastructure is to be removed, realigned or modified.

14. INCIDENT RESPONSE

- 14.1 The parties acknowledge the importance of ensuring the safety of the public and staff when responding to incidents, and the need to clear incidents in an efficient and timely manner to minimise delays to road users.

Incident response protocols

- 14.2 Ausgrid and the TMC have agreed on certain incident response protocols, the details of which are included in Appendix 5. Direct communication between Ausgrid's staff, its contractors and the TMC will facilitate a speedy response to critical incidents.

- 14.3 It is recognised that the electricity network can be impacted by incidents caused by external factors such as motor vehicle accidents, severe weather conditions and internal factors which are intrinsic to the network. Emergency work on the electricity network in response to such incidents will sometimes be completed over 2 stages (as outlined below). Due consideration will be given to specific circumstances, including minimising delays during peak traffic periods on State Roads. Peak traffic periods are generally between 6am to 10am and 3pm to 7pm Monday to Friday or such other times as are notified to Ausgrid by the TMC.

Incident response stages

Stage 1 - The initial response stage

- 14.4 This stage will usually involve:

- (a) Ensuring the safety of the public and staff and facilitating first aid measures where appropriate; and
- (b) Carrying out network switching to isolate faulty elements and restore supply to the remainder of the electricity network.

Stage 2 - Restore network Integrity

- 14.5 If an incident causes damage to the electricity network, and the damage cannot be repaired reasonably quickly as part of the initial response, a second stage response to the incident will be arranged by Ausgrid. The urgency of completing the repairs will depend on a number of factors including the impact of the faulty element on the reliability of the network.
- 14.6 Where the resilience of the network is at serious risk due to this damage, the necessary repairs will be regarded as emergency work for the purpose of assessing Ausgrid's application for a ROL if a classified road is involved.
- 14.7 The agreed process for applying for an emergency ROL in the Sydney Region of the RTA is that the nominated Ausgrid staff member for the Region / Functional Business Unit concerned will submit the request for a ROL then contact the Planned Incident Unit (PIU) at the TMC on 8396 1513 to discuss the urgency of the request. Similar arrangements will be implemented for the Hunter Region of the RTA as soon as possible after the signing of this MOU. Once these arrangements are agreed, this MOU will be amended accordingly.
- 14.8 Ausgrid has nominated a number of Region / Functional Business Unit Representatives who can apply for ROLs to cover emergency work. These representatives are listed in Appendix 3. Note that requests made by any other Ausgrid staff or contractors will not be accepted by the TMC / RTA unless specifically approved by the relevant Management Representatives.

15. STANDARDS

- 15.1 Ausgrid and RTA have comprehensive codes and standards that specify the technical requirements for all aspects of their works. The relevant Ausgrid codes and standards are set out in Appendix 7 (Ausgrid Standards) and the relevant RTA codes and standards are set out in Appendix 8 (RTA Standards). In addition, the following Appendices provide guidance on the following issues:
- Appendix 9 - Application Guidelines for Street Furniture; and
 - Appendix 10 - Guidelines for Laying Cables in Road Reserves.

Ausgrid and RTA acknowledge that the lists of codes and standards provided in **Appendices 7 and 8** are subject to ongoing reviews and amendments to accommodate changes in technology, processes, systems, legislation and other operating requirements. Codes and standards may be added to or removed from these lists as the need arises. Both parties undertake to notify each other of any proposed changes to their own lists of codes and standards or documents contained therein that could have a material impact on the standards and practices of the other party. The proposed changes will be communicated to the other party at an early stage in the process to allow for a timely appraisal and response if considered appropriate.

15.2 Ausgrid and RTA agree that:

- (a) Any works involving the construction of new assets will be undertaken in accordance with the current published Standards of the relevant asset owner; and
- (b) Any works on existing assets are to be undertaken in accordance with the current published Standards of the asset owner, to the extent that is reasonable noting that for minor works on older assets it may not be possible to bring these assets fully up to the current standards.

15.3 This MOU and its Appendices are intended to complement the Ausgrid and RTA Standards and set out a procedure to ensure the Ausgrid and RTA Standards are met in relation to Ausgrid and RTA Works. To the extent that this MOU is inconsistent with the Ausgrid or RTA Standards, the Standard prevails to the extent of the inconsistency.

15.4 Achieving consistency in the interpretation and application of Standards will be the responsibility of the nominated Management Representatives of the parties or the Senior Management Representatives, if required.

15.5 If an inconsistency is identified between the MOU and the Ausgrid and/or RTA Standards, the issue will be brought to the attention of the relevant Management Representatives and resolution will be a priority for the next monthly Management Representatives Meeting. If the inconsistency can not be resolved then the matter will be escalated to the parties' Senior Management Representatives. If an amendment to the MOU can not be agreed, the Guidelines for Issue Resolution in **Appendix 14** should be followed.

16. COORDINATION OF WORKS

16.1 The parties agree, as far as is reasonably practicable, to the early and regular involvement of all parties in the review of their respective strategic plans to ensure that potential problems and opportunities are identified and acted upon during planning and thereby minimising potential risks to the operations of the parties.

16.2 The focus will be on major projects or programmes of work where there is clear material benefit from a coordinated approach. The process to share information and provide feedback on issues and opportunities is described in **Appendix 12**.

16.3 The parties are committed to the joint development of initiatives for improved information sharing and organisational development that assists staff to gain an improved appreciation of each other's operating environment.

17. COST APPORTIONMENT

17.1 Where assets are created, replaced, upgraded, modified, maintained or moved and it is appropriate to apportion costs, the parties agree there is a need to achieve an equitable,

practical resolution to the apportionment of costs which minimises the need for protracted negotiation.

- 17.2 Cost apportionment for the Works will be based on the principles contained in Appendix 13. The parties agree that, until such time as this MOU is amended to include agreed arrangements in respect of RTA controlled bridges in accordance with clause 12.1, the principles in Appendix 14 do not apply in respect of works on RTA controlled bridges.
- 17.3 Where cost apportionment is unable to be agreed by the project personnel, the issue will be progressed in accordance with the Guidelines for Issue Resolution in Appendix 14.

PART D – GENERAL

18. ISSUE RESOLUTION

- 18.1 The parties agree that:
- (a) Successful project outcomes depend on the early resolution of issues;
 - (b) Every effort will be made to resolve issues that arise at the project level;
 - (c) When an issue arises that is unable to be resolved at the project level the issue will be escalated in accordance with the Guidelines for Issue Resolution in Appendix 14; and
 - (d) Every effort will be made to resolve issues as expeditiously as possible.

19. OPERATION OF THIS MOU

- 19.1 This MOU will become effective from the date it is signed by all parties and will operate for 5 years from the date it is signed, or such extended period as agreed by the parties in writing (Term).
- 19.2 All parties agree to undertake a review of the progress and outcomes of this MOU within twelve (12) months from the date it is signed. After this initial review, a formal review will then be undertaken every 2 years or as requested by any party.
- 19.3 The operation of the MOU relies on updates to the existing Appendices to this MOU (which are listed in the Table of Contents to this MOU) and the development of a range of Appendices which will be progressively finalised subsequent to the execution of the MOU. For example, new appendices may be added in response to issues that emerge during the Term as a result of the Management Representatives and Senior Management Representatives meetings. The existing Appendices may also be updated at any time by agreement in writing. Any updates to the existing Appendices and any new Appendices will become effective when jointly agreed and signed by the parties at either the regular management meetings or the regular senior management meetings and will be attached to and will be governed by this MOU once agreed. Once signed, a copy of those updated or new Appendices must be provided to the Management Representative of each party who shall be responsible for maintaining a record of the current MOU.
- 19.4 A party may withdraw from this MOU at any time on providing not less than 60 days' written notice to the other parties. This MOU may also terminate by the written agreement of all parties.

- 19.5 The RTA may terminate this MOU by notice in writing and at its sole discretion immediately upon the event that Ausgrid ceases to be a State Owned Corporation, its assets, rights and liabilities the subject of this MOU are sold, assigned or otherwise transferred to another entity (be it a public or private entity) or the Ausgrid ceases to be a legal entity (by dissolution or otherwise).
- 19.6 Nothing in this MOU will restrict, fetter or otherwise affect the ability of the parties to meet their legal obligations or exercise their statutory functions, conduct their normal operations, activities or other functions including non-statutory powers.

20. LEGAL EFFECT

- 20.1 This MOU is not legally binding on the parties. Nothing in this MOU is intended to create any legal relationship or obligation between the parties to it, including without limitation, any right or obligations in relation to representations made in, or incidental to, this MOU. The parties acknowledge that they have not relied upon any such representations.

SIGNING PAGE

Agreed as a MEMORANDUM OF UNDERSTANDING.

Signed for and on behalf of the Department of
Transport

Signed for and on behalf of the Roads and
Traffic Authority of New South Wales



**Director General,
Department of Transport**

**Chief Executive,
Roads and Traffic Authority of New South
Wales**

Date: 30.09.11

Date:

Signed for and on behalf of Ausgrid



George Maltabarow

**Managing Director
Ausgrid**

Date:

Appendix 1 Governance Arrangements (Section 5)

The nominated Management Representatives and Senior Management Representatives of the parties are listed in the table below:

Role	Position	Current Occupant	Contact Details
Ausgrid Senior Management Representative	Executive General Manager - System Planning and Regulation	Peter Birk	T. 02 9269 2611 F. 02 9269 7294 M. 0407 259 725 E: pbirk@ausgrid.com.au
Ausgrid Management Representative	Manager - Street Opening Policy and Standards	Nabil Issa	T. 02 8569 6500 F. 02 8260 1888 M. 0419 030 995 E: nissa@ausgrid.com.au
RTA Senior Management Representative	General Manager, Traffic Management	Craig Moran	T. 02 8588 4369 F. 02 8588 4164 M. 0411 258 829 E: craig_moran@rta.nsw.gov.au
RTA Management Representative	Road Declarations & Telecommunications Manager	Warren Fox	T. 02 8849 2162 F. 8849 2750 M. 0407 910 649 E: warren_fox@rta.nsw.gov.au
DOT, Senior Management Representative	Executive Director, TMC	Phil Akers	T. 8396 1401 F. 8396 1425 M. 0419 285 390 E: Phil_Akers@rta.nsw.gov.au
DOT, Management Representative	Manager, Planned Network Operations, TMC	Steven Issa	T. 8396 1442 F. 8396 1436 M. 0403 098 121 E: Steven_Issa@rta.nsw.gov.au

The initial meetings of Senior Management Representatives and Management Representatives will be convened and chaired by Ausgrid. The convenor and Chair for subsequent meetings will alternate between the parties. Other representatives from a party may be invited to attend the meetings at the invitation of the party's nominated representatives.

An agenda will be prepared by the convenor of the meeting and circulated to the other parties for inclusion of additional items prior to the meeting.

The Chair will arrange for the actions arising from each meeting to be recorded and distributed as minutes to the other parties for comment within 5 business days of the meeting. The other party will respond within 3 business days of receiving the minutes with a view to finalising the minutes of the meeting within a further 2 business days.

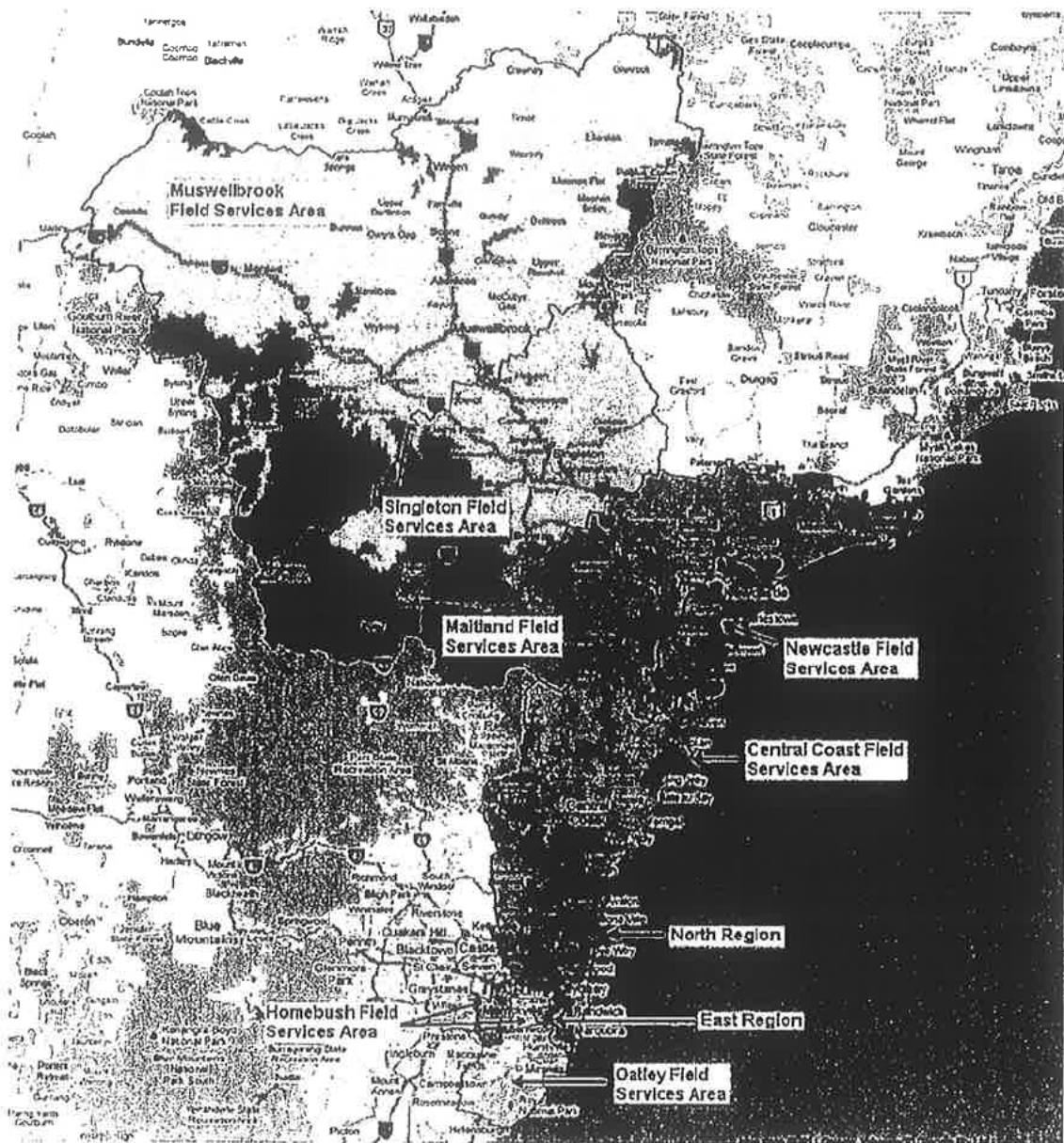
Appendix 2 Map of Ausgrid’s Network Area and RTA Road Network Regions (Sydney Region and Hunter Region) MOU Area (Section 3)

The MOU Area is bounded by the local government areas (LGA) noted in the table below. These areas are indicatively shown on the Ausgrid Network Area maps below. As at the date of this MOU, the LGAs come within the RTA’s administrative areas of Sydney Region and the Hunter Region

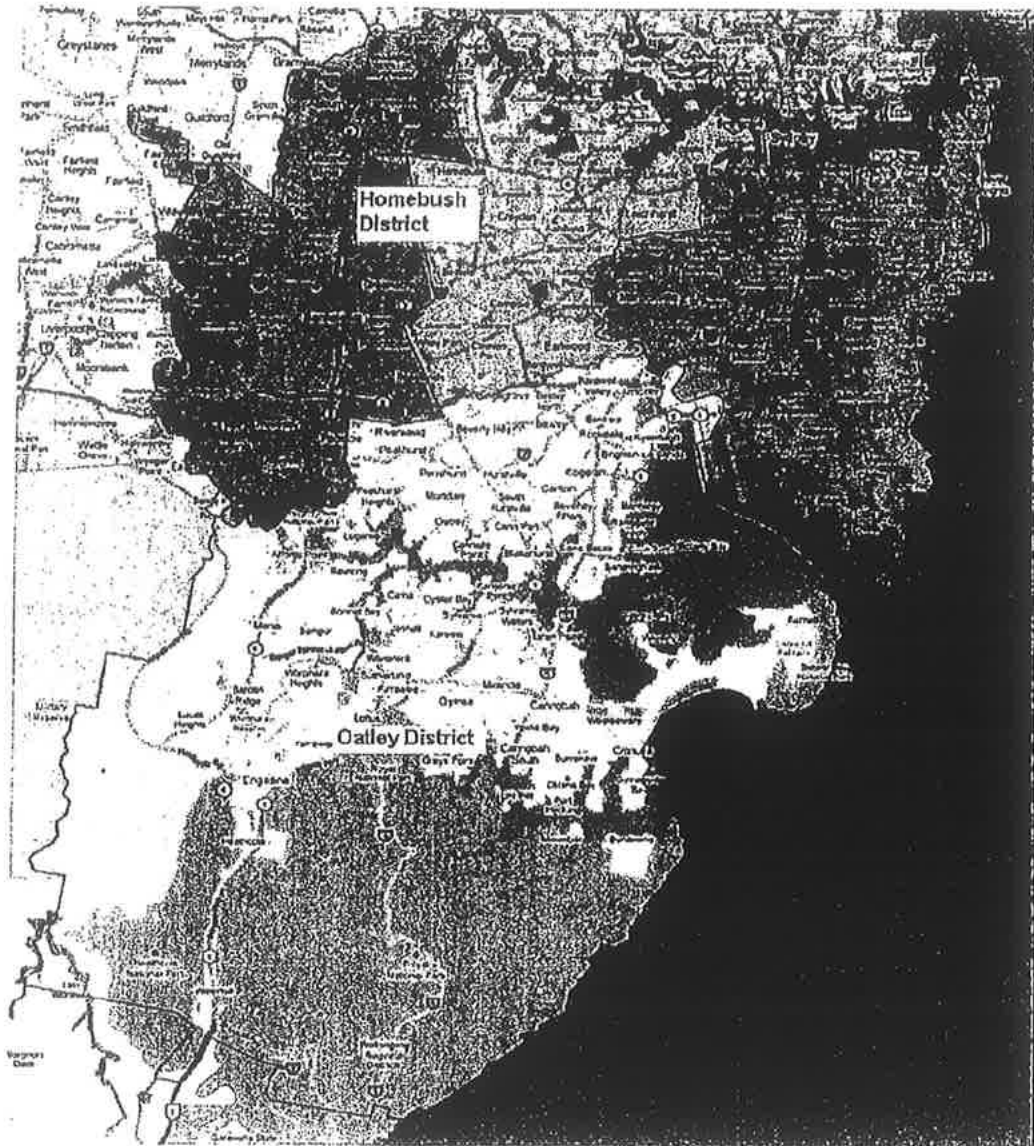
Note: Ausgrid’s network extends into the 41 local government areas listed below. The LGAs of Parramatta City and Hills Shire have a mixture of Ausgrid and Endeavour Energy networks:

1	Ashfield Council	15	Ku-ring-gai Council	20	Rockdale City Council
2	Auburn Council	16	Lake Macquarie City Council	30	City of Ryde
3	Bankstown City Council	17	Lane Cove Municipal Council	31	Singleton Shire Council
4	Botany Bay City Council	18	Leichhardt Municipal Council	32	Strathfield Municipal Council
5	Burwood Council	19	Maitland City Council	33	Sutherland Shire Council
6	Canterbury City Council	20	Manly Council	34	The Hills Shire Council
7	Cessnock City Council	21	Mosman Municipal Council	35	Parramatta City Council
8	City of Canada Bay Council	22	Marrickville Council	36	Upper Hunter Shire Council
9	City of Sydney	23	Muswellbrock Shire Council	37	Warringah Council
10	Gosford City Council	24	Newcastle City Council	38	Waverley Council
11	Hornsby Shire Council	25	North Sydney Council	39	Willoughby City Council
12	Hunters Hill Council	26	Pittwater Council	40	Woolahra Council
13	Hurstville City Council	27	Port Stephens Council	41	Wyong Shire Council
14	Kogarah City Council	28	Randwick City Council		

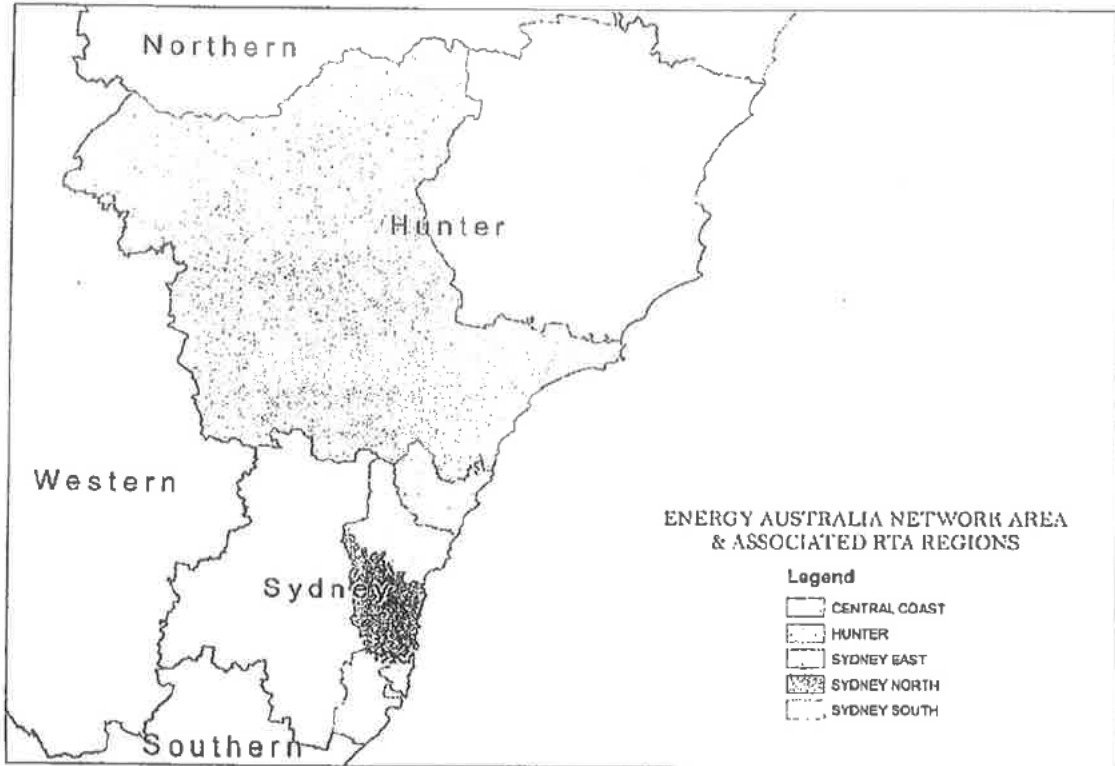
The following map shows Ausgrid's network regions



The following map shows Field Service Area boundaries within South Region of Ausgrid network



The following map shows the RTA Regions overlaid onto the Ausgrid network area



Appendix 3 Current Responsibilities and Interfaces (Section 6)

This Appendix 3 will be further developed after signing this MOU and will cover matters such as:

- work groups, including people involved, roles, responsibilities and authority levels
- identification of communication channels
- frequency/purpose of liaison meetings including responsibility for agendas and minutes
- Direct phone numbers for the Senior Managers are provided in the table below. Where a Senior Manager cannot be easily identified for a particular issue, the management representative should be contacted for further assistance (see Appendix 1).

A3-1 Ausgrid Categories of Work in Road Reserves and Responsible Work Group

ASSET CLASS / FUNCTION	CATEGORY OF WORK	RESPONSIBILITY / EXECUTIVE MANAGER	GEOGRAPHIC AREA	SENIOR MANAGER	CONTACT DETAILS
Sub-transmission Feeders (overhead & underground) and Zone Substations	Project development including route options, feasibility, concept design, consultation and approvals	Craig Moody Executive Manager - Project Development and Approvals	Hunter	Bernie Daniels	Ph: 02-4035 4039 bdaniels@ausgrid.com.au
			Sydney North & Central Coast	Robert Sloan	Ph: 02-4399 8003 rsloan@ausgrid.com.au
			Sydney South	Frank Steele	Ph: 02-9269 7201 fsteele@ausgrid.com.au
			CBD & Sydney East	Wilma Penrose	Ph: 02-9269 4485 wpenrose@ausgrid.com.au

ASSET CLASS / FUNCTION	CATEGORY OF WORK	RESPONSIBILITY / EXECUTIVE MANAGER	GEOGRAPHIC AREA	SENIOR MANAGER	CONTACT DETAILS
Sub-transmission Feeders - Underground	Detailed Design	Colin Peacock Executive Manager – Transmission Mains	Central Coast & Hunter	Frank Hodgkinson	Ph: 02-9394 6627 fhodgkinson@ausgrid.com.au
			Sydney North & Sydney East	Rob Bradley	Ph: 02-9394 6757 rbradley@ausgrid.com.au
			Sydney CBD & Sydney South	Peter Robinson	Ph: 02-9394 6745 probinson@ausgrid.com.au
	Construction	Colin Peacock Executive Manager – Transmission Mains	Central Coast	Frank Hodgkinson	Ph: 02-9394 6627 fhodgkinson@ausgrid.com.au
			Sydney North & Sydney East	Rob Bradley	Ph: 02-9394 6757 rbradley@ausgrid.com.au
			Sydney CBD & Sydney South	Peter Robinson	Ph: 02-9394 6745 probinson@ausgrid.com.au
Sub-transmission Feeders - Overhead	Detailed Design	John Merlino Executive Manager - Projects	Hunter	Mark Stace	Ph: 02-49510847 mstace@ausgrid.com.au
			Ausgrid Network Area	David Eccles	Ph: 02-40354031 deccles@ausgrid.com.au
	Project Management	Colin Peacock Executive Manager – Transmission Mains	Sydney South, Sydney East & Sydney North	Paul Stewart	Ph: 02-9394 6879 pstewart@ausgrid.com.au
			Project Management	John Merlino Executive Manager - Projects	Central Coast & Hunter

ASSET CLASS / FUNCTION	CATEGORY OF WORK	RESPONSIBILITY / EXECUTIVE MANAGER	GEOGRAPHIC AREA	SENIOR MANAGER	CONTACT DETAILS
Sub-transmission Poles	Detailed Design	Colin Peacock Executive Manager – Transmission Mains	Sydney South, Sydney East & Sydney North	Ali Shams	Ph: 02-9394 6548 ashams@ausgrid.com.au
		Brett Hooper General Manager – Design & Engineering	Central Coast & Hunter	David Eccles	Ph: 02-40354031 decclles@ausgrid.com.au
Sub-transmission Poles	Construction	Colin Peacock Executive Manager – Transmission Mains	Sydney South, Sydney East & Sydney North	Ali Shams	Ph: 02-9394 6548 ashams@ausgrid.com.au
		Denis Shanahan Executive Manager – Operations – Lower Hunter & Central Coast	Central Coast	Tom Witcox	Ph: 02-43258576 twitcox@ausgrid.com.au
			Newcastle	Ed King	Ph: 02-49519225 eking@ausgrid.com.au
			Maitland	Greg Skinner	Ph: 02-49349110 gskinner@ausgrid.com.au
Sub-Transmission and Zone Substations	Design and Construction	David Barr Executive Manager – Hunter	Muswellbrook	Geoff Blyth	Ph: 02-6542 9005 gblyth@ausgrid.com.au
		John Merino Executive Manager – Projects	Sydney South & Sydney North	Jovan Gligic	Ph: 02-93946957 jgligic@ausgrid.com.au
			Sydney CBD and East	Con Hindi	Ph: 02-92692950 chindi@ausgrid.com.au
			Hunter & Central Coast	Mark Stage	Ph: 02-49510847 mstage@ausgrid.com.au

ASSET CLASS / FUNCTION	CATEGORY OF WORK	RESPONSIBILITY / EXECUTIVE MANAGER	GEOGRAPHIC AREA	SENIOR MANAGER	CONTACT DETAILS
Customer Connections - Sub-Transmission Network	Design certification - contestable work	Keith Yates Executive Manager - Major Connections & Metering	Ausgrid Network Area	Rob Baxter	Ph: 02-43998147 bbaxter@ausgrid.com.au
	Facilitate network installation and connection, compliance and sign off	Pamela Henderson Executive Manager – Distribution Services	Ausgrid Network Area	Noel Dyer	Ph: 02-43998131 ndyer@ausgrid.com.au
Customer Connections - Distribution Network			Sydney South & Sydney East	Ashwin Prasad	Ph: 02-95855791 aprasad@ausgrid.com.au
	Design certification - contestable work	Pamela Henderson Executive Manager – Distribution Services	Sydney North & Central Coast	Wayne Armstrong	Ph: 02-85696731 warmstrong@ausgrid.com.au
	Facilitate network installation & connection, compliance and sign off		Hunter	Andrew Vandenberg	Ph: 02-49101451 andrewv@ausgrid.com.au
	Incident management liaison		Ausgrid Network Area	Noel Dyer	Ph: 02-43998131 ndyer@ausgrid.com.au
Emergency Management	Media liaison	Peter York Executive Manager – System Control	Ausgrid Network Area	David Russell	Ph: 02-9269-4204 drussell@ausgrid.com.au
		Anthony O'Brien Executive Manager – Corporate Communications	Ausgrid Network Area	24-Hour media pager	Ph: 02-99667985

ASSET CLASS / FUNCTION	CATEGORY OF WORK	RESPONSIBILITY / EXECUTIVE MANAGER	GEOGRAPHIC AREA	SENIOR MANAGER	CONTACT DETAILS
		Bryn Berret Executive Manager - Operations South	Sydney South	Jeffrey Bamsley	Ph: 02-95855615 ibarnsley@ausgrid.com.au
		Lynfon Jamieson Executive Manager - Operations East	Sydney East	David Twigg	Ph: 02-96639526 dtwigg@ausgrid.com.au
Distribution Mains & Substations	Design, construction, maintenance and pole relocations - Initial contact	David Pengilly Executive Manager - Operations North	Sydney North	Alan Hopkins	Ph: 02-94778210 ahopkins@ausgrid.com.au
		Denis Shanahan Executive Manager - Operations Lower Hunter & Central Coast	Central Coast, Newcastle and Maitland	Stephen Tremble	Ph: 02-49519496 stremble@ausgrid.com.au
		David Barr Executive Manager - Hunter	Muswellbrook	Gareth Fleming	Ph: 02-65429002 gfleming@ausgrid.com.au
Street Lighting	Design, construction, maintenance & billing	Walter Stefani Executive Manager – Logistics & Distribution Engineering	Ausgrid Network Area	Phil McKee	Ph: 02-80013339 pmckee@ausgrid.com.au
Network Facilities Access	Utilise Ausgrid spare conduits for installing RTA cabling	Neil Gordon Acting Chief Technology Officer	Ausgrid Network Area	Peter Hopkins	Ph: 02-9269 2895 phopkins@ausgrid.com.au

A3-2 RTA Categories of Work in Road Reserves and Responsible Work Group

ASSET CLASS / FUNCTION	CATEGORY OF WORK	RESPONSIBILITY / GENERAL MANAGER/EXECUTIVE DIRECTOR	GEOGRAPHIC AREA	SENIOR MANAGER	CONTACT DETAILS
General Enquiries for all Ausgrid access to RTA assets	Project development, consultation and approvals		All RTA Regions	Warren Fox	Ph: 8849 2162 Email: Warren_FOX@rta.nsw.gov.au
Road Bridge and Tunnel Infrastructure (existing)	Road Openings	John Statton General Manager Infrastructure Asset Management	Sydney Region	Neil Forrest	Ph: 8849 2933 Email: Neil_FORREST@rta.nsw.gov.au
			Hunter Region	Joe Krsul	Ph: 4924 0357 Email: Joe_KRSUL@rta.nsw.gov.au
Traffic Facilities (Signals Signposting and Street Lighting)	Road Openings	Craig Moran General Manager Traffic Management	Sydney Region	Masoom Islam	Ph: 8849 2193 Email: Masoom_ISLAM@rta.nsw.gov.au
			Hunter Region	Joe Krsul	Ph: 4924 0357 Email: Joe_KRSUL@rta.nsw.gov.au
Traffic cameras	Project development, consultation and approvals Road Occupancy Licences	General Manager, Compliance & Enforcement Branch	Sydney Region	Jeff Jones, Installation & Maintenance Manager	Ph: 02 8849 2546 Email: Jeff_JONES@rta.nsw.gov.au

ASSET CLASS / FUNCTION	CATEGORY OF WORK	RESPONSIBILITY / GENERAL MANAGER/EXECUTIVE DIRECTOR	GEOGRAPHIC AREA	SENIOR MANAGER	CONTACT DETAILS
Major Projects (development and implementation)	Civil Construction	General Manager Project Management Services	Sydney Region	Ian Macleod	Ph: 9352 9526 Email: ian_macleod@rta.nsw.gov.au
			Hunter Region	Bob Handley	Ph: 4924 0289 Email: Bob_HANDLEY@rta.nsw.gov.au

A3-3 TMC Categories of Work in Road Reserves and Responsible Work Group

ASSET CLASS / FUNCTION	CATEGORY OF WORK	RESPONSIBILITY / EXECUTIVE DIRECTOR	GEOGRAPHIC AREA	SENIOR MANAGER	CONTACT DETAILS
Traffic Impacts	Road Occupancy Licence	Phil Akers Executive Director, Transport Management Centre	Sydney Region	Steven Issa	General Enquiries: Ph: 8396 1513 – bus. hours 131700 – after hours Email: Steven_ISSA@rta.nsw.gov.au Ph: 02 8396 1442

A3-4 Ausgrid's Nominated Contacts for Emergency ROLs

The following staff have been nominated by Ausgrid to apply for ROLs covering emergency work as detailed in CI 14.5 – 14.8 of this MOU.

AUSGRID OPERATIONAL UNIT / FUNCTION	EMERGENCY ROL CONTACT
SOUTH REGION (Oatley & Homebush)	<p style="text-align: center;">Jeff Graham Portfolio Manager – Breakdowns Maintenance & Investigations</p> <p style="text-align: center;">Mob: 0417 263 528 Email: jgraham@ausgrid.com.au</p>
EAST REGION	<p style="text-align: center;">Anosh Prasad Manager – Breakdowns Maintenance & Investigations</p> <p style="text-align: center;">Mob: 0437 699 821 Email: anosh.prasad@ausgrid.com.au</p>
NORTH REGION	<p style="text-align: center;">Alan Burgess Manager – Breakdowns Maintenance & Investigation</p> <p style="text-align: center;">Mob: 0407-224840 Email: aburgess@ausgrid.com.au</p>
UNDERGROUND TRANSMISSION	<p style="text-align: center;">Mark Muirhead Engineering Officer</p> <p style="text-align: center;">Mob: 0407 431 713 Email: mmuirhea@ausgrid.com.au</p>
OVERHEAD TRANSMISSION	<p style="text-align: center;">Jonathan Mallin Engineering Officer</p> <p style="text-align: center;">Mob: 0407 193 648 Email: jmallin@ausgrid.com.au</p>

Appendix 4 Regulatory Notices (Section 8)**Section 138 consents**

The following template will be used by Ausgrid when seeking a section 138 consent from the RTA for proposed works on classified roads.

Application to RTA under section 138 of the Roads Act 1993**In respect of a classified road**

Date

To [relevant RTA recipient]

[address]

[Local Government Area] - [Street Address]

Dear [insert name of RTA officer]

Application to RTA under section 138 of the Roads Act 1993 In respect of proposed electricity works on a classified road

Ausgrid seeks the RTA's consent under section 138 of the Roads Act to the undertaking of electricity works, in accordance with Plan No. []. Details of the electricity works and a copy of the Plan are attached.

In the event that the RTA proposes to impose conditions of consent, Ausgrid requests the RTA to commence the consultation process required by section 138(3) as soon as possible, to ensure that the works can commence within 40 days after the date of this notice.

Please contact [name and contact details] to tender the RTA's consent or to commence the requisite consultation process.

DATE:

[Signed]

[Name and position of signatory]

If by the time Ausgrid is ready to begin the works it hasn't received a formal consent under section 138 of the Roads Act, it will then send a follow up letter to the RTA in accordance with the following template.

Follow-up letter to RTA

Date

[Relevant RTA officer]

[address]

Dear [insert name of RTA officer]

(Local Government Area) – (Street address)

Application to RTA under section 138 of the Roads Act 1993 in respect of proposed electricity works on a classified road

I refer to Ausgrid's application to RTA for consent under section 138 of the Roads Act 1993 dated [insert] in respect of proposed electricity works in [name of relevant classified road/s], which are due to commence on [insert date].

To date Ausgrid has not received RTA's section 138 determination in respect of these works.

Please forward your section 138 determination at your earliest convenience so that the works will not be delayed. Please contact me if for some reason the consent will not be forthcoming.

Yours faithfully

Appendix 5 Incident Response Protocols (Section 14)

Incidents jointly affecting the parties generally result from:

- motor vehicle accidents causing damage to Ausgrid's assets, where repair of which has a traffic impact; or
- an incident affecting Ausgrid's network which requires a lane closure(s) during the response to and management of the incident.

In the context of this MOU and under normal operating conditions, the parties have agreed that:

- Requests for ROLs will be dealt with in accordance with the circumstances and agreed timeframes detailed in **Appendix 6**.
- For incidents that involve Ausgrid assets and require urgent road occupancy, Ausgrid will contact the TMC by phone (02 8396 1686) to obtain the required approval to close a traffic lane.
- Where Ausgrid requires an urgent lane closure as a result of an incident and the Ausgrid field representative is unable to obtain approval for the lane closure then the Ausgrid field representative will escalate the issue to his/her local manager who will contact the TMC (02 8396 1686) and request to speak to the Chief Traffic Operations Controller with a view to resolving the issue. If the issue cannot be resolved at this level the Ausgrid Representative will contact the DOT Management Representative (contact details at **Appendix 1**).
- With a view to minimising response times and ultimately clearing incidents in the most expedient manner, Ausgrid will use information provided by emergency services, RTA and DOT to dispatch field resources to attend to incidents immediately to ensure safety at the incident site and commence repairs, rather than sending an Ausgrid resource to confirm the incident first.
- Ausgrid must organise traffic control resources to manage traffic whilst it undertakes repairs to its assets at the earliest possible time, to relieve emergency services and RTA resources so that they can return to normal functions and respond to other incidents across the network as required.
- For street lighting owned by the RTA, Ausgrid will, as a courtesy, isolate street lights the subject of an incident in the interests of community safety. In this regard the parties agree that safety is enhanced when street lighting assets are identified in accordance with SAA 3000 with a name tag showing the owner and the source of supply. The parties have agreed to encourage Local Councils to meet the requirements of SAA 3000 particularly where the RTA is subsidising a street lighting scheme.
- Ausgrid shall use its best endeavours to inform the TMC (02 8396 1686) as soon as practicable following any emergency works where damage to the RTA infrastructure has occurred.

Appendix 6 Road Occupancy Licences (Section 8)

The following criteria is to be applied when identifying the need to apply for an ROL

- TMC: All State Roads, All Regional Roads, Local Roads within 100 metres of a traffic signal or a State Road
- Hunter: All State Roads

The table below identifies, but does not provide an exhaustive list of, the circumstances where a ROL may be required by Ausgrid for Ausgrid Works on a classified road and the agreed time frames for issuing the ROLs by the TMC.

The TMC has introduced a streamlined ROL application and licensing process for the bulk approval of minor impact and mobile work activities on certain roads within the Sydney region. Any work carried out under this system will be subject to certain conditions of approval. Full details of this system are provided in Appendix 15.

Circumstance requiring a ROL	Timeframe for responding to the request for issue of a ROL	Example
Life threatening situation / possible safety issues / significant environmental incident	Immediately – contact the TMC (02 8396 1686) and liaise with TMC Operations staff regarding the time to implement lane closures. A ROL will not be required for those closures. Incidents to be managed in accordance with Section 14 of the MOU.	Vehicle hits pole / live wires down / pole leaning Major oil leaks from sub-transmission cables
Response to an emergency	As soon as mutually agreeable depending on the nature of the fault, its impact on the Ausgrid network and the impact on the traffic and transport network. Contact the TMC (02 8396 1686) and liaise with TMC Operations staff and discuss the need to implement immediate road closure. If agreed, closure can proceed without a ROL approval. If not agreed, contact the TMC or Hunter office and submit ROL application as appropriate.	<ul style="list-style-type: none"> • Emergency Fault repairs where critical customers have been affected by loss of supply • Fault repairs on non-paralleling centres, frontline feeders not requiring the engagement of contract cable laying (CCL) resources • Oil filled cable leak

For critical activities (second phase response to emergency works to restore full network integrity and security)	Within 3 business days of receiving application	<ul style="list-style-type: none"> Urgent fault repairs requiring CCL, cranes or special access to fault Fault repairs that cannot be completed on the same day due to unavailability of resources or the need for switching to be organised Sub Transmission cable repairs to minimise cable damage and reduce the potential for greater impact
Minor / routine maintenance activities in accordance with Road Occupancy Licence Agreement set out in Appendix 15	<p>Undertake works in accordance with the Road Occupancy Licence Agreement set out in Appendix 15.</p> <p>All works that do not meet the requirements of the Road Occupancy Licence Agreement must have a specific ROL application submitted to either TMC or Hunter offices (see Appendix 4)</p>	Replacement of arcing services, broken insulator, street lighting, low catenary etc.
Other planned work	Within 10 business days of receiving application	<ul style="list-style-type: none"> Construction work Planned maintenance work LV fault repairs where LV parallels will hold for at least 4 weeks

It has been agreed that ROLs for emergency and critical circumstances will continue to be processed during the mid December/ mid January shut-down period.

In addition, opportunities will be taken to undertake works in any period where there is a lesser impact on traffic compared to other periods of the year. This includes the December / January period.

It is confirmed that Ausgrid vehicles are able to park in accordance with existing parking signage (as for any other vehicle) without the need for a ROL if the intended activities do not involve work in the road reserve and there is no interference with traffic whatsoever.

Where parking is allowed on the non-peak-hour traffic side of a road during peak hour, the TMC will consider issuing a ROL to allow road works to proceed on that side of the road during peak periods. ROL applications and associated traffic control plans submitted for consideration will include details of kerbside restrictions (parking periods, clearways, bus lanes, not stopping etc) to assist with identifying these opportunities. If the information is not submitted then it is agreed that approvals will more than likely not be issued.

Appendix 7 Ausgrid Standards (Section 15)

Ausgrid Standards which will be used as reference documents in relation to works carried out under the MOU will be the version current at the relevant time. They are:

- Electrical Standard ES1 **Customer Connection Information**
- Electrical Standard ES3 Part A **Metering Installations**
- Electrical Standard ES3 Part B **Technical Specification for Metering Installations**
- Electrical Standard ES4 **Service Provider Authorisation**
- Electrical Standard ES5 **Charges for Network Miscellaneous and Monopoly Services**
- Electrical Standard ES8 **Capital Contributions Guidelines**
- Electrical Standard ES9 **Agreement for Connection for Developments**
- Electrical Standard ES9B **Agreement for Small Asset Relocation Projects**
- Electrical Standard ES10 **Requirements for Electricity Connection to Developments**
- Electrical Standard ES10 **Requirements for Connection of Embedded Generators**
- Network Universal Standard NUS 100 **Field Recording of Network Assets**
- Network Standard NS104 **Specification for Network Project Design Plans**
- Network Standard NS109 **Design Standards for Overhead Developments**
- Network Standard NS110 **Design and Construction Standard for URDs**
- Network Standard NS112 **Design Standards for Commercial/Industrial Developments**
- Network Standard NS113 **Site Selection and Construction Design Requirements for Chamber Substations**
- Network Standard NS114 **Electrical Design and Construction Standards for Chamber Type Substations**
- Network Standard NS116 **Design Standards for Distribution Earthing**
- Network Standard NS117 **Design and Construction Standards for Kiosk Type Substations**
- Network Standard NS119 **Street Lighting Design And Construction**
- Network Standard NS124 **Specification for Overhead Connections (100 to 400Amps)**
- Network Standard NS125 **Specification for Low Voltage Overhead Conductors**
- Network Standard NS130 **Specification for Design and Construction of High Voltage Overhead Mains**
- Network Standard NS130 **Specification for Laying of Underground Cables Up to 22 kV**
- Network Standard NS 135 **Specification for the Design & Construction of Overhead Sub transmission Lines**
- Network Standard NS 0141 **Specification for Site Selection for Kiosk Type Substations**
- Network Standard NS 0143 **Easements**

- Network Standard NS156 **Working Near or Around Underground Cables -**
- Network Standard NS165 **Safety Requirements for Non-Electrical Work in and around Live Substations**
- Network Standard NS167 **Positioning of Poles and Lighting Columns**
- Network Standard NS168 **Specification for the Design and Construction of Underground Sub-Transmission Lines**
- Network Standard NS181 **Approval of Materials and Equipment and Network Standard Variations**
- Network Standard NS183 **Installation of Private Attachments on Ausgrid Poles**
- Network Standard NS194 **Connection of Embedded Generators**
- Network Universal Standard NUS 199 **Safe Electrical Working on Low Voltage Assets**
- Network Standard NS209 **Operating Cranes and Plant in Proximity to Overhead Powerlines**
- Network Standard NS220 **Overhead Distribution Design Manual**
- Network Standard NS224 **Low Voltage (240/415V) Suburban Commercial & Industrial Underground Distribution Utilising Pillars**
- SAA 3000, **Wiring Rules** which stipulate a requirement to include on street lights a **name tag identifying the owner and the source of supply.**
- ENA C(b)1-2006 **GUIDELINES FOR DESIGN AND MAINTENANCE OF OVERHEAD DISTRIBUTION AND TRANSMISSION LINES**
- AS7000 – **Overhead line design – Detailed procedures**
- Service and Installation Rules of NSW
- NSW Streets Opening Conference Guide to Codes and Practices for Streets Opening - 2009 edition

Appendix 8 RTA Standards (Section 15)

RTA Standards, Specifications, Manuals and Forms which will be used as reference documents in relation to works carried out under the MOU will be the version current at the relevant time. The RTA Standards, for the purposes of this MOU, include:

- RTA QA Specification M209, Road Openings and Restoration;
- RTA QA Specification M208, Road Openings and Restoration (Low Risk);
- Traffic Control at Worksites Manual;
- Road Occupancy Manual;
- Road Occupancy Licence Application Development Activities (Form D);
- Explanatory Notes - Road Occupancy Licence Application Development Activities (Form D);
- Road Occupancy Licence (ROL) Check List (Form C);
- Speed Zone Authorisation Application (Form R);
- Explanatory Notes - Speed Zone Authorisation Application (Form R);
- Reducing Trauma as a Result of Crashes Involving Utility Poles, NSW Centre for Road Safety, August 2009;
- Austroads Design Guide with RTA supplements;
- AS 1742 Manual of Uniform Traffic Control Devices;
- RTA's Delineation Manual; and
- RTA Australian Standard Supplements - Australian Standard AS 1742.

In addition to the above, the Guide to Codes and Practices for Streets Opening is a relevant document for the operation of this MOU.

Appendix 9 Application Guidelines for Street Furniture (Section 15)

The following guidelines have been developed to assist the staff of the parties to consistently apply the policies and procedures of the parties to the overall benefit of the community.

Pole Setbacks and Clear Zones

The parties have agreed that in selecting the location of utility poles a key consideration will be reducing the impact of trauma associated with road crashes involving utility poles.

Clear zones are a key road design safety concept. They are provided for errant vehicles that run off the road. The clear zone is an area at the side of the road that must be kept clear of non-frangible hazards. The clear zone generally increases in width as the design speed of the road increases. The RTA Road Design Guide specifies different clear zone widths for different speed environments, traffic volumes and the presence of and slope of roadside cuttings and embankments.

As an example a 3.0m clear zone from the edge of the running lane or kerb face is required for a design speed of 60kph where there is no cutting or embankment.

The pole setbacks required by clear zones are generally inconsistent with the pole construction practices in common use for over 100 years. To achieve compliance would, in many cases require relocation of the existing Ausgrid assets. Even if the existing assets could be relocated, the existing footway widths on many main roads would prevent the clear zone being achieved.

General Requirements for Setbacks

Ausgrid's requirements for the positioning of poles and lighting columns are detailed in its Network Standard NS167 "Positioning of Poles and Lighting Columns". In general, the setbacks required are:

- for poles in residential roads constructed before 1991, at least 500mm back from the kerb face to face of pole;
- for poles in residential roads constructed after January 1991 to be fully offset if practicable; and
- for all classified roads, poles and columns should be located, wherever possible, with their roadside face at least 2.5m behind the face of kerb.

Constraints on Pole Placement

The constraints on pole placement include:

- compliance with the standard footway allocations and agreement between utilities as recorded in the NSW Streets Opening Conference Guide to Codes and Practices for Street Openings;
- width of footpaths adjoining RTA roads (usually no wider than 3 to 5 metres);
- compliance with the required electrical safety clearances to structures such as balconies and railings;
- avoiding property boundary infringements; and
- site specific constraints such as trees, other street furniture, existing underground obstructions, embankments, cuttings and ground conditions.

The parties have noted that previous Federal and NSW State government enquiries into the undergrounding of overhead powerlines determined that it was not cost effective to underground existing assets on a mass scale. However, this form of electricity reticulation should be considered as an option as part of the design process for new or upgraded road or utility assets.

Agreed Pole Setback Strategy

The parties have agreed on the following strategy for pole setbacks:

- Ausgrid will continue to relocate existing poles as close to the property boundary as possible to increase the clear zone wherever this is practical and particularly at locations where the parties agree that the poles present an unacceptable risk due to geometry, sight distance or other factors, or where there is an unacceptable traffic accident history;
- Ausgrid will assess each situation and determine the most appropriate solution using the guidelines and processes contained in this MOU. Ausgrid will consult with RTA personnel regarding all new infrastructure proposals involving classified roads;
- Ausgrid will consider the limited undergrounding of overhead lines subject to funding and availability of resources on a prioritised basis, although undergrounding is not always practical or the preferred technical option;
- As part of RTA's design process for installing new safety barriers/guard fences, RTA will use its best endeavours to consider Ausgrid's requirements for access to any of its assets that could be impacted by such barriers / guard fences; and
- Where safety barriers / guard fences are installed by Ausgrid to satisfy consent conditions imposed by the RTA, the future maintenance of those safety barriers / guard fences will become the responsibility of RTA.

Frangible Street Light Columns

Ausgrid will continue to work with RTA on the development of a functional specification for frangible street light columns and promote their use where appropriate provided no overhead wires are intended to be attached to them. Because of the risk of electrocution from fallen wires, frangible columns will not be used where low voltage overhead reticulation is involved.

Ausgrid and RTA have agreed to work together to consider the development of a functional specification for the use of frangible posts (posts carrying no electrical wires) as an alternative to guard rails for improving road safety in the vicinity of new electrical infrastructure where compliance with the clear zone policy is difficult.

Kiosks

The installation of kiosk substations will be carried out in accordance with the requirements of Ausgrid's Network Standard NS 0141 *Specification for Site Selection for Kiosk Type Substations*. Consideration will be given to maximising road safety benefits and protection of Ausgrid infrastructure in the design of these installations.

Pillars

Pillars are usually positioned within 1200mm from the property boundary in accordance with the requirements of Ausgrid's Network Standards NS 110, NS112, and NS130. Consideration will be given to maximising road safety benefits and protection of Ausgrid infrastructure in the design of these installations.

Road Signs, Traffic Control Signals, Variable Message Signs

Road signs, traffic control signals, variable message signs and similar must be designed to allow sufficient clearance from overhead wires to avoid high voltage induction and a potentially unsafe situation for workers and the community. Appendix 7 provides references for required clearances from electricity assets.

Bridge Lighting

The parties have agreed that for future projects, Ausgrid will provide a metered point of supply for bridge lighting. Beyond that point RTA will be responsible for the design, installation and maintenance of bridge lighting infrastructure.

Appendix 10 Guidelines for Laying Cables in Road Reserves (Section 15)

10.1 Road Crossings and Installation of New Cables by Ausgrid

As a general rule, the parties agree that any new road crossings should be undertaken by under-boring, and designed and constructed to be maintenance-free.

Where Ausgrid proposes to install new cables involving a new road crossing, and where reasonably possible, Ausgrid will under-bore roads which are the responsibility of RTA. However, there are circumstances such as the following which may necessitate a road opening:

- Where there is insufficient land available for send/receive pits to undertake an underbore;
- Where there is an obstruction or utility services in the footpath preventing under boring;
- Where the opening of the road can be undertaken with minimal impact on traffic and restoration can be undertaken with negligible long-term impact on the integrity of the road asset;
- Where the cost of under-boring is excessive compared to its community benefit;
- Where cable rating issues require thermally stable backfill material to be used or where conduit spacing cannot be maintained to guarantee cable ratings;
- Where there are significant safety risks associated with under-boring (for example the risk of striking a known existing utility service);
- Where ground conditions and geotechnical data indicate that boring is not practicable, for example in loose wet sands or in soil containing boulders or if the bore will end up beneath the water table;
- Where there would be unacceptable environmental consequences from under-boring and road opening is a prudent and feasible alternative; and
- Where under-boring would have a significant adverse impact on the surrounding community.

The parties have agreed that in the development and approval of road crossings, the practicalities of under-boring in difficult situations will be considered on the basis of the issues listed above.

10.2 EA's Use of Conduits Installed by RTA

Where Ausgrid wishes to make use of conduits installed by RTA to allow for future development, Ausgrid must first seek RTA's consent to use these conduits.

Where RTA has consented to Ausgrid installing spare conduits to allow for future development, then provided the conduits were installed in accordance with the standards applicable at the time of installation, Ausgrid may exercise its discretion in using them at any time however Ausgrid must provide notification to the RTA of its intention to use the spare conduits and apply to the TMC for an ROL if works relating to the use of the spare conduits requires road occupancy. Any use of such spare conduits is on the condition that their existing depth is not altered. If the relevant road is situated in the Hunter Region then application for a ROL must be made to the RTA's Hunter Regional Office.

10.3 Road Openings Undertaken by Ausgrid

Where a road opening is proposed by Ausgrid and Ausgrid is directly responsible for the project works and the works are not Contestable Works (see Appendix 16 for definition) such road opening works will be undertaken generally in accordance with the current revision of the RTA QA Specification M209, Road Openings and Restoration (M209) with the following exceptions:

- Ausgrid is not required to provide evidence of Public Liability Insurance;

- Ausgrid is not required to submit a Performance Bond; and
- Ausgrid is not required to complete and submit a Deed of Indemnity in the form of Annexure L of M209.

The above exceptions do not apply where Ausgrid subcontracts carrying out of the road opening and associated works to a third party or is otherwise not directly responsible for carrying out the works.

10.4 Application of M209

The parties have agreed that the provisions of M209 in relation to depth of cover of buried cables and conduits will be consistently applied by Ausgrid. In particular and in order to prevent future damage from road works it is confirmed that:

- The minimum cover depth of new buried electrical cables will be in accordance with Table 4 of M209 (which is consistent with Ausgrid's Network Standard NS130 (NS130)) which as at the date of this MOU shows the standard depth of cover as:
 - 1.0m, with 7MPa concrete encasing, or
 - 1.2m below the lowest point on the road formation, if unprotected. The RTA may request a variation to the minimum cover depth of 1.2m where considered necessary for project needs.
- The parties have agreed that compliance with NS130 will meet the requirements of M209 in relation to minimum cover requirements.
- The minimum cover of 1.0m applies at the finished surface level of pavement including road shoulder for protected (encased) services.
- The parties recognise the need for effective preconstruction planning of road openings and the consideration of issues such as minimising the extent of reinstatement.
- In advising RTA of a road opening Ausgrid will provide sufficient detail for RTA to understand the issues associated with the road opening and assess Ausgrid's application for consent. The provision of a full detailed design is considered unnecessary for such purposes.
- RTA has agreed that the conditions of approval for road openings will be consistent with M209.

10.5 Longitudinal Cables under Carriageway

The installation of longitudinal cables under the carriageway should wherever possible be carried out without the need to open cut the pavement. Where this is not practicable (refer to the conditions in clause 10.1 that may necessitate a road opening), all work will generally be undertaken in accordance with M209 as described in clause 10.4.

Where it is necessary to install electrical cables under the carriageway:

- The minimum depth of cover will be 1.0m with 7MPa concrete encasing or equivalent (such as thermally stable backfill material) as measured from the finished surface level of the carriageway to the top of the uppermost cable or conduit.
- However, each individual case will need to be considered separately to ensure that the encasement does not intrude unacceptably into the overlying pavement.
- This will depend heavily on the design of the particular pavement in which specific cables are to be installed.

10.6 Longitudinal Cables Outside Carriageway

The installation of longitudinal cables outside the carriageway will be generally undertaken as follows:

- The final depth of cover for electrical cables and conduits installed outside the carriageway (ie footpath and driveways) will depend on existing obstructions, the number of cables and / or conduits to be installed and their orientation with respect to one another.
- Banks of cables and / or conduits will be installed to have a final cover as follows:
 - 33KV and above: – standard cover > 900mm (as per NS168)
 - High voltage up to 22kV: - standard cover 600mm to 750mm (As per NS130)
 - Low voltage: standard cover 450mm to 600mm (As per NS130)
- Unless there are unusual circumstances, high and low voltage distribution cables are usually located in the footway to enable connection to distribution substations and pillars respectively.
- Distribution cables may need to be relocated if they are impacted by future road works (eg road widening). Having distribution cables longitudinally under the carriageway can lead to an increased frequency of road openings to facilitate maintenance and network augmentations.

10.7 General Comment on Cable Depth

The current carrying capacity of a cable is reduced as its depth increases due to a lower rate of heat dissipation. Increasing the depth of cover of buried cables results in significant additional costs to the community not only in additional installation and maintenance costs but greater depths can result in either larger cables or additional cables having to be installed.

10.8 Ausgrid to Repair Pavement Failures Associated with Ausgrid Works

Ausgrid and RTA agree that:

- Ausgrid undertakes to repair the failure of any pavement directly associated with its works to the satisfaction of RTA if the failure is attributed to the quality of materials and / or workmanship, and the permanent restoration that the failure is associated with was not undertaken by RTA (or its subcontractors) on behalf of Ausgrid. Ausgrid will repair any pavement failure associated with its works to the satisfaction of RTA.
- Ausgrid's liability to make such repairs is limited to a period of 12 months after completion of the permanent reinstatement works.
- Ausgrid does not warrant any roadworks, including permanent restorations, undertaken by RTA on its behalf.

Appendix 11 Instrument of General Concurrence for Regional Classified Roads (Section 8)**INSTRUMENT OF GENERAL CONCURRENCE**
Roads Act, 1993 – Sections 138(2) and 139
Works By Ausgrid on Classified Regional Roads**TO:**

[insert name of council]

(Council)**STATUTORY CONTEXT**Under the *Roads Act, 1993*

1. the Council is the roads authority for all roads within its area, including classified roads (but excluding freeways),
2. any person who proposes to do the things listed in section 138, requires the consent of the roads authority pursuant to that section,
3. where the road is a classified road the concurrence of the RTA is also required,
4. pursuant to section 139 a consent may be given generally or in a particular case, and accordingly the concurrence may also be given generally or in a particular case, and
5. prior to giving consent to a public authority the roads authority, and in the case of a classified road, the RTA as well, must consult with the public authority.

PROPOSED WORKS

Ausgrid, a statutory state owned corporation established under the *Energy Services Corporations Act 1995* proposes to carry out works for its purposes in and on various roads, including classified roads, including those within the Council's area.

CONSULTATION

Ausgrid and the RTA have consulted in relation to the works proposed by Ausgrid described above.

CONCURRENCE

This instrument provides the RTA's general concurrence to Council granting consent to Ausgrid in respect of any application made by it under section 138 in respect of any classified Regional road in Council's area subject to all the circumstances listed below existing.

CIRCUMSTANCES

1. That Council has consulted with Ausgrid in relation to the works either specifically or generally, and
2. Council has considered the impact of the proposed works (including during the construction period) on the convenience and safety of the users of the road.

EXECUTION

Signed by [] of the Roads and Traffic Authority of NSW
pursuant to the general delegation
dated []]
held by them.

.....
(signature)

.....
(date of signature)

Notes.

1. This Instrument does not compel Council to grant any consent to Ausgrid, nor impose any conditions if it determines to grant consent to Ausgrid, if it does not wish to do so in the proper exercise of its discretion. It merely removes the need for concurrence to be sought from the RTA in any particular case.
2. This instrument does not apply to State classified roads.

Appendix 12 Guidelines for the Coordination of Work (Section 16)

Future Works

Ausgrid and RTA will use their best endeavours to adhere to the following guidelines to facilitate the coordination of their respective future works programmes:

- RTA will provide to Ausgrid information relating to its short and long term project proposals for works located in the Ausgrid network area on a regular basis;
- Ausgrid will provide to RTA information relating to its short and long term projects that may have relevance to RTA;
- each organisation will review the other's plans and document any identified potential impacts to its respective assets in sufficient detail to allow the initiator of the project proposal to consider these impacts in the subsequent planning of the project. Each organisation will identify areas of concern which have the potential to create adverse cost, timing, coordination, environmental and quality impacts at any stage of project delivery;
- where projects are likely to affect the assets of either party a contact from each organisation will be nominated for the purposes of providing preliminary information and as a single point of contact for further consultation.
- each party will cooperate to avoid surprises through open and timely communication and action;
- each party will endeavour to identify alternative options and opportunities to improve mutually effective overall project outcomes.
- before the commencement of individual projects the initiator of the works will notify the other party as soon as practicable of the proposed commencement of the works and any other critical activities. Ideally the timeframes for anticipated works over a 12 to 18 month period will be assessed and agreed in advance at the senior management meetings described in Section 4.

Committed works

The following guidelines will be followed to facilitate effective project management interfaces between Ausgrid and the RTA to improve project development and implementation of committed works:

- where Ausgrid's and the RTA's assets are affected, both parties agree that they will contribute to project management by:
 - identifying potential points of concern or conflict at an early stage;
 - considering opportunities for improved coordination and cost efficiencies throughout the project;
 - adhering to a jointly agreed project timetable and achievement of critical milestones including decisions and approvals;
 - undertaking appropriate investigations, options analysis and risk assessment pertaining to the work to be undertaken; and
 - progressing actions for resolving issues of concern.
- the initiator of works will be responsible for:
 - overall project management and provision of project planning information to the other party for consideration and advice;
 - development of proposals and designs;
 - obtaining approvals for design of works and funding;
 - coordination of critical decision making processes;
 - identification of key personnel to ensure efficient communication;
 - timely identification and communication of resource constraints and requirements;

- adhering to the policies, procedures, standards and other formal requirements of both organisations; and
- if necessary, initiating the issue resolution process described in Section 13.
- a party receiving proposals and/or designs showing work proposed on its assets by the other party must provide comments, approval or certification as appropriate within one month of receiving the proposals and/or designs or such other time as agreed by the parties.
- once approval has been granted by Ausgrid to the design plans submitted by the RTA, any delays caused to the project by Ausgrid varying its initial approval and any and all costs incurred by the RTA as a result of the variation will be the responsibility of Ausgrid including costs associated with variation of RTA designs, work schedules and any holding costs or payments arising from the variation and incurred by the RTA under contracts with third parties.
- similarly, where the RTA provides a section 138 consent, ROL or agrees a WAD any delays caused to the project by RTA varying its initial approval and any and all costs incurred by Ausgrid as a result of the variation will be the responsibility of RTA including costs associated with the variation of Ausgrid designs, work schedules and any holding costs or payments arising from the variation and incurred by RTA under contracts with third parties.
- Neither Ausgrid or RTA will be liable for the above variation costs where the need for a variation arises from circumstances beyond the approval authority's control including, but not limited to, Government directives, weather events, natural disasters, traffic or network incidents, "force majeure events" or changes of law which mean that the works the subject of the approval or agreement can not be carried out as agreed.
- the parties will provide each other with relevant organisational information and current 24 hour contact details for emergency maintenance purposes; and
- the parties will provide the resources and contacts required to facilitate satisfactory coordination of activities between the parties.

Appendix 13 Principles for Cost Apportionment (Section 17)

Ausgrid and the RTA agree that appropriate cost apportionment will be determined in accordance with the requirements of clause 17 and the following principles:

- statutory cost allocation provisions will not be varied;
- every effort will be made to minimise the cost impact on Ausgrid and the RTA and the overall cost impact on the community whilst having regard to the achievement of quality outcomes consistent with the objectives of both parties;
- budget costs should be developed by Ausgrid and the RTA for their respective works in the planning and concept design stages of a project, to assist in the early identification of the overall project costs. More defined costs can then be assessed as the project proceeds;
- estimates of costs should reflect an equitable and practical solution based on providing assets, built to current (unless agreed otherwise) standards and meeting other community and environmental requirements;
- each party shall bear the full cost of all works required for their respective projects, with the exception of those costs for Additional Works (as detailed in the paragraph immediately below) and for the RTA Works described in the final paragraph to this Appendix;
- Subject to the two points below, the parties agree that where the party with ultimate ownership of the assets (**Asset Owner**) requires assets of a higher standard or additional works than would otherwise be attributable to its project, the Asset Owner will bear the additional costs attributable to the changes requested.
- If a party's existing assets were:
 - (a) Constructed contrary to the standards applicable at that time; or
 - (b) Not adjusted in association with earlier works that required an upgrade of the asset to meet the standards of the time, and the works of the other party require them to be altered, then the owner of the assets will fund the full cost of the work that was not originally undertaken.
- Where the RTA notifies Ausgrid that it proposes to undertake road widening or realignment works for a particular project (**RTA Works**) and requests Ausgrid to place any utilities owned by Ausgrid within the road reserve or on RTA owned land (**Alternative Land**), but Ausgrid decides not to place its utilities on the Alternative Land, then Ausgrid will be liable for any relocation costs incurred by RTA when it undertakes the RTA Works.

Appendix 14 Guidelines for Issue Resolution (Sections 5, 8, 15, 17 and 18)

The following guidelines will be followed to facilitate the timely and efficient resolution of issues arising in relation to this MOU. :

- If an issue arises that is unable to be resolved by project / operational personnel then the issue must be notified to the relevant Senior Manager of each party (see Appendix 3) within 48 hours. This notification must include the following:
 - project / operational description;
 - project / operational location;
 - the issues;
 - designated personnel and contact details;
 - summary position of the relevant parties;
 - efforts made to negotiate and resolve the issue;
 - implication of not resolving the issue; and
 - suggestions for resolving the issue.
- The Senior Managers of the parties concerned will endeavour to resolve the issue within 5 business days of notification.
- Where an issue is not resolved between the Senior Managers, then it will be escalated to the appropriate Executive Managers (in the case of Ausgrid) or General Manager (in the case of RTA) or Executive Director, TMC (in the case of TMC) (as nominated in Appendix 3) (together for the purposes of this Appendix, the "Executive Managers") who will then seek to resolve the issue within 10 business days. Ausgrid's Executive Managers can be contacted via the switchboard on 13 15 25. The contact details for RTA's and TMC's Executive Managers are as stated in Appendix 3.
- Where an issue is not resolved between the Executive Managers, then the issue will be notified to the Management Representatives who will immediately refer it to the Senior Management Representatives for resolution within 5 business days.
- Where an issue is not resolved by the Senior Management Representatives, the issue will be immediately referred to the Senior Executives of each party for consideration and final resolution. The decision of the Senior Executives will be final and binding on the parties.

Appendix 15 ROAD OCCUPANCY LICENCE CONDITIONS OF APPROVAL FOR BULK APPROVAL OF MINOR IMPACT AND MOBILE WORK ACTIVITIES WITHIN RTA's SYDNEY REGION (Section 8)

Under Section 138 of the Roads Act 1993, the Roads and Traffic Authority (RTA) issues consent for occupation of the road space for construction/maintenance activities and special events on NSW road network. The RTA has called this consent a "Road Occupancy Licence" (ROL). In Sydney Region the ROL is issued by the Transport Management Centre (TMC).

This Road Occupancy Licence Conditions of Approval (ROLCOA) details the streamlined approval process and conditions for the bulk approval of minor impact and mobile work activities within the RTA's Sydney Region.

In working within a streamlined ROL application and licensing process, it is crucial that the Conditions of Approval detailed below, are complied with by the proponents to ensure the sustainability of the streamlined process. Should it be identified that this is not the case, the TMC will undertake a review of the conditions, with the view to, where appropriate, restricting the hours of operation, and/or including further conditions.

Continued failure to comply with the said conditions, ultimately, will result in the termination of the streamlined process, and the application of the standard ROL application and licensing process.

The proponent will be responsible for the use of this ROL & ROLCOA. The proponent's representative must be onsite to supervise the works undertaken and any subsequent issues using this ROL & ROLCOA will remain with the proponent organisation.

1. ROLCOA cover activities that:

- a. Can be immediately packed-up. That is, the road space must be able to be cleared, removing all traffic control equipment and restrictions, returning the road to the original configuration and safe traffic conditions within **15 minutes** of receiving notification from the TMC.
- b. Are on electricity network in Ausgrid's North, East & South Region, undertaken from the NSW Road Network in the RTA's Sydney Region as shown in **Attachment 1**.
- c. Occupies only 1 (one) lane Monday to Friday between 1000-1500hrs and 2000-0500hrs and Saturdays and Sundays between 0500-1600hrs and 2000-0500hrs on all State and Regional Roads, excluding those detailed in **Attachment 2**.
- d. Occupies only 1 (one) lane on roads listed in **Attachment 2** between the hours of 2200-0430hrs, Sundays to Thursdays Inclusive.

NOTE: For conditions (c) and (d) above, if there is parking in a lane then you cannot close any other lane. The 1 (one) lane closure must be confined to the parking lane.

- e. Occupies 2 of 3 lanes between midnight to 0430hrs between Sundays and Thursdays on all State and Regional Roads including those listed in **Attachment 2**. One lane must remain open at all times on the affected carriageway.
- f. Are undertaken under a STOP/SLOW traffic control arrangement between Monday to Friday 1000-1500hrs and 2000-0500hrs on single lane carriageway roads (i.e., a road with 1 lane in each direction) which have a default speed limit of 60km/h.

Note: examples of activities that this ROLCOA cover are listed in **Attachment 3**.

2. ROLCOA does not allow:

- a. Emergency activities/works.
- b. Any lane closures on a road that is listed in **Attachment 4**. A specific ROL must be obtained, for any occupancy at these locations.

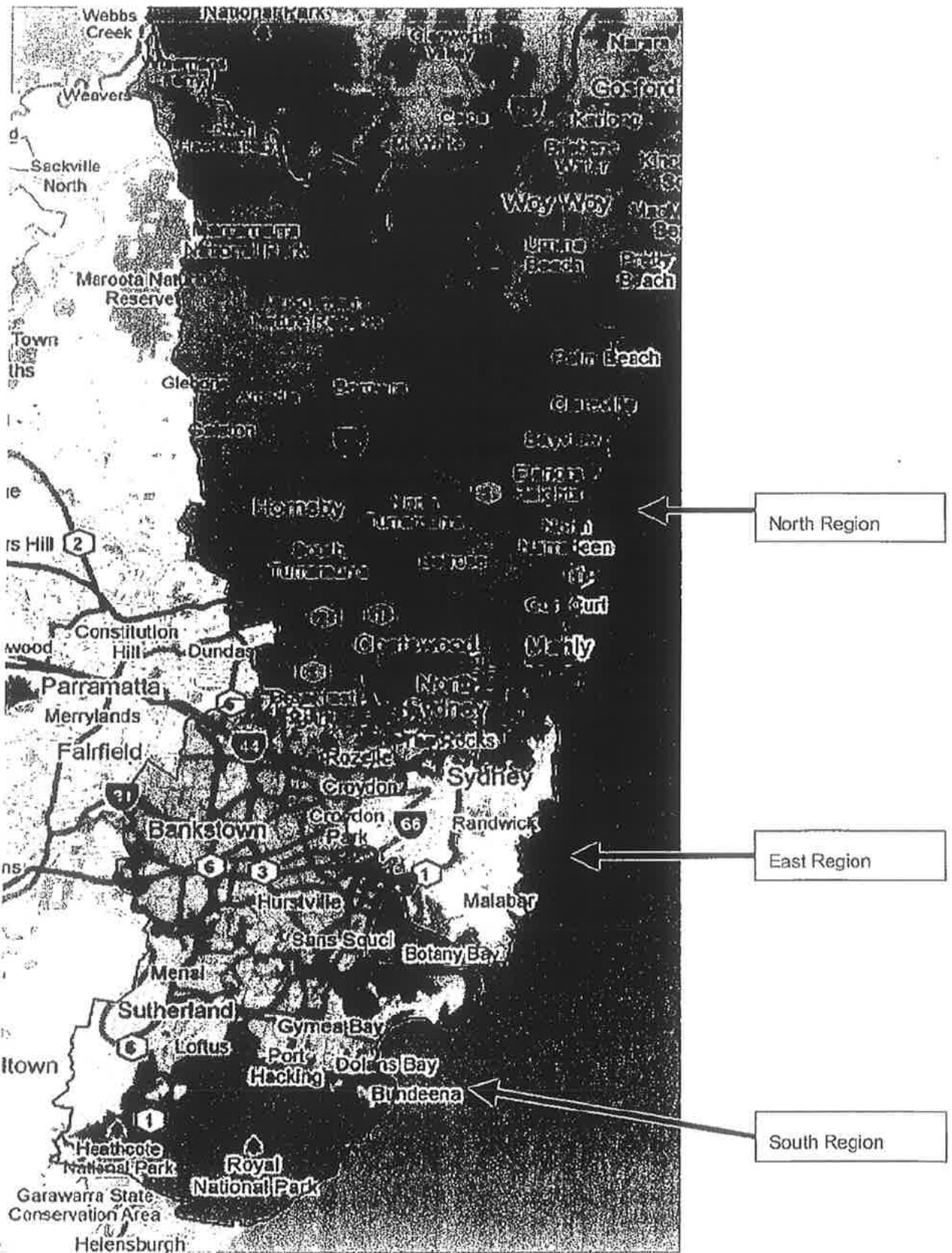
- c. Conflict with "site-specific licenses" held by other organisations. In other words, an organisation holding a site-specific ROL has the first right to occupy the road space. This includes situations where another ROL holding proponent turns up after you may have started your works. You will be expected to vacate the site immediately.
- d. Activities/works in areas affected by a Special Event. A spreadsheet of areas affected by special events will be emailed to you regularly and lane closures are not to be undertaken in those areas during the times of the Special Event.
- e. Activities/works on the last business day before public holidays/long weekend.
- f. Activities/works the business day before and after school holidays start and end, respectively.
- g. Activities/works in areas affected by RTA's tidal flow sites. (These are sites where the RTA electronically or manually changes the configuration of the lanes to accommodate morning or afternoon peak traffic flows.)
- h. Any activity/work requiring a Speed Zone Authorisation.
- i. Activities requiring 'LATERAL SHIFT' or 'CONTRAFLOW' traffic control.
- j. Regardless of this agreement, specific approvals from the relevant Road Authority must be sought in accordance with existing protocols for works and lane closures on all local and regional roads.

Note: examples of activities that are NOT covered under these arrangements are also listed in Attachment 3.

3. To use these ROLCOA, proponents must:

- a. Have a primary and a backup contact available on a 24/7 basis who can be contacted by the TMC when required. Initial contacts are outlined in *Attachment 5* and Ausgrid must keep this list updated.
- b. Apply to the TMC's Planned Incident Unit (PIU) for a ROL each month to cover each upcoming month's activities.
 - i. The standard ROL application 'Form N' is to be used to apply for the monthly licence.
 - ii. 'Minor Maintenance Works under ROLCOA Agreement' is the work description for the application.
 - iii. The application will take the usual 10 working days to be processed.
- c. Inform the TMC of any incidents, delays or congestion that result from any lane closures or the work in general on 02 8396 1686.
- d. Monitor traffic in the vicinity of the work site, and or closure, and if delays occur, lift the closure and open all lanes to traffic.
- e. Adhere to all directives from the TMC to clear the road and road related areas.
- f. Ensure that all Traffic Management Plans (TMPs) and relevant Traffic Control Plans (TCPs) are implemented in accordance with AS.1742.3 and RTA's Traffic Control at Work Sites Manual.
- g. Not undertake activities in active clearways, transitways, bus lanes or any lane with any other type of restriction approved by the TMC (such as special event clearways)
- h. Not undertake activities/closures that conflict with "site-specific licenses" held by other organisations. In other words, an organisation holding a site-specific ROL has the first right to occupy the road space. This includes situations where another ROL holding proponent turns up after you may have started your works. You will be expected to vacate the site immediately and return at another time to complete your works.
- i. Not undertake activities that result in queues exceeding 100 metres, or delays exceeding 3 minutes. If queues exceeding 100 metres or delays exceeding 3 minutes occur, lanes must be re-opened and traffic allowed to clear and be free-flowing before recommencing any closures. An essential role of site personnel is to monitor impacts on traffic by the lane closures.
- j. Undertake activities in shoulders and parking lanes:
 - i. And maintain minimum lane widths of 3.0 metres in each direction for traffic at all times.
 - ii. And not affect trafficable lanes or vehicle movements at intersections.
- k. Consider site specific conditions e.g. daily traffic flow, intersections, shopping strips, etc. and aim to minimise the likelihood of traffic congestion.

Attachment 1 - MAP OF AUSGRID's REGIONS WITHIN RTA's SYDNEY REGION



Attachment 2 – ROADS WITH RESTRICTED ACCESS TIMES

This list is subject to change and proponents must constantly review this list to ensure that the conditions of this ROLCOA are not violated.

Access to these roads must only be between Sundays to Thursdays between 2200-0430hrs.

No.	Subject Road	From	To	Suburb
1	Alford's Point Road	Alma Road	Playford Roma Avenue	Padstow Heights
2	Beecroft Road	Lyne Road	High Street	Epping
3	Botany Road	Bourke St	Regent Street	Redfern
4	Carlingford Road	Beecroft Road	Cumberland Highway	Epping
5	City West Link	Dobroyd Point Road	Wattle Street	Various
6	Cleveland Street	City Road	Anzac Parade	Surry Hills
7	Delhi Road	Epping Road	Plassey Road	Macquarie Park
8	Epping Road	Beecroft Road	Pembroke Street	Epping
9	Epping Road	Pacific Highway	Mowbray Road West	Lane Cove
10	F3 Freeway	Pacific Highway	Pacific Highway	Mt White
11	F5 Freeway	Menangle Road	M5 Motorway	Various
12	Hume Highway	Parramatta Road	M5 Motorway	Various
13	Foreshore Road	Botany Road	General Holmes Drive	Mascot Airport
14	General Holmes Drive	Southern Cross Drive	President Avenue	Brighton-le-Sands
15	Longueville Road	Pacific Highway	Mowbray Road West	Lane Cove
16	McEvoy Street	Bourke Street	Euston Road	Alexandria
17	Military Road	Falcon Street	Spit Road	Various
18	Narellan Road	Exchange Parade	Porrened Street	Narellan
19	Pacific Highway	Cumberland Highway	Bobbin Head Road	Turrumurra
20	Pacific Highway	Mowbray Road	Boundary Road	Chatswood
21	Parramatta Road	Hume Highway	Church Street	Parramatta
22	Princes Highway	King Georges Road	Tom Ugly's Bridge	Blakehurst
23	Princes Highway	Railway Road	Campbell Street	St Peters
24	South Dowling Street	Flinders Street	Southern Cross Drive	Various
25	Southern Cross Drive	Eastern Distributor	General Holmes Drive	Surry Hills/Mascot
26	Spit Road/Manly Road	Sydney Road	Medusa Street	Mosman
27	Sydney CBD	All roads	Broadway-Bradfield Highway	Sydney
28	Parramatta CBD	All roads	All roads	Parramatta
29	Victoria Road	Gladesville Bridge	The Crescent	Various
30	Warringah Freeway	Bradfield Highway	Ernest Street	Cammeray
31	Warringah Road	Loxton Avenue	Wakehurst Pky	Forestville
32	William Street	Palmer Street	Ocean Street	Woolloomooloo
33	Windsor Road	Church Street	Seven Hills Road	Northmead

Attachment 3

The table below contains examples of some of the activities that **CAN** be undertaken under this operating agreement, but are not restricted to:

Activities Included	
Tree pruning	Urgent pot hole repairs
Grass mowing	Crack sealing
Weed control	Pavement inspection
Tree planting	Pavement testing
Vegetation watering	Safety barrier repairs
Large item litter collection	Road sign repairs / replacement
Graffiti cleaning	Batter slope repairs
Loop repairs	Kerb cleaning and repairs
Weigh-in-motion system repairs	Drainage cleaning and repairs
Street light maintenance	CCTV / VLSL maintenance
Street sweeping	Noise barrier / throw screen cleaning
Road marking/pavement marker maintenance	Line marking

The table below contains examples of some of the activities that **CANNOT** be undertaken under this operating agreement, but are not restricted to:

Activities Excluded	
Bridge joint repairs	Overhead bridge maintenance
Bridge safety barrier repairs	Overhead sign repairs
Noise barrier / throw screen repair	Overhead VMS repairs
Small area AC heavy patching	Slab replacement/ Concreting pouring
Small area AC mill & pave	Any works requiring Speed Zone Authorisation (SZA)
Signal reconstruction	Excavation

Attachment 4 – ROADS WITH NO ACCESS UNDER THIS ROLCOA

This list is subject to change and proponents must constantly review this list to ensure that the conditions of this ROLCOA are not violated. **A specific ROL must be obtained, for any occupancy at these locations.**

No.	Subject Road	From	To	Suburb
1	ANZAC Bridge	Pymont	Rozelle	Rozelle
2	Cahill Expressway	Eastern Distributor	Bradfield Hwy	Millers Point
3	Cross City Tunnel	Darling Harbour	Rushcutters Bay	Various
4	Eastern Distributor	Cahill Expressway	South Dowling St	Zetland
5	Eastern Distributor	Surry Hills	Waterloo	Various
6	Lane Cove Tunnel	Lane Cove	Artarmon	Lane Cove
7	M2 Motorway	Baulkham Hills	Lane Cove	Various
8	M4 Motorway	Concord	Penrith	Various
9	M5 Motorway	Casula	Beverley Hills	Various
10	M5 East	Mascot	Beverley Hills	Various
11	M7 Motorway	Casula	Baulkham Hills	Various
12	Sydney Harbour Bridge	Millers Point	Milsons Point	North Sydney
13	Sydney Harbour Tunnel	Sydney	North Sydney	North Sydney
14	Western Distributor	Millers Point	Pymont	Various

Transport Management Centre

Attachment 5 – AUSGRID OPERATIONAL CONTACTS

REGION	DISTRICT / WORK GROUP	BULK ROL RECIPIENT / PRIMARY CONTACT	BACKUP BULK ROL CONTACT	CONTACT FOR SPECIAL EVENTS
SOUTH	Homebush District	Anthony Colebourn Senior Engineer Mob: 0409 175 731 Email: AColebourn@ausgrid.com.au	Steven Lodge Field Coordinator – Overhead Mob: 0448 296 103 Email: SLodge@ausgrid.com.au	Anthony Colebourn Senior Engineer Mob: 0409 175 731 Email: AColebourn@ausgrid.com.au
	Oatley District	John Issa Senior Engineer Mob: 0417 944 938 Email: JIssa@ausgrid.com.au	Bob Bedford Superintendent – Overhead Mob: 0419 185 685 Email: BBedford@ausgrid.com.au	John Issa Senior Engineer Mob: 0417 944 938 Email: JIssa@ausgrid.com.au
NORTH	Hornsby Overhead	Dion Roche Senior Engineer Mob: 0427-208511 Email: DRoche@ausgrid.com.au	Owen Giltinan Portfolio Manager- Construction Mob: 0408-661 752 Email: ogiltinan@ausgrid.com.au	Dion Roche Senior Engineer Mob: 0427-208511 Email: DRoche@ausgrid.com.au
EAST	East and City	Anosh Prasad Manager – Breakdowns Maintenance & Investigations Mob: 0437 699 821 Email: anosh.prasad@ausgrid.com.au	Rob Reid Senior Engineer Mob: 0400 356 082 Email: rob.reid@ausgrid.com.au	Anosh Prasad Manager – Breakdowns Maintenance & Investigations Mob: 0437 699 821 Email: anosh.prasad@ausgrid.com.au

Appendix 16 Definitions

The following definitions are provided to assist the parties to better understand the terminology and acronyms used in this MOU and in the day to day business of the other party.

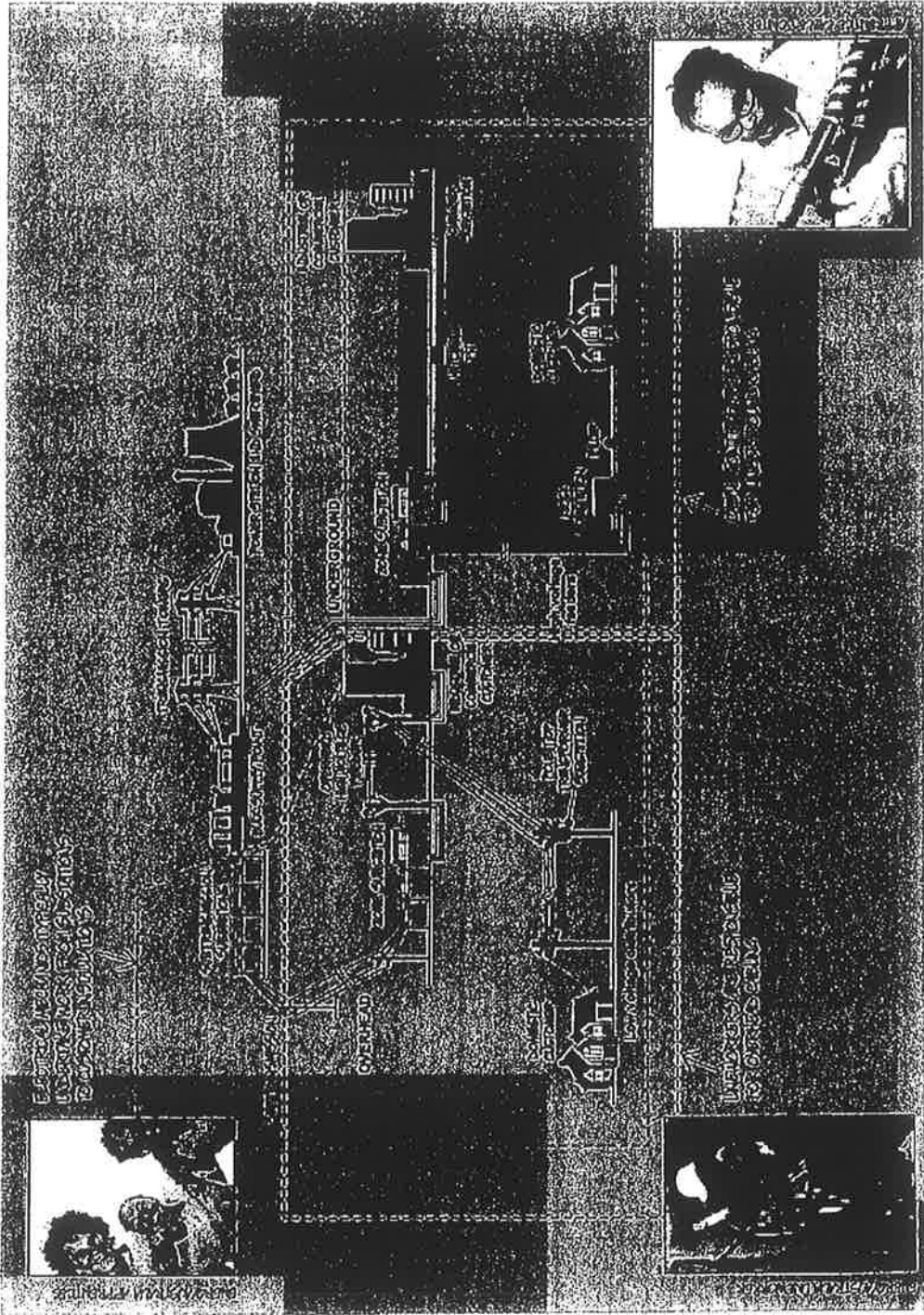
A diagrammatic representation of the basic components of an electricity supply system is also provided in this appendix.

Definitions:

TERM	DEFINITION
ASP	An Accredited Service Provider, being a person accredited under Part 10 of the <i>Electricity Supply (General) Regulation 2001</i> (NSW)
ASP/1	Means a person accredited as an Accredited Service Provider Level 1 under the <i>Electricity Supply (General) Regulation 2001</i> (NSW)
Ausgrid Infrastructure	Has the meaning set out in clause 8.20 of this MOU.
Ausgrid Standards	Means the standards set out in Appendix 7.
Ausgrid Works	Has the meaning set out in clause 3.2 of this MOU
BOO	Build, Own & Operate
BOOT	Build, Own, Operate & Transfer
CCL	Contract Cable Laying group within Ausgrid.
Classified Road	Has the same meaning as described in Section 4 of the MOU.
Complete Design	Means a design of the Contestable Works prepared by an Accredited Designer in a form acceptable to Ausgrid, and includes all the material requested for in the design information provided by Ausgrid (referred to as the Applicable Specification in ES 9).
Contestable Works	Means those works which the Ausgrid customer is required to fund and which are installed by an Accredited Service Provider chosen by the customer under section 31 of the <i>Electricity Supply Act</i> .
DOT	Department of Transport of NSW.
Electricity Supply Act	<i>Electricity Supply Act 1995</i> (NSW).
EP&A Act	<i>Environmental Planning and Assessment Act 1979</i> (NSW)
ES-9A	Has the meaning set out in clause 3.6(c) of this MOU
ES-9A for RTA	Has the meaning set out in clauses 3.6(d) and 11.5 of this MOU.
ES-12 for RTA	Means the Ausgrid Non-Contestable Relocation Works Agreement for RTA which is to be produced in accordance with clause 11.6 of this MOU and which when finalised will be included in Appendix 12C of this MOU.
General Concurrence	Means the document set out in Appendix 11.
Management Representative	Has the meaning and responsibilities set out in clause 5.2 of this MOU. See also Appendix 1
MOU	Memorandum of Understanding
Non-Contestable Works	Works which are not Contestable Works.

TERM	DEFINITION
LV	Low Voltage
Road Occupancy Licence (ROL)	Road occupancy licence specifying the occupancy of road space and lane closures including operational dates and times.
Road Opening	Opening of a road involving open trenching.
Roads Act	<i>Roads Act 1993 (NSW)</i>
RTA	Roads and Traffic Authority of NSW.
RTA Standards	Means the standards set out in Appendix 8.
RTA Works	Has the meaning set out in clause 3.3 of this MOU.
Section 138 consent	Means a consent granted under section 138(1) of the Roads Act.
Senior Management Representative	Has the meaning and responsibilities set out in clause 5.5 of this MOU. See also Appendix 1.
State Owned Corporation	Has the same meaning as set out in section 3 of the <i>State Owned Corporations Act 1989 (NSW)</i> .
Substation	An electrical installation for transforming the operating voltage to a lower voltage
TMC	Transport Management Centre
WAD	RTA Works Authorisation Deed
Works	Means Ausgrid Works or RTA Works
Zone Substation	A substation that transforms the operating voltage from a sub-transmission voltage level to a distribution voltage level.

Basic components of the electricity supply system



SCHEDULE 20
SALE AGREEMENT

Plant and Equipment Sale Agreement

Roads and Maritime Services

ABN 76 236 371 088

and

LT Joint Venture Pty Limited

ACN 169 720 718



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BETWEEN:

- (1) **Roads and Maritime Services** ABN 76 236 371 088 (**RMS**); and
- (2) **LT Joint Venture Pty Limited** ACN 169 720 718 (**ITS Contractor**).

RECITALS

RMS has agreed to sell and the ITS Contractor has agreed to buy the Plant and Equipment for the Purchase Price on the terms of this document.

THE PARTIES AGREE AS FOLLOWS:

1. **INTERPRETATION**

1.1 **Definitions**

The following definitions apply in this document.

Authorisation means:

- (a) an authorisation, consent, declaration, exemption, notarisation or waiver, however it is described; and
- (b) in relation to anything that could be prohibited or restricted by Law if an Authority acts in any way within a specified period, the expiry of that period without that action being taken,

including any renewal or amendment.

Australian Consumer Law means Schedule 2 of the *Competition and Consumer Act 2010* (Cth).

Authority means:

- (a) a government or government department or other body;
- (b) a governmental, semi-governmental or judicial person including a statutory corporation; or
- (c) a person (whether autonomous or not) who is charged with the administration of a Law.

Business Day means a day (other than a Saturday, Sunday or public holiday) on which banks are open for general banking business in Sydney.

Claim means any claim, action, proceeding or demand made against the person concerned, however it arises and whether it is present or future, fixed or unascertained, actual or contingent, and specifically includes making any requisition or objection or claim for compensation, a failure to complete the transactions contemplated by this document or rescinding or terminating this document or attempting or purporting to do so.

Completion means completion of the sale and purchase of the Plant and Equipment under clause 3.

Completion Date means the date on which Completion occurs in accordance with the terms of this document.

Corporations Act means the *Corporations Act 2001* (Cth).

GST has the meaning given in the GST Law.

GST Law has the meaning given in the *A New Tax System (Goods and Services Tax) Act 1999* (Cth).

ITS Maintenance Contract means the contract between RMS and the ITS Contractor entitled "Intelligent Transport Systems Maintenance Contract - Metro East Zone" dated 30 May 2014.

Law means the common law and any act, ordinance, regulation, by-law, order or proclamation and includes the requirements of any Authority or of any Authorisation affecting all or any of the Plant and Equipment.

Loss includes:

- (a) any cost, expense, loss, damage or liability, whether direct, indirect or consequential (including pure economic loss), present or future, fixed or unascertained, actual or contingent; and
- (b) without being limited by paragraph (a) and only to the extent not prohibited by Law, any fine or penalty.

Order means a valid request, direction, notice, demand, requirement, condition (including a condition of an Authorisation) or order from an Authority that requires anything to be done or not done.

Payment Date means [**Note: insert**] or such other date agreed by the parties in writing.

Plant and Equipment means the plant and equipment listed in Schedule 1.

PPS Register means the Personal Property Securities Register established under the PPSA.

PPS Security Interest means a security interest that is subject to the PPSA.

PPSA means the *Personal Property Securities Act 2009* (Cth).

Purchase Price means the purchase price for the Plant and Equipment specified in Schedule 1.

Security Interest means:

- (a) a PPS Security Interest;
- (b) any other mortgage, pledge, lien or charge; or
- (c) any other interest or arrangement of any kind that in substance secures the payment of money or the performance of an obligation, or that gives a creditor priority over unsecured creditors in relation to any property.

Services has the meaning given in the ITS Maintenance Contract.

1.2 Rules for interpreting this document

Headings are for convenience only, and do not affect interpretation. The following rules also apply in interpreting this document, except where the context makes it clear that a rule is not intended to apply.

- (a) A reference to:
 - (i) a legislative provision or legislation (including subordinate legislation) is to that provision or legislation as amended, re-enacted or replaced, and includes any subordinate legislation issued under it;
 - (ii) a document or agreement, or a provision of a document or agreement, is to that document, agreement or provision as amended, supplemented, replaced or novated;
 - (iii) a party to this document or to any other document or agreement includes a successor in title, permitted substitute or a permitted assign of that party;
 - (iv) a person includes any type of entity or body of persons, whether or not it is incorporated or has a separate legal identity, and any executor, administrator or successor in law of the person; and
 - (v) anything (including a right, obligation or concept) includes each part of it.
- (b) A singular word includes the plural, and vice versa.
- (c) A word which suggests one gender includes the other genders.
- (d) If a word is defined, another part of speech for that word has a corresponding meaning.
- (e) If an example is given of anything (including a right, obligation or concept), such as by saying it includes something else, the example does not limit the scope of that thing.
- (f) Words defined in the Corporations Act have the same meaning in this document.
- (g) The word "**agreement**" includes an undertaking or other binding arrangement or understanding, whether or not in writing.
- (h) The expression "**this document**" includes the agreement, arrangement, understanding or transaction recorded in this document.
- (i) A reference to "**information**" is to information of any kind in any form or medium, whether formal or informal, written or unwritten, for example, computer software or programs, concepts, data, drawings, ideas, knowledge, procedures, source codes or object codes, technology or trade secrets.
- (j) A reference to "**dollars**" or "**\$**" is to an amount in Australian currency.
- (k) A reference to time is to local time in Sydney.
- (l) Words defined in the GST Law have the same meaning in clauses, paragraphs or other parts of this document concerning GST.
- (m) This document is not to be interpreted against the interests of a party merely because that party proposed this document or some provision in it or because that party relies on a provision of this document to protect itself.

- (n) If the day on or by which a person must do something under this document is not a Business Day, the person must do it on or by the next Business Day.
- (o) If RMS is notionally liable to pay GST under the GST Law, then a reference in this document to a liability to pay GST or an entitlement to an input tax credit includes any notional GST liability or input tax credit entitlement.

1.3 **Multiple parties**

If a party to this document is made up of more than one person, or a term is used in this document to refer to more than one party, then unless otherwise specified in this document:

- (a) an obligation of those persons is joint and several;
- (b) a right of those persons is held by each of them severally; and
- (c) any other reference to that party or term is a reference to each of those persons separately, so that (for example) a representation, warranty or undertaking relates to each of them separately.

2. **AGREEMENT TO SELL AND BUY THE PLANT AND EQUIPMENT**

2.1 **Sale and purchase**

RMS agrees to sell the Plant and Equipment to the ITS Contractor and the ITS Contractor agrees to buy the Plant and Equipment from RMS for the Purchase Price on the terms of this document.

2.2 **Title, property and risk**

- (a) Until Completion:
 - (i) ownership of and title to; and
 - (ii) subject to paragraph (c), risk in,the Plant and Equipment remains with RMS and does not pass to the ITS Contractor until Completion.
- (b) On Completion:
 - (i) ownership of and title to the Plant and Equipment will vest in the ITS Contractor free of any Security Interest without the need for physical delivery to the ITS Contractor; and
 - (ii) risk in the Plant and Equipment will pass to the ITS Contractor (if it has not already passed to the ITS Contractor under paragraph (c)).
- (c) If the ITS Contractor takes possession of the Plant and Equipment prior to Completion, all risk in the Plant and Equipment will pass to the ITS Contractor at the time that the ITS Contractor takes possession of the Plant and Equipment.

3. **COMPLETION**

- (a) On the Payment Date the Purchase Price for the Plant and Equipment will become a debt due and payable to RMS by the ITS Contractor.
- (b) The Purchase Price for the Plant and Equipment may be:

- (i) paid by the ITS Contractor to RMS on the Payment Date; or
 - (ii) if not paid by the ITS Contractor to RMS on the Payment Date, deducted by RMS from amounts which are due and payable to the ITS Contractor under the ITS Maintenance Contract.
- (c) Completion will be deemed to have occurred when:
- (i) the Purchase Price has been paid to RMS by the ITS Contractor under paragraph (b)(i); or
 - (ii) RMS has set off the full amount of the Purchase Price from amounts which are due and payable to the ITS Contractor under the ITS Maintenance Contract.

4. **BUYER RELIES ON ITS OWN INVESTIGATIONS AND INQUIRIES**

Without limiting clause 6.1, and subject to the terms of this document, the ITS Contractor acknowledges and agrees that in entering into this document and completing the transactions contemplated by this document:

- (a) the ITS Contractor has not been induced to enter into this document by, and does not rely on, any:
 - (i) written or oral representations, warranties, undertakings, covenants, agreements or information provided; or
 - (ii) statements about any matter relating in any way to the Plant and Equipment made,

by or on behalf of RMS, RMS' representatives or their respective employees, officers, advisers or agents;
- (b) it has been given the opportunity to undertake its own due diligence investigations, to make such enquiries and conduct such assessments as it saw fit with respect to the Plant and Equipment and to consider all advice and reports received;
- (c) it has, and is taken to have, undertaken its own due diligence investigations, made its own enquiries and conducted its own assessments as it saw fit with respect to the Plant and Equipment, including without limitation, in respect of the following matters:
 - (i) the existence or non-existence of any approval, licence, permit or any Authorisation required by any Authority for the Plant and Equipment to be operated or used in the manner presently operated or in any manner planned to be operated;
 - (ii) the compliance or non-compliance, as the case may be, of the Plant and Equipment with any approval, licence, permit or any Laws, Orders and Authorisations relating to the Plant and Equipment at any time (including past, present and future);
 - (iii) the condition, quality and state of repair of the Plant and Equipment;
 - (iv) the fitness or suitability of the Plant and Equipment for the performance of the Services or any other purpose;
 - (v) the financial return or income to be derived from the Plant and Equipment and the future economic feasibility and viability of the Plant and Equipment;

(vi) any latent or patent defect in the Plant and Equipment;

and it has, and is taken to have, relied exclusively on these due diligence investigations, enquiries and assessments when entering into this document; and

(d) it has, and is taken to have, relied exclusively on its own skill and judgment as well as that of its consultants and representatives, in understanding, interpreting and relying on all due diligence investigations, enquiries and assessments undertaken by the ITS Contractor in respect of the Plant and Equipment, including in respect of those matters listed in paragraph (c).

5. **CONDITION OF THE PLANT AND EQUIPMENT**

(a) Subject to the terms of this document, the ITS Contractor acknowledges and agrees that:

(i) the Plant and Equipment is sold subject to all defects (if any) latent or patent and whether or not they could or should have been recognisable upon an inspection by the ITS Contractor of the Plant and Equipment or as a result of any examination and enquiry carried out by the ITS Contractor; and

(ii) the Plant and Equipment is sold and will be transferred "as is", "where is" and "with all faults" without any representation or warranty including, without limitation, any representation or warranty as to condition, fitness for any particular purpose or compliance with Laws.

(b) Subject to the terms of this document, the ITS Contractor having made its own enquiries and on the basis set out in paragraph (a), accepts the Plant and Equipment in their condition as at the date of this document, including any dilapidation, infestation, defect (latent or patent).

6. **RELEASE AND INDEMNITY**

6.1 **Release**

To the full extent permitted by Law, the ITS Contractor:

(a) cannot make any Claim against RMS in respect of; and

(b) releases RMS from any obligation, duty or liability to the ITS Contractor arising from or in connection with,

any of the following:

(c) any Loss, Order or liability in relation to the Plant and Equipment, irrespective of whether such Loss, Order or liability arises or exists before or after the Completion Date;

(d) any matter disclosed or described in this document;

(e) the existence or non-existence of any approval, licence, permit or any Authorisation required by any Authority for the Plant and Equipment to be operated or used in the manner presently operated or used or in any manner planned to be operated or used;

(f) the compliance or non-compliance, as the case may be, of the Plant and Equipment with any approval, licence, permit or any Laws, Orders and Authorisations relating to the Plant and Equipment at any time (including past, present and future);

- (g) the condition, quality and state of repair of the Plant and Equipment;
- (h) the use and purposes for which the Plant and Equipment can be put;
- (i) the fitness or suitability of the Plant and Equipment for the performance of the Services or any other purpose;
- (j) the financial return or income to be derived from the Plant and Equipment and the future economic feasibility and viability of the Plant and Equipment;
- (k) any latent or patent defect in the Plant and Equipment; and
- (l) any right it may have to make any Claim against RMS based on:
 - (i) the Australian Consumer Law (including sections 4, 18 and 29); or
 - (ii) the *Sale of Goods Act 1923* (NSW) (including section 19),
 or on any corresponding provision of any State or Territory legislation, or on a similar provision under any other Law, for any statement or representation about any of those things which is not expressly contained in this document.

6.2 Indemnity by the ITS Contractor

The ITS Contractor assumes all responsibility and liability for the Plant and Equipment and hereby irrevocably indemnifies RMS from and against all and any Claim, Loss, Order or liability suffered or incurred by RMS relating to the Plant and Equipment or this document in any way on or after the Completion Date, including without limitation in respect of the following matters:

- (a) the existence or non-existence of any approval, licence, permit or any Authorisation required by any Authority for the Plant and Equipment to be operated or used in the manner presently operated or used or in any manner planned to be operated or used;
- (b) the compliance or non-compliance, as the case may be, of the Plant and Equipment with any approval, licence, permit or any Laws, Orders and Authorisations relating to the Plant and Equipment at any time (including past, present and future);
- (c) the condition, quality and state of repair of the Plant and Equipment;
- (d) the use and purposes for which the Plant and Equipment can be put;
- (e) the fitness or suitability of the Plant and Equipment for the performance of the Services or any other purpose;
- (f) the financial return or income to be derived from the Plant and Equipment and the future economic feasibility and viability of the Plant and Equipment; and
- (g) any latent or patent defect in the Plant and Equipment.

6.3 No merger

Clauses 6.1 and 6.2 do not merge on Completion but continue after Completion. The ITS Contractor acknowledges that clauses 6.1 and 6.2 apply to the full extent of the Law and continues despite any change in any Laws in the future.

7. ITS CONTRACTOR'S REPRESENTATIONS AND WARRANTIES

The ITS Contractor represents and warrants to RMS (and RMS enters into this document in reliance on these warranties) that as at the date of this document and again at the Completion Date:

- (a) if it is a company:
 - (i) **(status)** it is a company limited by shares under the Corporations Act; and
 - (ii) **(corporate authority)** it has taken all corporate action that is necessary or desirable to authorise its entry into this document and to carry out the transactions that this document contemplates;
- (b) **(power)** it has full legal capacity and power to:
 - (i) own its property and to carry on its business; and
 - (ii) enter into this document and to carry out the transactions that it contemplates;
- (c) **(Authorisations)** it holds each Authorisation that is necessary or desirable to:
 - (i) enable it to properly execute this document and to carry out the transactions that it contemplates;
 - (ii) ensure that this document is legal, valid, binding and admissible in evidence; or
 - (iii) enable it to properly carry on its business as it is now being conducted,and it is complying with any conditions to which any of these Authorisations is subject;
- (d) **(documents effective)** this document constitutes its legal, valid and binding obligations, enforceable against it in accordance with its terms (except to the extent limited by equitable principles and Laws affecting creditors' rights generally), subject to any necessary stamping or registration;
- (e) **(no contravention)** neither its execution of this document nor the carrying out by it of the transactions that this document contemplates, does or will:
 - (i) contravene any Law to which it or any of its property is subject or any order of any Authority that is binding on it or any of its property;
 - (ii) contravene any Authorisation;
 - (iii) contravene any agreement binding on it or any of its property;
 - (iv) contravene its constitution or the powers or duties of its directors; or
 - (v) require it to make any payment or delivery in respect of any debt before it would otherwise be obliged to do so; and
- (f) **(solvency)** there are no reasonable grounds to suspect that it will not be able to pay its debts as and when they become due and payable.

8. **SELLERS REPRESENTATIONS AND WARRANTIES**

RMS represents and warrants to the ITS Contractor (and the ITS Contractor enters into this document in reliance on these warranties) that as at the date of this document and again at the Completion Date it has full legal capacity and power to:

- (a) own its property; and
- (b) enter into this document and to carry out the transactions that it contemplates.

9. **GST**

9.1 **GST pass on**

If GST is or will be payable on a supply made under or in connection with this document, to the extent that the consideration otherwise provided for that supply under this document is not stated to include an amount in respect of GST on the supply:

- (a) the consideration otherwise provided for that supply under this document is increased by the amount of that GST; and
- (b) the recipient must make payment of the increase as and when the consideration otherwise provided for, or relevant part of it, must be paid or provided or, if the consideration has already been paid or provided, within 7 days' of receiving a written demand from the supplier.

9.2 **Later adjustment to price or GST**

If there is an adjustment event in relation to a supply which results in the amount of GST on a supply being different from the amount in respect of GST already recovered by the supplier, as appropriate, the supplier within 14 days of becoming aware of the adjustment event:

- (a) may recover from the recipient the amount by which the amount of GST on the supply exceeds the amount already recovered by giving 7 days' written notice; or
- (b) must refund to the recipient the amount by which the amount already recovered exceeds the amount of GST on the supply to the extent that the supplier is entitled to a refund or credit from the Commissioner of Taxation; and
- (c) must issue an adjustment note or tax invoice reflecting the adjustment event in relation to the supply to the recipient within 28 days of the adjustment event except where the recipient is required to issue an adjustment note or tax invoice in relation to the supply.

9.3 **Tax invoices/adjustment notes**

The right of the supplier to recover any amount in respect of GST under this document on a supply is subject to the issuing of the relevant tax invoice or adjustment note to the recipient except where the recipient is required to issue the tax invoice or adjustment note.

9.4 **GST on claims and expenses**

- (a) If a party provides a payment for or any satisfaction of a Claim or a right to Claim under or in connection with this document (for example, for misrepresentation or for a breach of any warranty or warranty of the ITS Contractor or for indemnity or for reimbursement of any expense) that gives rise to a liability for GST, the

provider must pay, and indemnify the claimant on demand against, the amount of that GST.

- (b) If a party has a Claim under or in connection with this document for a cost on which that party must pay an amount for GST, the claim is for the cost plus the amount for GST (except any amount for GST for which that party is entitled to an input tax credit).
- (c) If a party has a Claim under or in connection with this document whose amount depends on actual or estimated revenue or which is for a loss of revenue, revenue must be calculated without including any amount received or receivable as reimbursement for GST (whether that amount is separate or included as part of a larger amount).

10. **COSTS AND STAMP DUTY**

10.1 **Costs generally**

Subject to clause 10.2, each party must pay its own expenses incurred in negotiating, preparing, executing, completing and carrying into effect this document.

10.2 **Stamp duty generally**

The ITS Contractor is solely responsible for, and must indemnify RMS against, any duty that is payable on or in relation to:

- (a) this document;
- (b) the sale, purchase, assignment or transfer of any property under this document; and
- (c) any instrument or transaction that this document contemplates.

11. **CONFIDENTIALITY**

11.1 **Confidentiality of this document**

The parties acknowledge and agree that:

- (a) this document; and
- (b) all information exchanged between the parties in connection with this document,

is confidential and may only be disclosed in accordance with clause 34.1 of the ITS Maintenance Contract.

11.2 **PPSA confidentiality**

- (a) In this clause 11.2, all references to sections are to sections in the PPSA.
- (b) The parties must not disclose information of the kind mentioned in section 275(1), except in the circumstances required by sections 275(7)(b) to (e). The ITS Contractor must obtain RMS' consent before authorising the disclosure of information under section 275(7)(c) or requesting information under section 275(7)(d). Nothing in this paragraph prevents any disclosure by the ITS Contractor that it reasonably believes is necessary to comply with its other obligations under the PPSA.

11.3 **No merger**

This clause 11 does not merge on Completion but continues after Completion. The ITS Contractor acknowledges that this clause 11 applies to the full extent of the Law and continues despite any change in any Laws in the future.

12. **NOTICES**

12.1 **How to give a notice**

A notice, consent or other communication under this document is only effective if it is:

- (a) in writing, signed by or on behalf of the party giving it;
- (b) addressed to the party to whom it is to be given; and
- (c) it is:
 - (i) delivered or sent by pre-paid mail (by airmail, if the addressee is overseas) to that party's address;
 - (ii) sent by fax to that party's fax number and the machine from which it is sent produces a report that states that it was sent in full; or
 - (iii) sent by email in the form of a .pdf file of a letter to that party's email address.

12.2 **When a notice is given**

A notice, consent or other communication that complies with this clause 12 is regarded as given and received:

- (a) if it is delivered or sent by fax:
 - (i) by 5.00 pm (local time in the place of receipt) on a Business Day - on that day; or
 - (ii) after 5.00 pm (local time in the place of receipt) on a Business Day, or on a day that is not a Business Day - on the next Business Day;
- (b) if it is sent by mail:
 - (i) within Australia – 3 Business Days after posting; or
 - (ii) to or from a place outside Australia – 7 Business Days after posting; or
- (c) if it is delivered or sent by email:
 - (i) by 5.00 pm (local time in the place of receipt) on a Business Day - on that day; or
 - (ii) after 5.00 pm (local time in the place of receipt) on a Business Day, or on a day that is not a Business Day - on the next Business Day.

12.3 **Address for notices**

Each party's address, fax number and email address are as set out below or as the party notifies the other party.

RMS

Address: Level 9, 101 Miller Street
North Sydney NSW 2060

Fax: (02) 8588 4134

Email: stephen.cowdery@rms.nsw.gov.au

Attention: Stephen Cowdery, General Manager, Contract Management Office
(With a copy to Christine Lithgow, General Counsel)

ITS Contractor

Address: Level 1, Building 0 Binary Centre
3 Richardson Place
North Ryde NSW 2113

Fax: (02) 8667 6025

Email: Paul.Ferguson@lendlease.com

Attention: Paul Ferguson, Company Secretary

12.4 Authority to register and waiver of right to receive verification statements

The ITS Contractor acknowledges that RMS may, at RMS' cost, register one or more financing statements in relation to any PPS Security Interests provided for by this document. If permitted by the PPSA, the ITS Contractor waives its rights under section 157 of the PPSA to receive notice of any verification statement relating to the registration of any such financing statement or any related financing change statement.

13. AMENDMENT AND ASSIGNMENT

13.1 Amendment

This document can only be amended or replaced by another document signed by the parties.

13.2 Assignment

The ITS Contractor must not assign, transfer or otherwise deal with any of its rights or obligations under this document except with the prior written consent of RMS.

14. GENERAL

14.1 Governing law

- (a) This document is governed by the Laws of the State of New South Wales.
- (b) Each party submits to the jurisdiction of the courts of that State, and any court that may hear appeals from any of those courts, for any proceedings in connection with this document.

14.2 **Giving effect to this document**

Each party must do anything (including execute any document), and must ensure that its employees and agents do anything (including execute any document), that any other party may reasonably require to give full effect to this document.

14.3 **Consents**

Where this document contemplates that a party may agree, approve or consent to something (however it is described), that party may not unreasonably withhold or delay giving that agreement, approval or consent, unless this document expressly contemplates otherwise.

14.4 **Waiver of rights**

A right may only be waived in writing, signed by the party giving the waiver, and:

- (a) no other conduct of a party (including a failure to exercise, or delay in exercising, the right) operates as a waiver of the right or otherwise prevents the exercise of the right;
- (b) a waiver of a right on one or more occasions does not operate as a waiver of that right or as an estoppel precluding enforcement of that right if it arises again; and
- (c) the exercise of a right does not prevent any further exercise of that right or of any other right.

14.5 **Operation of indemnities**

- (a) Each indemnity in this document survives the ending of this document.
- (b) RMS may recover a payment under an indemnity in this document before it makes the payment in respect of which the indemnity is given.
- (c) If a provision of this document is expressed to:
 - (i) indemnify;
 - (ii) exclude or limit any liability of; or
 - (iii) otherwise benefit,

a person who is not a party to this document, the ITS Contractor agrees that RMS holds the benefit of that indemnity, exclusion, limitation or other benefit on trust for that person and may enforce this document on their behalf and for their benefit.

14.6 **Operation of this document**

- (a) Subject to paragraph (b), this document contains the entire agreement between the parties about its subject matter. Any previous understanding, agreement, representation or warranty relating to that subject matter is replaced by this document and has no further effect.
- (b) Any right that a person may have under this document is in addition to, and does not replace or limit, any other right that the person may have.
- (c) Any provision of this document which is unenforceable or partly unenforceable is, where possible, to be severed to the extent necessary to make this document

enforceable, unless this would materially change the intended effect of this document.

14.7 No merger

- (a) No provision of this document which is capable of continued operation after Completion:
 - (i) merges on or by virtue of Completion; or
 - (ii) is in any way modified, discharged or prejudiced by reason of any investigations made or information acquired by or on behalf of the ITS Contractor.

14.8 Counterparts

This document may be executed in counterparts.

SCHEDULE 1

Plant and Equipment

Item Number	Details / Description of Plant and Equipment	Quantity	Purchase Price(\$) (exclusive of GST)
1	<i>[Note: insert as appropriate]</i>	<i>[Note: insert as appropriate]</i>	<i>[Note: insert as appropriate]</i>
2			
3			
4			
5			
		TOTAL:	<i>[Note: insert as appropriate]</i>

EXECUTED as an agreement.

SIGNED for ROADS AND MARITIME SERVICES ABN 76 236 371 088 by its duly authorised officer, in the presence of:

Signature of witness

Name

EXECUTED by LT JOINT VENTURE PTY LIMITED ACN 169 720 718:

Signature of director

Name

Signature of officer

Name

Signature of director/secretary

Name

SCHEDULE 21
RMS DEPOT LICENCE

Depot Licence

Roads and Maritime Services

ABN 76 236 371 088

and


LT Joint Venture Pty Limited

ACN 169 720 718



REFERENCE SCHEDULE

- ITEM 1: RMS**
- (a) Name: Roads and Maritime Services
- (b) ABN: 76 236 371 088
- (c) Address: Level 9, 101 Miller Street
North Sydney NSW 2060
- (d) Fax: (02) 8588 4134
- (e) Email: stephen.cowdery@rms.nsw.gov.au
- (f) Attention: Stephen Cowdery, General Manager, Contract Management Office
(With a copy to Christine Lithgow, General Counsel)
- ITEM 2: ITS Contractor**
- (a) Name: LT Joint Venture Pty Limited
- (b) ACN: 169 720 718
- (c) Address: Level 1, Building 0 Binary Centre
3 Richardson Place
North Ryde NSW 2113
- (d) Fax: (02) 8667 6025
- (e) Email: Paul.Ferguson@lendlease.com
- (f) Attention: Paul Ferguson
- ITEM 3: Licensed Areas** Those parts of the Depot which are agreed between the parties and documented in writing as being the licensed areas for the purpose of this document.
- ITEM 4: Depot** 422 West Botany Street, Rockdale NSW 2216
- ITEM 5: Licence Commencement Date** The date on which the last of the conditions precedent specified in clause 1A.1(a) of the ITS Maintenance Contract is satisfied by the ITS Contractor or waived by RMS.
- ITEM 6: Licence Expiry Date** The date of expiry of the Contract Term of the ITS Maintenance Contract.

ITEM 7	Occupation Date	15 September 2014 (or such other date as may be agreed in writing by the parties).
ITEM 8:	Licence Fee	
ITEM 9:	Payment Date	Each anniversary of the Occupation Date.
ITEM 10:	Licence Fee Commencement Date	The Occupation Date.
ITEM 11:	Permitted Use	<p>Prior to the Occupation Date</p> <p>Carrying out any fitout works and/or other preparatory works which are approved by RMS under the terms of this document and required to enable the ITS Contractor to use the Licensed Areas to provide the Services under the ITS Maintenance Contract.</p> <p>Following the Occupation Date</p> <p>Performance of the Services under the ITS Maintenance Contract.</p> <p>Performance of road maintenance services for third parties which are permitted under clause 6.3 of the ITS Maintenance Contract.</p>
ITEM 12:	Other Conditions	None.

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Schedule

1	INSURANCE SCHEDULE
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BETWEEN:

- (1) **Roads and Maritime Services** ABN 76 236 371 088 (**RMS**); and
- (2) **LT Joint Venture Pty Limited** ACN 169 720 718 (**ITS Contractor**).

RECITALS

- A. RMS owns the Licensed Areas.
- B. RMS agrees to grant a non-exclusive licence to the ITS Contractor to use the Licensed Areas on the terms of this document.
- C. The ITS Contractor agrees to accept the licence to use the Licensed Areas, on the terms of this document.

OPERATIVE PROVISIONS

1. **DEFINITIONS**

1.1 **Definitions**

In this agreement, unless the contrary intention appears:

Authority means:

- (a) a government or government department or other body;
- (b) a governmental, semi-governmental or judicial person including a statutory corporation; or
- (c) a person (whether autonomous or not) who is charged with the administration of a Law.

Building Code of Australia means the "Building Code of Australia" as published by the Australian Building Codes Board from time to time.

Business Day means a day (other than a Saturday, Sunday or public holiday) on which banks are open for general banking business in Sydney.

Condition Report means the report prepared by RMS and approved by the ITS Contractor which details the state of repair and condition of the Licenced Areas as at the Licence Commencement Date.

Construction Project is a project that involves Construction Work where the cost of the construction work is \$250,000 or more.

Construction Work means any work carried out in connection with the construction, alteration, conversion, fitting-out, commissioning, renovation, repair, maintenance, refurbishment, demolition, decommissioning or dismantling of a structure. Without limiting this definition, Construction Work includes the following:

- (a) any installation or testing carried out in connection with an activity referred to above;
- (b) the removal from the workplace of any product or waste resulting from demolition;

- (c) the prefabrication or testing of elements, at a place specifically established for the construction work, for use in construction work;
- (d) the assembly of prefabricated elements to form a structure, or the disassembly of prefabricated elements forming part of a structure;
- (e) the installation, testing or maintenance of an essential service in relation to a structure;
- (f) any work connected with an excavation;
- (g) any work connected with any preparatory work or site preparation (including landscaping as part of site preparation) carried out in connection with an activity referred to above; and
- (h) an activity referred to above, that is carried out on, under or near water, including work on buoys and obstructions to navigation.

Construction Work does not include any of the following:

- (a) the manufacture of plant;
- (b) the prefabrication of elements, other than at a place specifically established for the construction work, for use in construction work;
- (c) the construction or assembly of a structure that once constructed or assembled is intended to be transported to another place;
- (d) testing, maintenance or repair work of a minor nature carried out in connection with a structure; and
- (e) mining or the exploration for or extraction of minerals.

Contaminated or Contamination has the same meaning given to it in the *Contaminated Land Management Act 1997* (NSW).

Contract Term has the meaning set out in the ITS Maintenance Contract.

Controller has the same meaning as in the Corporations Act.

Corporations Act means the *Corporations Act 2001* (Cth).

Dangerous Good has the same meaning as in the *Work Health and Safety Act 2011* (NSW).

Default Rate has the meaning given in the ITS Maintenance Contract.

Depot means the Depot described at Item 4.

Environment has the meaning given in the *Contaminated Land Management Act 1997* (NSW).

Environmental Law means any law relating to the Environment, building, planning, health, safety or occupational health and safety and obligations under the common law.

GST means the same as in the GST Law.

GST Law means the same as "GST law" means in *A New Tax System (Goods and Services Tax) Act 1999* (Cth).

Hazardous Material means material which, because it is toxic, corrosive, flammable, explosive, or infectious or because it possesses some other dangerous characteristic, is potentially dangerous to the Environment when stored or handled or any part of the Environment is exposed to it.

High Risk Construction Work means Construction Work that:

- (a) involves a risk of a person falling more than 2 metres;
- (b) is carried out on a telecommunication tower;
- (c) involves demolition of an element of a structure that is load-bearing or otherwise related to the physical integrity of the structure;
- (d) involves, or is likely to involve, the disturbance of asbestos;
- (e) involves structural alterations or repairs that require temporary support to prevent collapse;
- (f) is carried out in or near a confined space;
- (g) is carried out in or near:
 - (i) a shaft or trench with an excavated depth greater than 1.5 metres; or
 - (ii) a tunnel;
- (h) involves the use of explosives;
- (i) is carried out on or near pressurised gas distribution mains or piping;
- (j) is carried out on or near chemical, fuel or refrigerant lines;
- (k) is carried out on or near energised electrical installations or services;
- (l) is carried out in an area that may have a contaminated or flammable atmosphere;
- (m) involves tilt-up or precast concrete;
- (n) is carried out on, in or adjacent to a road, railway, shipping lane or other traffic corridor that is in use by traffic other than pedestrians;
- (o) is carried out in an area at a workplace in which there is any movement of powered mobile plant;
- (p) is carried out in an area in which there are artificial extremes of temperature;
- (q) is carried out in or near water or other liquid that involves a risk of drowning; or
- (r) involves diving work.

Insolvency Event means in respect of a person:

- (a) an administrator being appointed to a person;
- (b) a person resolving to appoint a Controller or analogous person to a person or any of a person's property;

- (c) an application being made to a court for an order to appoint a Controller, provisional liquidator, trustee for creditors or in bankruptcy or analogous person to a person or any of a person's property;
- (d) an appointment of the kind referred to in paragraph (c) being made (whether or not following a resolution or application);
- (e) the holder of a Security Interest or any agent on its behalf, appointing a Controller or taking possession of any of a person's property (including seizing the person's property within the meaning of section 123 of the PPSA) or otherwise enforcing or exercising any rights under the Security Interest or Chapter 4 of the PPSA;
- (f) a person being taken under section 459F(1) of the Corporations Act to have failed to comply with a statutory demand;
- (g) an application being made to a court for an order for a person's winding up;
- (h) an order being made, or a person passing a resolution, for a person's winding up;
- (i) a person:
 - (i) suspending payment of its debts, ceasing (or threatening to cease) to carry on all or a material part of its business, stating that it is unable to pay its debts or being or becoming otherwise insolvent; or
 - (ii) being unable to pay its debts or otherwise insolvent;
- (j) a person taking any step toward entering into a compromise or arrangement with, or assignment for the benefit of, any of its members or creditors;
- (k) a court or other authority enforcing any judgment or order against a person for the payment of money or the recovery of any property; or
- (l) any analogous event under the laws of any applicable jurisdiction,

unless this takes place as part of a solvent reconstruction, amalgamation, merger or consolidation that has been approved in writing by RMS.

ITS Contractor's Associates means the employees, agents, contractors and invitees of the ITS Contractor.

ITS Contractor's Property means the ITS Contractor's plant, equipment, fixtures, fittings, furnishings and other property of the ITS Contractor on or in the Licensed Areas.

ITS Maintenance Contract the contract between RMS and the ITS Contractor entitled "Intelligent Transport Systems Maintenance Contract – Metro East Zone" dated 30 May 2014.

Licence Commencement Date means the date referred to in Item 5.

Licence Expiry Date means the date referred to in Item 6.

Licence Fee means the fee referred to in Item 8, as may be reviewed and varied in accordance with this document.

Licence Fee Commencement Date means the date specified in Item 10.

Licence Term means the period specified in clause 2.3.

Licensed Areas means the areas referred to in Item 3.

Occupation Date means the date referred to in Item 7.

Payment Date means the date referred to in Item 9.

Permitted Use means the use referred to in Item 11.

PPS Security Interest means a security interest that is subject to the PPSA.

PPSA means the *Personal Property Securities Act 2009* (Cth).

Principal Contractor means a person conducting a business or undertaking that commissions a Construction Project as defined in clause 293 of the WHS Regulation.

Reference Schedule means the reference schedule appearing at the front of this document and marked "Reference Schedule".

RMS' Property means RMS' plant, equipment, fixtures, fittings, furnishings and other property of RMS on the Licenced Area.

Security Interest means:

- (a) a PPS Security Interest;
- (b) any other mortgage, pledge, lien or charge; or
- (c) any other interest or arrangement of any kind that in substance secures the payment of money or the performance of an obligation, or that gives a creditor priority over unsecured creditors in relation to any property.

Services has the meaning given in the ITS Maintenance Contract.

SWMS means a safe work method statement prepared by a person conducting a business or undertaking who proposes to carry out High Risk Construction Work (before the High Risk Construction Work commences) in accordance with clause 299 of the WHS Regulation. A SWMS must:

- (a) identify the work that is high risk construction work;
- (b) specify hazards relating to the high risk construction work and risks to health and safety associated with those hazards;
- (c) describe the measures to be implemented to control the risks;
- (d) describe how the control measures are to be implemented, monitored and reviewed;
- (e) be prepared taking into account all relevant matters, including:
 - (i) circumstances at the workplace that may affect the way in which the high risk construction work is carried out; and
 - (ii) if the high risk construction work is carried out in connection with a Construction Project—the WHSMP that has been prepared for the workplace; and
- (f) be set out and expressed in a way that is readily accessible and understandable to persons who use it.

Utilities means any utility, including water, gas, electricity, fuel, telephone, drainage, sewerage and electronic communications services.

Waste means a substance that is discarded, rejected, unwanted, surplus or abandoned whether or not intentionally, it has a value or use or it is intended for sale or recycling, reprocessing, recovery or purification but does not include Hazardous Materials or Dangerous Goods.

WHS Act means the *Work Health and Safety Act 2011 (NSW)*, as amended from time to time.

WHS Regulation means the *Work Health and Safety Regulation 2011 (NSW)*, as amended from time to time.

WHSMP means a work health and safety management plan prepared by a Principal Contractor for a Construction Project for the workplace before work on the Construction Project commences. A WHSMP must include the following:

- (a) the names, positions and health and safety responsibilities of all persons at the workplace whose positions or roles involve specific health and safety responsibilities in connection with the Construction Project;
- (b) the arrangements in place, between any persons conducting a business or undertaking at the workplace where the Construction Project is being undertaken, for consultation, co-operation and the co-ordination of activities in relation to compliance with their duties under the WHS Act and the WHS Regulation;
- (c) the arrangements in place for managing any work health and safety incidents that occur;
- (d) any site-specific health and safety rules, and the arrangements for ensuring that all persons at the workplace are informed of these rules; and
- (e) the arrangements for the collection and any assessment, monitoring and review of safe work method statements at the workplace.

Works Period has the meaning given in the ITS Maintenance Contract.

1.2 Interpretation

Headings are for convenience only, and do not affect interpretation. The following rules also apply in interpreting this document, except where the context makes it clear that a rule is not intended to apply.

- (a) A reference to:
 - (i) a legislative provision or legislation (including subordinate legislation) is to that legislation as amended, re-enacted or replaced, and includes any subordinate legislation issued under it;
 - (ii) a NSW Government policy document or guideline is to that policy document or guideline as amended, re-enacted or replaced;
 - (iii) a document or agreement, or a provision of a document or agreement, is to that document, agreement or provision as amended, supplemented, replaced or novated;
 - (iv) a party to this document or to any other document or agreement includes a permitted substitute or a permitted assign of that party;

- (v) a person includes any type of entity or body of persons, whether or not it is incorporated or has a separate legal identity, and any executor, administrator or successor in law of the person; and
- (vi) anything (including a right, obligation or concept) includes each part of it.
- (b) A singular word includes the plural, and vice versa.
- (c) A word which suggests one gender includes the other genders.
- (d) If a word is defined, another part of speech has a corresponding meaning.
- (e) If an example is given of anything (including a right, obligation or concept), such as by saying it includes something else, the example does not limit the scope of that thing.
- (f) The word **agreement** includes an undertaking or other binding arrangement or understanding, whether or not in writing.
- (g) The expression **"this document"** includes the agreement, arrangement, understanding or transaction recorded in this document.
- (h) A reference to a month is to a calendar month.
- (i) A reference to an **Item** is to the relevant Item in the Reference Schedule in this document.
- (j) The expressions **"subsidiary"**, **"holding company"** and **"related body corporate"** have the same meanings as in the Corporations Act.
- (k) A reference to **"dollars"** or **"\$"** is to an amount in Australian currency.

1.3 **Business Days**

If the time for giving any notice, issuing any certificate, making any payment or doing any other act required or permitted by this document falls on a non-Business Day, then the time for giving the notice, issuing the certificate, making the payment or doing the other act will be deemed to be on the next Business Day.

1.4 **Multiple parties**

If a party to this document is made up of more than one person, or a term is used in this document to refer to more than one party:

- (a) an obligation of those persons is joint and several;
- (b) a right of those persons is held by each of them severally; and
- (c) any other reference to that party or that term is a reference to each of those persons separately, so that (for example):
 - (i) a representation, warranty or undertaking is given by each of them separately; and
 - (ii) a reference to that party or that term is a reference to each of those persons separately.

2. GRANT OF LICENCE

2.1 Licence

RMS grants to the ITS Contractor a non-exclusive licence to use the Licensed Areas for the purposes only of carrying out the Permitted Use during the Licence Term, subject to the conditions (if any) set out in Item 12 and otherwise as set out in this document.

2.2 Nature of Licence

- (a) The ITS Contractor has a personal right of occupation on the terms specified in this document and has no interest in the Depot. The legal right to possession and control over the Licensed Areas remains vested in RMS throughout the duration of the Licence Term.
- (b) Nothing in this document:
 - (i) confers on the ITS Contractor any rights as a tenant of the Licensed Areas;
or
 - (ii) creates the relationship of landlord and tenant between the parties.

2.3 Licence Term

The Licence Term commences on the Licence Commencement Date and expires on the Licence Expiry Date, unless terminated earlier.

3. LICENCE FEE

3.1 Payment of Licence Fee

- (a) The ITS Contractor's obligation to pay the Licence Fee commences on the Licence Fee Commencement Date.
- (b) Following the Licence Fee Commencement Date, the Licence Fee will become a debt due and payable to RMS by the ITS Contractor on each Payment Date.
- (c) The Licence Fee may be:
 - (i) paid by the ITS Contractor to RMS or RMS' nominee on the Payment Date;
or
 - (ii) if not paid by the ITS Contractor to RMS or RMS' nominee on the Payment Date, deducted by RMS from amounts which are due and payable to the ITS Contractor under the ITS Maintenance Contract.

3.2 Interest on overdue money

If the ITS Contractor does not pay the Licence Fee or any other amounts payable by it under this document by the due date, it must, on demand by RMS, pay interest on such amounts at the Default Rate calculated daily and compounded monthly.

3.3 Review of the Licence Fee

RMS may vary the Licence Fee upon the expiry of each Works Period by giving the ITS Contractor no less than 3 months written notice specifying the varied Licence Fee that will apply on commencement of the next Works Period.

4. **RMS' RIGHTS**

4.1 **RMS' right to enter the Licensed Areas**

- (a) Subject to paragraph (b), RMS or its nominee may enter the Licensed Areas together with all necessary workmen and equipment at all reasonable times, if it gives the ITS Contractor reasonable notice, to:
 - (i) determine:
 - (A) the condition of the Licensed Areas; or
 - (B) whether the ITS Contractor is complying with this document;
 - (ii) exercise its rights under any provision of this document;
 - (iii) enable it to comply with any law or any notice from any Authority;
 - (iv) show the Licensed Areas or the Depot to prospective purchasers, mortgagees or lessees at any time;
 - (v) ensure that the Licensed Areas are locked and secure; and
 - (vi) carry out any maintenance works.
- (b) When exercising its rights under paragraph (a), RMS or its nominee:
 - (i) must take reasonable steps to minimise any disruption to the ITS Contractor; and
 - (ii) is not required to give reasonable notice or enter at a reasonable time in the case of an emergency.

4.2 **RMS' right to appoint agent**

RMS may by notice in writing to the ITS Contractor, appoint an agent to exercise all or any of its rights under this document.

5. **ITS CONTRACTOR OBLIGATIONS**

5.1 **General obligations**

The ITS Contractor must and must ensure that the ITS Contractor's Associates:

- (a) **(comply with directions)** immediately comply at all times with the directions and requirements of RMS or its nominees while on the Licensed Areas;
- (b) **(laws)** at its own cost, comply with all laws and the requirements of all authorities in respect of its use of the Licensed Areas;
- (c) **(services, rates and taxes)** pay all charges for services to the Licensed Areas which are used by the ITS Contractor during the License Term, including but not limited to water, gas, electricity and telephone and pay all rates, taxes and other charges in relation to the Licensed Areas in the event that the Licensed Areas is separately assessed as an individual landholding; and
- (d) **(use)** use the Licensed Areas only for the Permitted Use.

5.2 Co-operation

- (a) The parties must do all they reasonably can to co-operate in all matters relating to this document, but their rights and responsibilities under this document (or otherwise) remain unchanged unless the parties agree in writing to change them.
- (b) The ITS Contractor must:
 - (i) fully co-operate with other contractors, tenants, licensees and RMS employees carrying out work within the Depot, whether for RMS or for a third party;
 - (ii) carefully coordinate its activities at the Depot with the activities carried out by such other contractors, tenants, licensees and RMS employees; and
 - (iii) perform its activities at the Depot so as to avoid interfering with, disrupting or delaying the activities of other contractors, tenants, licensees and RMS employees.

5.3 Maintenance of Licensed Areas

- (a) RMS will carry out repairs and maintenance to the base building & components, including the following:
 - (i) building structure;
 - (ii) building fabric;
 - (iii) fire equipment;
 - (iv) air conditioning; and
 - (v) essential services.
- (b) The ITS Contractor must, at its own cost:
 - (i) **(good and substantial repair)** keep the Licensed Areas in good and substantial repair and working condition excluding fair, wear and tear and any damage caused by fire, flood, lightning, storm, war or any act of God;
 - (ii) **(ITS Contractor's Property)** keep the ITS Contractor's Property within the Licensed Areas in good and substantial repair and working condition;
 - (iii) **(remove Waste):**
 - (A) remove all Waste produced by the ITS Contractor's occupation of the Licensed Areas from the Licensed Areas regularly; and
 - (B) comply with RMS' directions regarding refuse disposal; and
 - (C) not put any refuse in bins provided for common use;
 - (iv) **(damage)** immediately repair any damage to or defect in the Licensed Areas caused by the ITS Contractor or the ITS Contractor's Associates;
 - (v) **(repairs and maintenance)** promptly carry out repairs and maintenance (other than repairs and maintenance contemplated by paragraph (a)) using high quality materials and workmanship and in keeping with the standard, quality and appearance of the Licensed Areas and RMS' Property;

- (vi) **(cleaning)** having regard to the nature of the Licensed Areas, keep the Licensed Areas clean and clear of debris and rubbish;
 - (vii) **(landscaped areas)** if relevant, keep in good condition any part of the Licensed Areas that is landscaped, keep that part of the Licensed Areas free of weeds and, if required by RMS, engage a gardener approved by RMS to do so; and
 - (viii) **(RMS' Property)** keep in good condition RMS' Property located in the Licensed Areas including any air-conditioning, plant and fire equipment, and enter into and maintain any comprehensive maintenance contracts in respect of RMS' Property or Utilities that RMS requires.
- (c) The ITS Contractor accepts the Licensed Areas in their state of repair, order and condition as at the Occupation Date.

5.4 Prohibitions on ITS Contractor

The ITS Contractor must not:

- (a) **(no alteration)** make any change or structural alteration or addition to the Licensed Areas or RMS' Property except with the consent in writing of RMS;
- (b) **(no damage)** damage the Licensed Areas, or any thing on the Licensed Areas (whether or not it is the property of RMS), or injure any person in or around the Licensed Areas;
- (c) **(no rubbish)** keep any rubbish in or around the Licensed Areas;
- (d) **(no nuisance)** use the Licensed Areas for any illegal purpose or do anything which does or could annoy or offend RMS or the occupants of any nearby property;
- (e) **(no interference)** do anything or allow anything to be done which would cause an interference or obstruction to the operations being carried on by RMS or its employees, agents or other contractors in and around the Licensed Areas;
- (f) **(fire risk)** store any thing in the Licensed Areas which is dangerous, explosive or could increase the risk of fire on the Licensed Areas;
- (g) **(alienation)** grant any sub-licence or part with possession of the Licensed Areas or any part of it;
- (h) **(RMS' Property)** alter RMS' Property or use RMS' Property for anything other than its intended use; or
- (i) **(no obstruction)** not block or otherwise obstruct any emergency exit or access way.

5.5 Conduct of Works

If the ITS Contractor seeks to carry out any structural, building or installation works on the Licensed Areas during the License Term, the ITS Contractor must at its own cost:

- (a) submit a written application to RMS or its nominee describing the intended works;
- (b) obtain all relevant approvals required to carry out such works;
- (c) prepare, or cause to be prepared, a SWMS which complies with the requirements of the WHS Regulation;

- (d) not commence the works until the application has been approved by RMS or its nominee in writing and the ITS Contractor has complied with all conditions imposed by RMS or its nominee in relation to the works;
- (e) ensure that the works are carried out:
 - (i) in accordance with the requirements of all relevant laws and approvals;
 - (ii) promptly and within the period of time required by RMS or its nominee;
 - (iii) in accordance with good building practice and in keeping with the amenity and operation of the Licensed Areas;
 - (iv) in accordance with plans and specifications agreed by RMS or its nominee in writing;
 - (v) using new and good quality materials;
 - (vi) to the satisfaction of RMS or its nominee; and
 - (vii) by contractors with appropriate insurance cover as required by RMS or its nominee;
- (f) ensure that the works comply with the requirements of the Building Code of Australia;
- (g) protect any structures or items on the Licensed Areas from damage and, if any damage is caused directly or indirectly as a result of the works, at RMS' election, either:
 - (i) promptly repair and make good the damage to RMS' satisfaction; or
 - (ii) pay or reimburse RMS or its nominee on demand for any costs and expenses incurred by RMS relating to the make good of the damage;
- (h) accept full responsibility for the conduct and safety of the ITS Contractor's Associates;
- (i) comply on time with any laws, including any laws in relation to work health and safety;
- (j) remove from the Licensed Areas on a regular basis all rubbish, debris and residual materials resulting from the works;
- (k) pay or reimburse RMS or its nominee on demand by RMS or its nominee for any costs or expenses incurred by RMS or its nominee as a result of the works being carried out;
- (l) otherwise comply with RMS' requirements and directions from time to time relating to access to the Licensed Areas and the carrying out of the works, including but not limited to immediately ceasing the works if requested by RMS or its nominee; and
- (m) after the works are completed, provide RMS or its nominee with a written report confirming that the works are complete and comply with the requirements of this document and including any information as required by RMS or its nominee (acting reasonably).

6. WORK HEALTH AND SAFETY

6.1 Compliance with WHS Act and WHS Regulation

Despite any other provision in this document, the ITS Contractor must at all times comply with the WHS Act and WHS Regulation and must provide to RMS upon request evidence that the ITS Contractor is complying with the WHS Act and WHS Regulation.

6.2 ITS Contractor responsibility for WHS

Without limiting the application of the WHS Act and WHS Regulation to the ITS Contractor, during the License Term, the ITS Contractor is responsible for all aspects of work health and safety in connection with its business or undertaking carried out in the Licensed Areas including:

- (a) the safe performance of its business or undertaking within the Licensed Areas;
- (b) the health and safety of any workers or others employed, engaged or who visit the Licensed Areas at any time for any purpose;
- (c) the provision and maintenance of a work environment that is without risk to health and safety;
- (d) the provision and maintenance of safe plant and structures;
- (e) the provision and maintenance of safe systems of work;
- (f) the safe use, handling and storage of plant, structures and substances at or in connection with the Licensed Areas;
- (g) the provision of adequate facilities for the welfare at work of workers in carrying out work for the ITS Contractor at or in connection with the Licensed Areas including ensuring access to those facilities;
- (h) the provision of any information, training, instruction or supervision that is necessary to protect all persons from risks to their health and safety arising from work carried out as part of the conduct of the business or undertaking of the ITS Contractor at the Licensed Areas; and
- (i) that the health of workers and the conditions at the workplace are monitored for the purpose of preventing illness or injury of workers arising from the conduct of the business or undertaking of the ITS Contractor at the Licensed Areas.

6.3 Construction work undertaken at the Licensed Areas

- (a) If Construction Work or High Risk Construction Work (together in this clause referred to as Construction Work) is proposed to be undertaken at or in connection with the Licensed Areas, Chapter 6 of the WHS Regulation applies including, but not limited to, the identification of a Principal Contractor.
- (b) The ITS Contractor must carry out and ensure compliance with all obligations under Chapter 6 of the WHS Regulation in relation to Construction Work.
- (c) Without limiting the ITS Contractor's obligations elsewhere under this document, the ITS Contractor must, so far as is reasonably practicable, in connection with Construction Work carried out at the Licensed Areas:
 - (i) manage risks associated with the carrying out of the Construction Work; and

- (ii) ensure that all workplaces are secured from unauthorised access, and in doing so, have regard to all relevant matters including risks to health and safety arising from unauthorised access to the workplace, the likelihood of unauthorised access occurring and to the extent that unauthorised access to the workplace cannot be prevented, how to isolate hazards within the workplace.
- (d) Without limiting the ITS Contractor's reporting or other obligations elsewhere in this document, upon request, the ITS Contractor must promptly provide RMS with a copy of:
 - (i) the WHSMP for the workplace, including any revisions that are made to the WHSMP under clause 311 of the WHS Regulation;
 - (ii) the ITS Contractor's records in relation to the steps the ITS Contractor has taken to make persons carrying out work aware of the content of the WHSMP in accordance with clause 310 of the WHS Regulation;
 - (iii) any SWMS which have been obtained under clause 312 of the WHS Regulation;
 - (iv) the ITS Contractor's records in relation to the steps the ITS Contractor has taken to comply with clause 314 of the WHS Regulation;
 - (v) the ITS Contractor's records in relation to the steps the ITS Contractor has taken to comply with clause 315 of the WHS Regulation; and
 - (vi) any other registers, records and documents,that the ITS Contractor prepares, maintains, keeps or obtains in connection with Construction Work undertaken at the Licensed Areas.

7. ENVIRONMENTAL ISSUES

7.1 No representation

RMS does not warrant or represent:

- (a) that the Licensed Areas is suitable for any use, or for any particular use, including the Permitted Use;
- (b) the accuracy of information about the past use of the Licensed Areas; or
- (c) that the Licensed Areas is not Contaminated, or the nature or extent of any Contamination.

7.2 Environmental obligations

The ITS Contractor must:

- (a) **(not Contaminate)** not Contaminate or pollute the Licensed Areas or any adjacent land;
- (b) **(no dangerous materials)** not use, keep or handle on the Licensed Areas any Dangerous Good or Hazardous Material without the prior consent of RMS;

- (c) **(notify RMS)** promptly notify RMS if:
 - (i) it becomes aware, or as soon as a complaint is made, of a breach or alleged breach of an Environmental Law in respect of the Licensed Areas or any activity carried out by the ITS Contractor in the Licensed Areas;
 - (ii) the Licensed Areas becomes Contaminated in any way; or
 - (iii) the ITS Contractor is in breach of any of its obligations under this clause; and
- (d) **(compliance with policies and procedures relating to the environment)** comply with all policies and procedures of RMS and any person appointed by RMS to manage the Licensed Areas on behalf of RMS which relate to the protection of the environment.

7.3 **Release and indemnity**

To the extent permitted by law, the ITS Contractor releases and indemnifies RMS from all liabilities, costs, losses and expenses arising out of or in connection with any Contamination of the Licensed Areas or the Depot to the extent that such Contamination was caused or contributed to by the ITS Contractor or the ITS Contractor's Associates.

8. **RISK AND LIABILITY**

8.1 **Risk**

- (a) The ITS Contractor occupies the Licensed Areas and carries out all activities within the Licensed Area at its own risk.
- (b) If the ITS Contractor is obliged to do anything under this document, it does so at its own risk.

8.2 **ITS Contractor's warranty**

The ITS Contractor warrants that it has not been induced to enter into this document by any express or implied statement, warranty or representation:

- (a) whether oral, written or otherwise;
- (b) made by or on behalf of RMS in respect of the Licensed Areas or anything relating to, or which could have an effect on, the Licensed Areas including but not limited to the fitness or suitability of the Licensed Areas for any purpose.

8.3 **No restriction on RMS**

Subject to RMS and its employees, agents and contractors complying with the ITS Contractor's workplace health and safety policies and reasonable requirements in relation to the Licenced Area, nothing in this document restricts RMS' right to carry out works in or around the Licensed Areas at any time and for any purpose.

8.4 **Release of RMS**

- (a) The ITS Contractor uses the Licensed Areas at its own risk and RMS accepts no responsibility for any loss or damage to the property of the ITS Contractor.
- (b) To the extent permitted by law, the ITS Contractor releases RMS from any claim, action, damage, loss, liability, cost or expense which the ITS Contractor suffers or incurs or is liable for in respect of:

- (i) any loss or damage to the Licenced Area except to the extent caused by an act or omission of RMS or its employees, agents or contractors (other than the ITS Contractor);
- (ii) any loss or damage resulting from the ITS Contractor's use of the Licenced Area; or
- (iii) the death of, or injury to, any person who is in the Licenced Area except to the extent caused by a negligent act or omission of RMS or its employees, agents or contractors (other than the ITS Contractor).

8.5 Indemnity

The ITS Contractor indemnifies RMS against any claim, action, loss, damage, cost, liability, expense or payment suffered or incurred by RMS in respect of:

- (a) the use of or entry upon the Licenced Area by the ITS Contractor or any agent, employee, licensee, contractor or invitee of the ITS Contractor;
- (b) any default by the ITS Contractor under this document; and
- (c) RMS' termination of this document under clause 9.2 or 9.4 (provided that the reason for the termination of this document under clause 9.4 is not the termination of the ITS Maintenance Contract by RMS under clause 41.1 of the ITS Maintenance Contract),

including, without limitation, the loss to RMS of the benefit of the ITS Contractor performing its obligations under this document from the date of termination until the end of the License Term.

8.6 Continuing indemnity

Each indemnity of the ITS Contractor contained in this document is a:

- (a) continuing obligation of the ITS Contractor and remains in full force and effect until the termination of the ITS Maintenance Contract; and
- (b) separate and independent obligation of the ITS Contractor.

8.7 Insurance

- (a) In addition to the insurances required under the ITS Maintenance Contract, the ITS Contractor must, prior to entering into this document, effect and maintain the policies of insurance listed in Schedule 1:
 - (i) on the terms;
 - (ii) for the risks identified;
 - (iii) for the period of time; and
 - (iv) for the amounts,specified in Schedule 1.
- (b) Prior to entering into this document and thereafter whenever requested by RMS, the ITS Contractor must provide to RMS evidence that the insurances listed in Schedule 1 are effective (normally by way of a suitable certificate of currency).

- (c) Within 5 Working Days of the ITS Contractor becoming aware of any claim or potential claim under any of the insurances listed in Schedule 1, the ITS Contractor must:
 - (i) notify RMS in writing of the claim or potential claim; and
 - (ii) give RMS any further information regarding the claim or potential claim as RMS may require.

9. **DEFAULT AND TERMINATION**

9.1 **Default**

The ITS Contractor is in default if:

- (a) it does not pay the Licence Fee or any other money payable under this document within 25 Business Days of the due date;
- (b) it does not perform any express or implied obligation under this document;
- (c) an Insolvency Event occurs in respect of the ITS Contractor; or
- (d) it repudiates its obligations under this document.

9.2 **RMS' rights**

If the ITS Contractor is in default of any of its obligations under this document following 10 Business Days from when it is served with written notice, RMS may terminate this document immediately by written notice and may exercise any other legal right.

9.3 **RMS may remedy breach**

If the ITS Contractor does not comply with any term of this document following 10 Business Days from when it is served with written notice, then without affecting any other right of RMS, RMS may, without notice, remedy the ITS Contractor's non-compliance at the ITS Contractor's cost.

9.4 **Automatic termination**

The parties acknowledge and agree that this document will automatically terminate upon the termination of the ITS Maintenance Contract.

9.5 **Termination for convenience**

- (a) RMS may, by giving 1 month written notice, terminate this document for its convenience and without the need to give reasons.
- (b) If RMS issues a termination notice under paragraph (a), the ITS Contractor must comply with any directions of RMS to wind down and stop work.

9.6 **Termination due to failure to satisfy conditions precedent**

The parties acknowledge and agree that if the conditions precedent set out in clause 1A.1(a) of the ITS Maintenance Contract are not satisfied or waived by the Condition Precedent Deadline Date:

- (a) RMS may immediately terminate this document by notice in writing to the ITS Contractor; and

- (b) neither party will have any liability to the other arising out of or in connection with this document or its termination.

10. **END OF LICENSE TERM**

10.1 **Make good**

Howsoever this document is determined, the ITS Contractor must, at its cost and to the satisfaction of RMS:

- (a) remove all rubbish and the ITS Contractor's Property from the Licensed Areas, unless RMS agrees or directs otherwise, and make good any damage caused by the removal;
- (b) promptly leave the Licensed Areas in a condition consistent with the ITS Contractor's performance of its obligations under this document to maintain and repair the Licensed Areas having regard to the Condition Report;
- (c) remove any structures erected by it on the Licensed Areas (unless RMS agrees or directs otherwise);
- (d) hand over all keys provided by RMS in relation to the Licensed Areas, including security access devices; and
- (e) immediately repair any damage caused to the Licensed Areas in the course of complying with this clause and in all cases leave the Licensed Areas in no worse condition than it was in at the Occupation Date.

10.2 **Storage of ITS Contractor's Property**

- (a) If the ITS Contractor does not remove the ITS Contractor's Property or remedy any damage under clause 10.1, RMS may do so and store the ITS Contractor's Property at the ITS Contractor's cost.
- (b) If the ITS Contractor does not remove all of the ITS Contractor's Property from the Licensed Areas or from the place where it is stored by RMS within 5 Business Days of being asked to do so by RMS, that ITS Contractor's Property which has not been removed by the ITS Contractor becomes the property of RMS if RMS so elects.

11. **NOTICES**

11.1 **How to give a notice**

A notice, consent or other communication under this document is only effective if it is:

- (a) in writing, signed by or on behalf of the person giving it;
- (b) addressed to the person to whom it is to be given; and
- (c) it is:
 - (i) delivered or sent by pre-paid mail (by airmail, if the addressee is overseas) to that party's address;
 - (ii) sent by fax to that party's fax number and the machine from which it was sent produces a report that states that it was sent in full; or
 - (iii) sent by email in the form of a .pdf file of a letter to that party's email address.

11.2 **When a notice is given**

A notice, consent or other communication that complies with this clause 11 is regarded as given and received:

- (a) if it is delivered or sent by fax:
 - (i) by 5.00 pm (local time in the place of receipt) on a Business Day - on that day; or
 - (ii) after 5.00 pm (local time in the place of receipt) on a Business Day, or on a day that is not a Business Day - on the next Business Day; or
- (b) if it is sent by mail:
 - (i) within Australia - 3 Business Days after posting; or
 - (ii) to or from a place outside Australia - 7 Business Days after posting; or
- (c) if it is delivered by email:
 - (i) by 5.00 pm (local time in the place of receipt) on a Business Day - on that Day; or
 - (ii) after 5.00 pm (local time in the place of receipt) on a Business Day, or on a day that is not a Business Day - on the next Business Day.

11.3 **Address for notices**

A person's address, fax number and email address are those set out in Items 1 and 2 of the Reference Schedule or as notified from time to time.

12. **LIABILITY FOR EXPENSES**

RMS and the ITS Contractor agree to bear their own costs and expenses incurred in connection with:

- (a) legal costs incurred in connection with preparing this document;
- (b) any amendment to this document;
- (c) the cost of preparing any plan needed for this document; or
- (d) any default by the ITS Contractor or the ITS Contractor's Associates under this document and the enforcement or protection, or attempted enforcement or protection of any right under or in relation to this document.

13. **GST**

13.1 **Rules for interpreting this clause**

- (a) Words defined in the GST Law have the same meaning in clauses about GST.
- (b) If a person is a member of a GST group, references to GST for which the person is liable and to input tax credits to which the person is entitled include GST for which the representative member of the GST group is liable and input tax credits to which the representative member is entitled.

- (c) References to GST extend to any notional liability of any person for GST and to any amount which is treated as GST under the GST Law, and references to an input tax credit extend to any notional input tax credit to which any person is entitled.

13.2 **Payment of GST**

A recipient of a taxable supply made under this document must:

- (a) pay to the supplier an amount equal to any GST for which the supplier is liable on any supply by the supplier under this document, without deduction or set-off of any other amount; and
- (b) make that payment as and when the consideration or part of it must be paid or provided. If the recipient does not pay the GST at that time, then it must pay the GST within seven days of a written request by the supplier for payment for the GST.

13.3 **Tax Invoice**

Each party making a taxable supply under this document must issue a tax invoice to the other party for each taxable supply within 14 days of making the taxable supply.

13.4 **Indemnities and reimbursement**

If a party is obliged to make a payment under an indemnity or is required to reimburse a party for a cost (such as a party's obligation to pay another party's legal costs) on which that other party must pay GST, the indemnity or reimbursement is for the cost plus all GST (except any GST for which that party can obtain an input tax credit).

14. **AMENDMENT AND ASSIGNMENT**

14.1 **Amendment**

This document may only be amended, supplemented, replaced or novated by another document signed by each of the parties.

14.2 **Assignment**

The ITS Contractor must not assign, transfer or otherwise deal with any of its rights or obligations under this document except with the prior written consent of RMS.

15. **GENERAL**

15.1 **Governing law**

- (a) This document is governed by the law in force in New South Wales.
- (b) Each party submits to the non-exclusive jurisdiction of the courts exercising jurisdiction in New South Wales, and any court that may hear appeals from any of those courts, for any proceedings in connection with this document, and waives any right it might have to claim that those courts are an inconvenient forum.

15.2 **Giving effect to this document**

Each party must do anything (including execute any document), and must ensure that its employees and agents do anything (including execute any document), that any other party may reasonably require to give full effect to this document.

15.3 Waiver of rights

A right may only be waived in writing, signed by the party giving the waiver, and:

- (a) no other conduct of a party (including a failure to exercise, or delay in exercising, the right) operates as a waiver of the right or otherwise prevents the exercise of the right;
- (b) a waiver of a right on one or more occasions does not operate as a waiver of that right if it arises again; and
- (c) the exercise of a right does not prevent any further exercise of that right or of any other right.

15.4 Operation of indemnities

- (a) Each indemnity in this document survives the ending of this document.
- (b) RMS may recover a payment under an indemnity in this document before it makes the payment in respect of which the indemnity is given.
- (c) If a provision of this document is expressed to:
 - (i) indemnify;
 - (ii) exclude or limit any liability of; or
 - (iii) otherwise benefit,

a person who is not a party to this document, the ITS Contractor agrees that RMS holds the benefit of that indemnity, exclusion, limitation or other benefit on trust for that person and may enforce this document on their behalf and for their benefit.

15.5 Operation of this document

- (a) This document contains the entire agreement between the parties about its subject matter. Any previous understanding, agreement, representation or warranty relating to that subject matter is replaced by this document and has no further effect.
- (b) Any provision of this document which is unenforceable or partly unenforceable is, where possible, to be severed to the extent necessary to make this document enforceable, unless this would materially change the intended effect of this document.

15.6 Consents

- (a) Where this document contemplates that RMS may agree or consent to something (however it is described):
 - (i) RMS may:
 - (A) agree or consent, or not agree or consent, in its absolute discretion;
or
 - (B) agree or consent subject to conditions; and
 - (ii) the consent must be in writing,

unless this document expressly contemplates otherwise.

- (b) In making a discretionary determination, RMS will take into consideration any current government policy. RMS may withdraw a consent if it is inconsistent with government policy and the ITS Contractor must, without delay, cease the relevant activity and comply with the directions of RMS.

15.7 **No merger**

The provisions of this document do not merge on termination.

15.8 **Exclusion of contrary legislation**

Any legislation that adversely affects an obligation of the ITS Contractor, or the exercise by RMS of a right or remedy, under or relating to this document is excluded to the full extent permitted by law.

15.9 **Expiry or termination**

Expiry or termination of this document does not affect any rights arising from a breach of this document before then.

15.10 **Counterparts**

This document may be executed in counterparts.

EXECUTED as a deed.

SIGNED for **ROADS AND MARITIME SERVICES ABN 76 236 371 088** by its duly authorised officer, in the presence of:

Signature of officer

Signature of witness

Name

Name

EXECUTED by **LT JOINT VENTURE PTY LIMITED** ACN 169 720 718:

Signature of director

Signature of director/secretary

Name

Name

SCHEDULE 1

INSURANCE SCHEDULE

TYPES OF INSURANCES	MINIMUM SUM INSURED	PERIOD OF INSURANCE	INSURANCE COVER IS TO INCLUDE THE FOLLOWING	MINIMUM COVER
Tenants public liability risk	Public liability \$20 million each and every occurrence.	Annual for the duration of this document	<ul style="list-style-type: none"> (a) Is with an approved insurer as defined in clause 1 of the Definitions and Notes below. (b) Is governed by the law of New South Wales and subject to Australian jurisdictions as defined in clause 2 of the Definitions and Notes below. (c) Lists RMS as an additional named insured. (d) Includes a severability clause as defined in clause 3 of the Definitions and Notes below. 	Endorsed to cover such other risks of an insurable nature for which the ITS Contractor is obliged to indemnify RMS under this document.
Tenant fittings and stock	Replacement value each and every occurrence	Annually for the duration of this document	<ul style="list-style-type: none"> (a) Is with an approved insurer as defined in clause 1 of the Definitions and Notes below. (b) Covers motor vehicles owned or used by the Contractor or its subcontractors directly or indirectly engaged in performance of the Services. (c) Is governed by the law of New South Wales and subject to Australian jurisdiction as defined in clause 2 of the Definitions and Notes below. 	Against loss or damage occasioned by fire, fusion, explosion, theft, burglary and malicious damage.


Definitions and Notes:

1. Approved insurer means:
 - (a) An insurance company which is authorised by the Australian Prudential Regulatory Authority (APRA) to conduct general insurance business in Australia; or
 - (b) Lloyds Underwriters;

Note that where the insurance risk is insured by an insurer not listed in Note 1(a) or 1(b) then a 'fronting' placement is acceptable from an insurer listed in Note 1(a) or 1(b).
2. Insurances policies must be subject to the laws of an Australian State or Territory and subject to the jurisdiction of the courts of that Australian State or Territory.
3. A severability clause which provides:
 - (a) that the policy operates as if there was a separate policy of insurance covering each of the insureds;
 - (b) that each insured has access to the full limit of indemnity of the policy (subject to that limit of indemnity not thereby being increased);
 - (c) that the insurer will not impute pre-contractual non-disclosures or acts or omissions or states of knowledge of one insured to any other insured for the purposes of determining rights to indemnity; and
 - (d) that the liability of one insured to another insured is covered by the policy.
4. A waiver of subrogation which provides that the insurers agree to waive all rights of subrogation that they may have or acquire against RMS where required to do so under the this document.

EXECUTED as a deed.


SIGNED for ROADS AND MARITIME SERVICES ABN 76 236 371 088 by its duly authorised officer, in the presence of:



Signature of witness

GARETH SAGE

Name



Signature of officer

Greg Evans

Name

EXECUTED by **LT JOINT VENTURE PTY LIMITED ACN 169 720 718:**



Signature of director

BAREND FREDERIK MOSTERT

Name



Signature of director/secretary

VICTOR GEORGE HENSLEY

Name

EXHIBIT 1

Asset Definition Specification

ITS Maintenance Contracts (ITS MCs)

Exhibit 1 – Asset Definition Specification

23 May 2014

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Definitions

Defined terms used in this document have the same meaning as those used in the ITS Maintenance Contract document.

List of Abbreviations

CBD	Central Business District
CCTV	Closed Circuit Television Camera
ELCS	Electronic Lane Control System
ESS	Environmental Sensor Station
FWP	Forward Works Program
HVCS	Heavy Vehicle Checking Station
ITS	Intelligent Transport Systems
ITS MC	ITS Maintenance Contract
RMCR	Road Maintenance Contestability Reform
RMS	Roads and Maritime Services
SPP	Special Project Proposal
SRS	Sydney Road Services
SZAS	School Zone Alert Systems
TCS	Traffic Control Signals
TfNSW	Transport for New South Wales
TFS	Tidal Flow System
TMC	TfNSW Transport Management Centre
TMU	Traffic Monitoring Unit
TTIS	Travel Time Information System
UPS	Uninterruptible Power Supply
VMS	Variable Message Sign
VSLs	Variable Speed Limit Sign
WIM	Weigh In Motion

I Introduction

I.1 General

- I.1.1 This specification sets out the Intelligent Transport System (ITS) assets which the ITS Contractors will be responsible for managing and maintaining under the ITS Maintenance Contracts.
- I.1.2 The ITS MC Zones and the ITS Assets are described in Section 2 ITS Maintenance Zones and in Section 3 Detailed Asset Schedule respectively.
- I.1.3 RMS and TMC have identified critical assets (Section 4 Critical ITS Assets) which, should they fail (e.g. at critical times and/or in important traffic corridors) may result in major traffic incidents or significant disruption to road users (as assessed by RMS or TMC). RMS believes that the ITS Contractor can ensure maximum availability of these assets at critical times through its Stewardship role, proactive maintenance and attention to detail.
- I.1.4 Technical terms and abbreviations used in this specification are as defined in the ITS Maintenance Contract document and in the List of Abbreviations.
- I.1.5 The ITS Assets and asset types outlined in this document are comprehensive but may not reflect every asset under RMS ownership or control.

I.2 ITS Assets

- I.2.1 Most ITS assets interface and communicate with a number of RMS and TfNSW Transport Management Centre (TMC) systems to provide RMS's and TMC's core traffic management, incident management and network control services. Some assets, either as individual devices or groups of devices operate stand-alone and do not connect with other RMS and TMC systems.
- I.2.2 The RMS ITS assets types include:
 - a) Traffic Control Signals (TCS) –Traffic Signals, Sensing Loops;
 - b) Tidal Flow Systems (TFS) and Electronic Lane Changing Systems (ELCS);
 - c) Intelligent Signage – Variable Message Signs (VMS), Variable Speed Limit Signs (VSLS), Lane Control/Lane Usage Signs, Changeable Message Signs (shutter, prismatic);
 - d) Traffic Monitoring – Traffic Monitoring Units (TMU), Queue Detection Systems, Traffic Counters, Weigh in Motion (WIM) Systems, Travel Time Information Systems (TTIS), Special Purpose ITS Systems;
 - e) Traffic Network CCTV Cameras;
 - f) Enforcement Systems – Speed Cameras, Safety (Red Light / Speed) Cameras, Heavy Vehicle Point-to-Point Average Speed Systems;
 - g) Road Weather Information Systems – Environmental Sensory Stations (ESS), Flood & Fog Detection and Information Systems, Snow and Ice Detection and Information Systems;
 - h) Advanced Warning Systems – Advanced Warning Signs, Flashing Signs;
 - i) School Zone Alert Systems (SZAS);
 - j) Special Purpose ITS
 - k) Lighting – Street Lights, In-Pavement Lights;
 - l) Emergency Telephones;
 - m) Emergency Warning Systems (Sydney CBD);
 - n) Field Communications Networks – private copper and fibre networks;
 - o) ITS devices at Heavy Vehicle Checking Stations (HVCS);
 - p) Backup Power Supplies – Mobile Emergency Generators and UPS.

2 ITS Maintenance Zones

2.1.1 This section provides details of the geographical limits for each of the ITS Maintenance Contract Zones as well as the indicative quantities of ITS Assets in each Zone (by asset type).

2.2 ITS MCs Boundary Zones

2.2.1 A zone boundary map below indicates the geographical limits of the ITS Maintenance Contract zones in the Sydney Region;

Figure 3: Indicative boundaries for ITS MCs zones



Table 2 -1: Indicative Boundary Alignment between Metro East and Metro West Zones

Boundary follows:	From:	To:	Comments:
East side of M1 Pacific Motorway	Hawkesbury River	Wahroonga On Ramp	M1 ITS assets north of Hawkesbury River included in Metro West zone
South side of Pennant Hills Rd	M1 intersection	Marsden Rd, Carlingford	
East side of Marsden Rd	Pennant Hills Rd	Stewart St, Eastwood	
East side of Stewart St	Marsden Rd	Silverwater Rd	
East side of Silverwater Rd	Stewart St	Parramatta Rd	Section of M4 between Silverwater Rd and Concord On Ramp remains in Metro West zone
East side of St Hilliers Rd	Parramatta Rd	Boorea St, Lidcombe	
East side of Boorea St, Olympic Drive, Joseph St & Rookwood Rd	St Hilliers Rd	Hume Hwy, Bankstown	
East side of Stacey St & Fairford Rd	Hume Hwy	Salt Pan Ck (Nth of Canterbury Rd intersection)	

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West side of Salt Pan Ck & north side of Georges River	Fairford Rd	Picnic Point	
Cross Georges River	Picnic Point	Heathcote Rd at Sandy Point Reserve	
West side of Heathcote Rd	Sandy Point Reserve	Woronora River Bridge	
Woronora River & Heathcote National Park	Woronora River Bridge	Waterfall, start of M6	To include Heathcote and Waterfall in Metro East zone.

2.3 Asset Inventory

- 2.3.1 A preliminary review of the inventory of ITS devices has been undertaken by RMS to clarify the volume, location and condition of each ITS asset type. However, it is expected that the ITS Contractors will verify the inventory of ITS Assets in their zones during Transition.
- 2.3.2 The initial inventory of assets is summarized in Table 2- 2 Asset Quantities. More detailed asset inventory data is included in Section 3 Detailed Asset Schedule including, for example, location, and indicative asset population age and general condition.
- 2.3.3 Unless specifically stated, RMS intends that irrespective of other information provided, and that except for assets that are specifically excluded, all ITS assets that lie within (or to the East) of the boundary line provided in Table 2.1 above are contained within the East Zone and all ITS assets that lie outside (or to the West) of the boundary line are in the West Zone. It may be that some of the asset data including GPS information is incorrect and contractors are required to rectify such matters during the contract.
- 2.3.4 Unless otherwise directed by RMS, the assets allocated to Metro East within this document are the responsibility of the ITS Contractor for Metro East, and assets allocated to Metro West within this document are the responsibility of the ITS Contractor for Metro West.
- 2.3.5 Table 2.1 above defines the boundary between each zone. If the boundary is stated as the east side of a road then the road and all the assets that lie along the road fall into the west zone for the particular nominated segment of the road.

Table 2- 2 Asset Quantities

Asset Group	Asset Type	Metro East Zone	Metro West Zone	Not in Scope	Total	Initially Excluded from ITS Contractors' Scope
Traffic Control Signals	Traffic Signals (Vehicle and Pedestrian)	1860	1390	700	3,950	Approx. 700 TCS maintained by RMS Southern and Hunter Valley regional teams
	Regional Signal Control Units (SCATS Cabins)	-	-	23	23	Regional Computers maintained by TMC. Buildings covered by legacy maintenance contract.
	Sensing Loops	13400	12800	5000	32,200	Approx. 5000 loops maintained by RMS Southern and Hunter Valley regional teams
	Advance Warning Flashers (connected to TCS)	49	36	35	120	35 Advance Warning Flashers maintained by RMS Southern and Hunter Valley regional

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Asset Group	Asset Type	Metro East Zone	Metro West Zone	Not in Scope	Total	Initially Excluded from ITS Contractors' Scope
						teams.
	Static Signs on TCS Post	TBA	TBA	TBA	>12,000	Signs associated with TCS maintained by RMS Southern and Hunter Valley regional teams
Tidal Flow Systems	Manual and/or Automated	10	1	4	15	SHB ELCS and 3 manually operated TFS's without any ITS devices. Operational control of movable medians – by RMS (DAS).
Intelligent Signage	Variable Message Signs ¹	107	143	32	282	30 VMS's maintained by RMS Southern regional team; 2 VMS's maintained by SHB Alliance.
	Variable Speed Limit Signs ¹	17	32	16	65	16 VSLS's maintained by SHB Alliance.
	Lane Control/Lane Usage Signs ¹	115	-	127	242	127 LUS's maintained by SHB Alliance.
	Shutter Signs	14	40	-	54	
	Fibre optic/LED signs	4	-	8	12	8 signs maintained by SHB Alliance.
	Prismatic Signs	50	29	39	118	33 signs maintained by the SHB Alliance and 6 signs maintained by RMS Southern regional team.
Traffic Monitoring	Traffic Monitoring Units (TMU's) ¹	20	94	-	114	
	Traffic Counters – Permanent Sites (auto download)	520	700	-	1220	
	Traffic Counters – Permanent Sites (manual download)	100	305	-	405	
	Traffic Counters – Temporary Sample Sites (current) per year	700	300	-	1000	There are 3000 identified sites, historically each site is surveyed once every 3 years depending on funding
	TTIS Tag Readers	-	35	-	35	
Traffic Network CCTV	Traffic Monitoring Cameras ¹	-	-	~880	~880	Maintained by TMC
Enforcement Systems	Fixed Speed Cameras	16	47	-	127	Calibration and verification of all cameras.
	Safety Cameras	67	69	-	136	Calibration and verification of all cameras.
	School Zone Speed Cameras	32	25	-	57	Calibration and verification of all cameras.
	Heavy Vehicle Point-to-Point Average Speed Systems	-	80	-	80	Calibration and verification of all systems. 80 devices at 39 sites

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Asset Group	Asset Type	Metro East Zone	Metro West Zone	Not in Scope	Total	Initially Excluded from ITS Contractors' Scope
	Heavy Vehicle Safe-T-Cam Systems	-	48	-	48	Calibration and verification of all systems. 48 devices at 25 sites
	Bus Priority	36	21	-	57	Calibration and verification of all systems. Multiple devices at each site
	Over Height	1	-	-	1	Calibration and verification of all systems
	Over Length	1	-	-	1	Calibration and verification of all systems
	Noise Enforcement	-	1	-	1	Calibration and verification of all systems
	Inspection Stations		7		7	Calibration and verification of all systems
	Smoke Enforcement (VEES)	1	-	-	1	Calibration and verification of all systems
Road Weather Information Systems	Environment Sensory Stations	3	4	18	25	18 ESS's outside Sydney region – maintained by RMS regional teams / legacy maintenance contracts
	Flood Detection Systems	8	-	-	8	
Lighting	Street lighting	-	-	All	N/A	All - covered by SMC/PSMC and legacy maintenance contracts.
	In Pavement Lights (uni- and bi-directional)	213	-	40	253	40 In Pavement Lights maintained by the SHB Alliance
Emergency Telephones		-	-	All	N/A	All – covered by SMC/PSMC and RMS regional teams / legacy maintenance contracts
Sydney CBD Emergency Warning System	EWS Server	-	-	1	1	Excluded - maintained by TMC
	EWS Audio Console (at Sydney Police Centre)	-	-	1	1	Excluded - maintained by TMC
	EWS VMS Console (at Railcorp HQ)	-	-	1	1	Excluded - maintained by TMC
	Site Controllers (with battery backup)	49	-	-	49	
	Routers (with UPS)	37	-	-	37	
	Repeaters	7	-	-	7	
	Speakers	98	-	-	98	
	Variable Message Signs	13	-	-	13	

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Asset Group	Asset Type	Metro East Zone	Metro West Zone	Not in Scope	Total	Initially Excluded from ITS Contractors' Scope
School Zone Alert Systems ²		-	-	All	2344 (as at March 2013)	All - covered by legacy maintenance contracts until December 2015. (By December 2015 approx. 3500 school zone alert systems will be installed across NSW)
Special Purpose ITS	Mascot Tunnel Over-Height Detection System	1	-	-	1	Includes VMS, sensors & Controller
	Tom Ugly's Bridge Over Height detection System	1	-	-	1	Includes VMS, sensors & Controller
	Galston Gorge ITS	-	1	-	1	Includes VMS, TIRTL & Controller
	F3 Travel Time Information System	-	1	-	1	Includes VMS, TAG Readers & Controller
	M4 Travel Time Information System	-	1	-	1	Includes VMS, loops & Controller
	M7 Travel Time Information System	-	-	1	1	Excluded - maintained by Private Motorway Operator
	M4 Viaduct Stopped Vehicle Detection System (video detection)	-	1	-	1	
	F6 Speed Detection System	-	-	1	1	Excluded - Maintained by RFS Southern Region
	Domain Tunnel Over Height Detection System	-	-	2	2	Excluded – Maintained by SHB Special Precinct
	Bateman's Bay Queue Detection System	-	-	1	1	Excluded - Maintained by RFS Southern Region
Advance Warning Indicators	Flashing Signs (stand alone)	20	20	1	41	1 Flashing Sign maintained by RMS Southern regional team.
	Advance Warning Signs (stand alone)	74	49	16	139	15 Advance Warning Signs maintained by RMS Southern and Hunter Valley regional teams. 1 Advance Warning Sign maintained by SHB Alliance
Heavy Vehicle Checking Stations (ITS Systems)	HVCS sites	0	8	-	8	6 HVCS outside Sydney region. Maintenance, calibration and verification of all weighing assets.
Field Comms	SCATS CBD copper	-	-	1	1	Excluded - maintained by

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Asset Group	Asset Type	Metro East Zone	Metro West Zone	Not in Scope	Total	Initially Excluded from ITS Contractors' Scope
Networks	network,					TMC with assistance from RMS.
	Private fibre network including M4, LCT and Liverpool-Parramatta Transitway fibre networks	-	-	All	~ 500 km of OF cables	All - covered by legacy maintenance contracts managed by TMC and RMS
Backup Power Supplies	Mobile emergency generators	TBA (RFP)	TBA (RFP)	-	20	Storage and delivery to sites as needed – by RMS (TEPS).
	Field Uninterruptible Power Supplies (UPS)	5	1	-	6	

Notes:

1. Inventory does not include CCT, ED, LCT, M2, M5E, M7 and City of Sydney assets.
 2. Each School Zone Alert System comprises 2 or more School Zone Alert Signs
 3. Temporary Sample sites activated on demand, typically at least once every 3 years.
- 2.3.6 Section 3 Detailed Asset Schedule summarises the location, RMS data source and volume of assets covered for each of the ITS packages.
- 2.3.7 The ITS Contractor will largely be responsible for the associated structures supporting ITS devices including the maintenance of all signs attached to the structures. The structures are to be inspected in accordance with *Procedures Manual for Structural Integrity Inspection and Condition Assessment of Traffic Asset Structures* (Draft v1.2, December 2009). Note, some structures, for example, large gantries and other structures (e.g. bridges) on main roads in the Sydney Metropolitan area that have ITS mounted on them, will be maintained through the SMC's.

3 Detailed Asset Schedule

3.1 Traffic Control Signals

3.1.1 Description

Traffic Control Signals are used by RMS to control traffic at intersections and, in some cases, include flashing and advanced warning signs used to provide advanced warning of an upcoming hazard (e.g. traffic signals, rail crossing etc.)

For maintenance purposes, the Traffic Control Signals category includes

- a) the signals themselves,
- b) the traffic signal controller,
- c) loops,
- d) associated uninterruptible power supplies,
- e) TCS structures,
- f) signs on TCS structures,
- g) TCS connected flashing and advance warning signs,
- h) a working utility power connection at the site,
- i) a working telecommunications connection at the site, and
- j) cleaning and removal of graffiti from TCS assets.

Traffic Control Signals are connected to and communicate with SCATS Regional Signal Control Units (SCATS Cabins). Maintenance responsibility for the SCATS Regional Computers, Regional Signal Control Units (SCATS Cabins) and upstream communications networks will be retained by TfNSW TMC under existing contract arrangements. Detail of RMS's SCATS Cabins connected to the Traffic Control Signals within the ITS MC scope have been included within this section for the ITS Contractors reference.

3.1.2 Inventory

RMS has identified approximately 3,950 Traffic Control Signal sites and approximately 120 Advanced Warning Flashing Signs connected to Traffic Control Signals throughout NSW. A detailed inventory of TCS (SCATS) assets is maintained by TfNSW TMC in PC Inventory. This information is summarised by zone in Table A-1. Detailed information relating to each TCS site is provided in spreadsheets;

1. Site_Locations_TCS_20131206.xlsx
2. Site_Configurations_TCS_2013-12-05.xls

These spreadsheets are a snapshot of the TCS detailed inventory at a point in time and include the assets to be maintained as part of the ITS MC and those assets that are excluded from the ITS MC. The information contained within these spreadsheets is subject to change from time to time.

About 50% of the Signal heads in NSW have quartz halogen lamps. A program to replace the remaining quartz halogen signal heads with LED signal heads is due for completion in 2015. This work is being carried out partly by RMS internal resources (remaining scope may be included in the ITS Contractors scope) and partly under a contract awarded in early 2013.

Table 3-1 Traffic Control Signal Sites

Assets	Qty	ID/Ref	Zone
Signs on TCS Structures (estimate)	> 12,000	-	all
Traffic Control Signals By Zone			

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Assets	Qty	ID/Ref	Zone
TCS (vehicular and pedestrian)	1860	-	Metro East
TCS (vehicular and pedestrian)	1,390	-	Metro West
TCS (vehicular and pedestrian)	700	-	Hunter Valley and Southern (Maintenance by RMS)
Sensing Loops By Zone			
Sensing Loops (11m and 4.5m)	13400	-	Metro East
Sensing Loops (11m and 4.5m)	12800	-	Metro West
Sensing Loops (11m and 4.5m)	5000	-	Hunter Valley and Southern (Maintenance by RMS)
Advance Warning Flashing Signs by Zone			
Advance Warning Flashing Signs	49	-	Metro East
Advance Warning Flashing Signs	36	-	Metro West
Advance Warning Flashing Signs	35	-	Hunter Valley and Southern (Maintenance by RMS)

Traffic Control Signals and associated Advanced Warning Flashing Signs in the NSW Northern, Western and South West regions are included in the new Metro West Zone. Traffic Control Signals and associated Advanced Warning Flashing Signs in the Hunter Valley and Southern Regions will continue to be maintained by the RMS regional teams and are excluded from the ITS Contractors' scope.

3.1.3 Condition

RMS traffic control signal controllers range in age from 30 years to new and have historically been maintained under a planned maintenance program. Overall, the RMS TCS population is generally in good condition with operational faults monitored via SCATS and rectified. To manage the end of life of assets, approximately 30 Traffic Signal Controllers are replaced each year through a planned replacement program. This is in addition to the replacements/reconfigurations undertaken to accommodate intersection upgrades.

Due to the lifecycle benefits offered by LED signal heads, RMS is in the process of replacing existing incandescent TCS lamps with LED signals. Currently the majority of the older incandescent lamp heads have been replaced with the remaining quartz halogen lamps scheduled for progressive replacement by June 2015. The longer life and higher reliability of LED lights is expected to provide a continued reduction in lamp failures as the remaining population of quartz halogen lamps is replaced.

Structures are inspected annually as part of the planned maintenance program with no issues identified for immediate rectification in 2011/12 and no issues identified for rectification the following year.

3.1.4 Installation

Traffic Control Signals are installed in accordance with the requirements of *Installation and Reconstruction of Traffic Light Signals SI-TCS-8*

3.1.5 Operations

Traffic Control Signals are operated by RMS Network Operations through the TfNSW TMC SCATS system. The relevant operational processes are:

- TMC/RMS Network Ops
- Traffic Signal Operation (NSW Australia) RTA-TC-106*
- Traffic Signal Fault Management System User Manual RTA-TMB-QP-105*

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- d) Personality cards process
- e) Fault Response
- f) Incident Response

3.1.6 Maintenance Approach

The maintenance approach for Traffic Control Signals includes routine maintenance inspections and fault/incident response with the performance requirements and scope detailed in *Maintenance of Traffic Control Signals (TCS) R301*.

Traffic Control Signals Structures are to be inspected in accordance with the RMS (RTA) *Procedures Manual for Structural Integrity Inspection and Condition Assessment of Traffic Asset Structures (Draft v1.2)*

Detailed troubleshooting and technical information is available in the manufacturer's manuals for traffic control signal components that are currently held by RMS at Yennora.

3.1.7 Maintenance History

A detailed maintenance history for traffic control signals is available by FMAN fault code covering a period of over 10 years. The nature of the TCS devices and the FMAN reporting system means that a large number of faults initially reported by FMAN either do not require attendance or are reassigned to another category upon site attendance. Typically 26% of the reported faults do not require attendance.

RFS traffic signals technical staff manually correlates the fault log against live SCATS data to filter erroneous faults generated through FMAN.

A summary of the Actual Fault Code History (i.e. the recorded faults corrected after site attendance) is provided below for the period 2009/10 to 2012/13.

Table 3-2 Maintenance History

Fault Type	Code	Actual Fault Code			
		2009/2010	2010/2011	2011/2012	2012/2013
Invalid Entry	IE	13,172	13,492	15,994	12,291
Computer - Lamp Fault	LF	5,751	5,338	6,244	1,303
Preventative Maintenance	PM	3,054	3,336	3,253	2,656
No Fault Found	NF	3,419	3,456	4,319	3,503
Functional Check	FC	3,438	3,536	3,705	3,847
Mast arm Lamp Out	MO	2,344	2,210	1,661	1,097
Other	OT	3,675	3,987	4,238	2,532
Lamp Out	LO	537	942	777	2,663
Systems Inspection	SI	1,561	966	1,223	1,002
Computer - Detector Fault	DA	2,804	2,390	2,058	714
Pushbutton - Permanent Call (S/C)	PS	1,273	1,060	1,383	1,242
Telecom Faults	TE	2,101	1,410	1,692	1,649
Pedestrian "Don't Walk" Lamp Out	LP	561	866	932	957
Detector - Permanent Call (S/C)	DP	472	486	648	825
General Maintenance	GM	488	217	300	852
Twisted Lantern (Conflicting)	AC	577	621	555	411
Twisted Lantern (No Conflict)	AN	666	684	731	659
Computer - Watchdog	WD	1,031	981	890	358

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Fault Type	Code	Actual Fault Code			
		2009/2010	2010/2011	2011/2012	2012/2013
Mastarm Preventative Maintenance	MM	999	1,115	1,409	723
Damaged Post - (Not Dangerous)	AF	515	540	540	407
Computer – No Carrier	NC	476	279	247	108
Damaged or Door Open	AD	185	147	139	105
Visors or Louvres (Missing)	AV	554	566	609	592
On Flash	FY	764	544	509	238
Computer - Stop Communicating	ST	872	919	982	596
Blacked Out	BO	359	290	283	160
Detector - Not Operating Correctl	DN	363	463	543	588
Controller Faults	CF	460	406	448	1,078
Pushbutton - No Call (O/C)	PO	172	206	183	134
Damaged Post - (Dangerous)	AP	285	255	247	165
Pushbutton - Audio Tactile Fault	AT	192	222	193	181
ANTTS Failure	TT	24			1
Pushbutton - Damaged	PA	116	115	140	109
Audio Tactile Noise Level	TN	255	253	302	189
Detector - No Call (O/C)	DO	145	206	245	269
Passing Through	PT	2	4	8	
Critical Lamp Failure	LU	44	47	43	23
Visors or Louvres (Damaged)	AL	130	137	220	151
Controller Door Open	CO	138	96	78	84
Deficiencies in Conditions	DC	51	20	23	16
Dido Fault (Not Communicating)	DF	57	54	110	136
Computer - Invalid RAM	IR	4	2	2	
Lenses Damaged or Reflector Broken	OD	46	43	32	27
Reconstruction by Contractor	RC	102	80	50	54
Stuck in Phase or Phase not Introducing	SP	41	63	46	23
Post Top (Damaged or Missing)	MT	22	18	23	12
Non Attendance	NA	17	64	55	39
Exposed/Hanging Cables/Conduits	WE	35	45	42	40
Sign on TCS Post-Twistd/Missing etc	BS	9	8	9	13
Controller Knocked Down	CA	29	18	17	24
New Site Construction	NS	36	8	10	3
Timing Fault	TF	13	4	8	
Conflicting Displays	CD	13	13	7	8
Housing Damaged	HD	15	16	19	21

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Fault Type	Code	Actual Fault Code			
		2009/2010	2010/2011	2011/2012	2012/2013
Target Boards (Missing or Damaged)	TB	8	13	11	10
Damaged Cables/Conduits	WF	10	19	11	51
Master Faults	MF	67	20	14	16
Computer - Checksum	CK	1		1	
LRV Detector	DT	1		1	1
LRV Detector Loop	TL	1	4	5	
O/H Lane Controller Lamp Out	LL				1
Critical Loop	CL				
In Service	IS		1		
Total		54,552	53,301	58,467	44,957

3.1.8 Regional Signal Control Units (SCATS Cabins)

- The Regional Signal Control Units (SCATS Cabins) form a natural break point between the TMC maintained part of the traffic control network and the ITS Contractor(s). There are 15 locations in the Sydney region, shown in Table 3-5, that house one or more SCATS Regional Computers (there are a further 8 locations in regional NSW). These locations include the TMC Eveleigh computer room, a third party site at the Sydney Police Centre in Surry Hills and 13 other SCATS Cabins. Some Regional Computers have been decommissioned and the corresponding SCATS Cabins are being used only as communication nodes and/or as depot facilities for ITS maintenance.
- Maintenance responsibility for the SCATS Regional Computers, Regional Signal Control Units (SCATS Cabins) and upstream communications networks will be retained by TfNSW TMC under existing contract arrangements.
- The ITS contractor(s) maintenance responsibility will be delineated at the exit side of the telecommunications Krone block from each Regional Signal Control Unit.

Table 3-5 Sydney Regional Signal Control Units (SCATS Cabins)

SCATS Cabin	Address	RC's	Quantity	Maintenance Responsibility
Kellyville	32 Burns Road Kellyville In Transitway Car Park	KELLY, PEN, RIC	1	TfNSW TMC
Lewisham	Parramatta Road, Lewisham (East end Fort St School next to footbridge)	LEW,	1	TfNSW TMC
Newtown	466 King Street, Newtown	NEW, ZET, MAR	1	TfNSW TMC
Punchbowl	40 Rose Street, Punchbowl	PUN, BEX, BEL	1	TfNSW TMC
Rozelle	Westbound Victoria Road, End of Graham Street, Rozelle	ROZ	1	TfNSW TMC
Rushcutters Bay	New South Head Road, West end Rushcutters Bay Park, Rushcutters Bay	RUS, RAND	1	TfNSW TMC

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SCATS Cabin	Address	RC's	Quantity	Maintenance Responsibility
Ryde	159 Church St North West end Ryde Bridge Ryde, enter from Porter St	RYDE, HOR, EPP	1	TfNSW TMC
Silverwater	22 Barker Street, Silverwater	SIL, PAR	1	TfNSW TMC
St Leonards	Pacific Highway and Mitchell Street, St Leonards, in the pedestrian plaza.	Communications Node only	1	TfNSW TMC
Lavender Bay	32 Pacific Hwy, adjacent to the Lavender St exit. North of the Sydney Harbour Bridge,	NSYD, DY, NAR, STL, WILL	1	TfNSW TMC
Taren Point	50 Old Taren Point Road, Taren Point	TAR, KOG, SUTH	1	TfNSW TMC
Third party site	Surry Hills (SPC)	CITY, ULT, DARL, RED, HAY	1	TfNSW TMC
TMC	Level 1 Computer room, Transport Management Centre 25 Garden St. Eveleigh	EVE, COU, FIDO1, FIDO2, FIDO3, FIDO4, SOUTH, NEWCOM, WAT	1	TfNSW TMC
Warwick Farm	Warwick Street, near railway station, Warwick Farm	CAM, WAR, FAI, HOXP	1	TfNSW TMC
Wentworthville	Cnr of Mount & Lower Mount Street, Wentworthville	WEN, BLA, DOON	1	TfNSW TMC
Total			15	

3.2 Variable Message Signs

3.2.1 Description

Variable Message Signs are used by RMS to provide information to road users regarding road conditions, incidents, road safety and context specific warnings (e.g. over height or speed alerts).

For maintenance purposes, the Variable Message Signs category includes

- a) the signs themselves,
- b) the associated control hardware,
- c) associated batteries or uninterruptible power supplies,
- d) VMS structures,
- e) static signs on VMS structures,
- f) VMS connected flashing and advance warning lights,
- g) a working utility power connection at the site,
- h) a working telecommunications connection at the site, and

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- i) cleaning and removal of graffiti from VMS assets.

3.2.2 Inventory

The inventory of Variable Message Signs includes VMS's incorporated into special purpose ITS applications (e.g. Over Height Detection, Speed Detection, Travel Time Detection). VMS's at Heavy Vehicle Checking Stations are listed under HVCS ITS assets. VMS's which are part of motorways operated by Private Motorway Operators (M2, M7, CCT, etc) are not listed as they will continue to be maintained by the motorway operators in the foreseeable future. This inventory does not include portable VMS's which may be deployed by RMS from time to time.

RMS has identified approximately 284 VMS installations throughout NSW (excluding VMS's installed at HVCS and excluding CCT, ED, LCT, M2, M5E, M7 and City of Sydney assets). Approximately 252 are presently maintained by RFS (Yennora) and of these 250 are included in the ITS Contractors' maintenance scope (new Metro East and Metro West zones) and 2 are in the SHB Special precinct. 30 VMS's in the Southern Region are currently maintained by the regional RFS resources and this arrangement will continue. 2 demonstration VMS's at the TMC are maintained by TMC and are excluded. A detailed inventory of assets is maintained in RMS's MITS facility, PC Inventory Database and by ITS Manufacturing. This information is summarised by zone in the following table.

Table 3-3 Variable Message Signs

Asset	ID/Ref	Zone
Summary by Zone	Qty	
VMS	107	Metro East
VMS	143	Metro West
VMS	30	Southern (Maintenance by RMS)
VMS	2	SHB (Maintenance by SHB Alliance)
VMS	2	TMC Demonstration VMS's (Maintenance by TMC)
Total	284	
Metro East Zone	107	
VMS Blakehurst, Princes Hwy (N), 1100m S of King Georges Rd	VMS_0001_0701_N	Metro East
VMS Kogarah; Princes Hwy (S); 50m before Rocky Point Rd	VMS_0001_0702_S	Metro East
VMS Blakehurst; Princes Hwy (S); 300m before Tom Uglys Bdge	VMS_0001_0703_S	Metro East
VMS Sylvania; Princes Hwy (N); 150m after Port Hacking Rd	VMS_0001_0704_N	Metro East
VMS Kirrawee; Princes Hwy (E) ; 442m West of The Kingsway	VMS_0001_0705_E	Metro East
VMS Kirrawee; Princes Hwy (W); 80m east of Oak Road	VMS_0001_0706_W	Metro East
VMS Heathcote; Princes Hwy (N); 1750 south of Heathcote Rd	VMS_0001_0707_N	Metro East
VMS Tempe; Princes Hwy (S); 1100m north of M5E Mwy	VMS_0001_0708_S	Metro East
VMS Strathfield, Liverpool Rd (W), 800m East of Roberts Rd	VMS_0002_2201_W	Metro East
VMS Burwood, Parramatta Rd (W) before Shaftsbury Ave	VMS_0005_0100_W	Metro East
VMS Chippendale; Broadway (W); 400m east of City Rd	VMS_0005_0102_W	Metro East
VMS Parramatta Rd (E) Eastbound 350m East of Burwood Rd Adjacent to Concord Oval, Concord.	VMS_0005_0907_E	Metro East

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Asset	ID/Ref	Zone
VMS Chatswood; Pacific Hwy (S); 480m north of Fullers Rd	VMS_0010_0044_S	Metro East
VMS Chatswood; Pacific Hwy (S); 300m north of Mowbray Rd	VMS_0010_0046_S	Metro East
VMS Crows Nest; Pacific Hwy (N); 280m south of Falcon St	VMS_0010_0078_N	Metro East
VMS Roseville, Pacific Hwy (S), 300m North of Boundary St	VMS_0010_1501_S	Metro East
VMS Pymble; Pacific Hwy (S); 500m Nth of Mona Vale Rd	VMS_0010_1502_S	Metro East
VMS Wahroonga; Pacific Hwy (N); 60m Nth of Munderah St	VMS_0010_1503_N	Metro East
VMS Chatswood; Pacific Hwy (N); 750m south of Fullers Rd	VMS_0010_1531_N	Metro East
VMS West Ryde; Blaxland Rd (S); 380m north of Devlin St	VMS_0139_0406_S	Metro East
VMS Macquarie Park; Lane Cove Rd (S); 450m north of M2 underpass	VMS_0162_0011_S	Metro East
VMS Ryde; Lane Cove Rd (S); 450m north of Devlin St	VMS_0162_0407_S	Metro East
VMS Pymble; Mona Vale Rd (S); 320m north of Pacific Hwy	VMS_0162_0603_S	Metro East
VMS North Ryde; Lane Cove Rd (N); 700m Sth of Epping Rd	VMS_0162_0605_N	Metro East
VMS North Narrabeen; Pittwater Rd (S), at Lake Park Rd	VMS_0164_0253_S	Metro East
VMS Mona Vale; Barrenjoey Rd (S); at Golf Ave	VMS_0164_0372_S	Metro East
VMS Narrabeen; Pittwater Rd (N), at Waterloo St	VMS_0164_1257_N	Metro East
VMS Nth Narrabeen; Pittwater Rd (N); at Wakehurst Parkway Intersection	VMS_0164_1641_N	Metro East
VMS Nth Narrabeen; Pittwater Rd (S); at Wakehurst Parkway Intersection	VMS_0164_1642_S	Metro East
VMS Dee Why; Pittwater Rd (S); 300m north of Waringah Rd	VMS_0164_1643_S	Metro East
VMS Balgowlah; Burnt Bridge Creek Rd (S); 500m north of Sydney Rd	VMS_0164_1644_S	Metro East
VMS Drummoyne (W) Victoria Rd, east of Gladesville Bridge	VMS_0165_0901_W	Metro East
VMS Ryde, Victoria Rd (W), 400m east of Church St	VMS_0165_0903_W	Metro East
VMS Pymont; Western Distributor (W); 500m east of Pymont Bridge Rd	VMS_0165_0904_W	Metro East
VMS Sydney; Western Distributor (N); north of King St Pedestrian Bridge	VMS_0165_0906_N	Metro East
VMS Ryde; Victoria Rd (E); 800m West of Devlin St	VMS_0165_1203_E	Metro East
VMS Rozelle; Victoria Rd (E); 500m West of The Crescent	VMS_0165_1205_E	Metro East
VMS Henley; Victoria Rd; 690m West of Burns Bay Rd Exit	VMS_0165_1206_E	Metro East
VMS Lane Cove; Burns Bay Rd (N); 160m south of Penrose St	VMS_0166_0020_N	Metro East
VMS Wiley Park; Canterbury Rd (E); 350m west of King Georges Rd	VMS_0167_0302_E	Metro East

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Asset	ID/Ref	Zone
VMS Campsie; Canterbury Rd (W); 215m east of Bexley Rd	VMS_0167_0305_W	Metro East
VMS Bexley; Bexley Road (N); 200m south of M5E onramp	VMS_0169_6901_N	Metro East
VMS Bexley; Bexley Road (S); 200m north of M5E overpass	VMS_0169_6902_S	Metro East
VMS Bexley Nth; Bexley Rd (S); 100m north of William St (Flood Sign)	VMS_0169_6903_S	Metro East
VMS Bexley Nth; Bexley Rd (N); 120m south of Barnsbury Gv (Flood Sign)	VMS_0169_6904_N	Metro East
VMS Bexley Nth; Bexley Rd (N); 80m south of Shaw St (Flood Sign)	VMS_0169_6905_N	Metro East
VMS Bexley Nth; Kingsgrove Av (E); 100m west of Bexley Rd (Flood Sign)	VMS_0169_6906_E	Metro East
VMS Moore Park, Anzac Parade (N), 350m North of Dacey Ave	VMS_0171_1403_N	Metro East
VMS Moore Park Parking; Flinders St (S); at South Dowling St (66N5)	VMS_0171_1405_S	Metro East
VMS Moore Park Parking, Anzac Parade (N)	VMS_0171_1407_N	Metro East
VMS Moore Park Parking; Anzac Parade (S); at MacArthur Av (66P8)	VMS_0171_1409_S	Metro East
VMS Mona Vale; Pittwater Rd (S), at Barrenjoey Rd	VMS_0174_1049_S	Metro East
VMS Alford's Point; Alford Points Road (S); 660m south of Alford Points Bridge	VMS_0190_0192_S	Metro East
VMS Kyeemagh, General Holmes Dve (S); 200m Nth of Bestic St	VMS_0194_0101_S	Metro East
VMS Kyeemagh; General Holmes Dr (N); Corner of ODea Ave	VMS_0194_0104_N	Metro East
VMS Botany; Gen. Holmes Dv; at Jn. S Cross Drive	VMS_0194_9430_S	Metro East
VMS Narwee, King Georges Rd (S); 700m Nth of M5 on-ramp	VMS_0200_0301_S	Metro East
VMS Greenacre, Roberts Rd (N), 930m south of Liverpool Rd	VMS_0200_0304_N	Metro East
VMS Ryde, Devlin St (S); 550m Nth of Victoria Rd	VMS_0200_0401_S	Metro East
VMS Rhodes; Concord Rd (S); 629m Nth of Homebush Bay Dr	VMS_0200_0402_S	Metro East
VMS Strathfield; Centenary Dr (S); 700m Nth of Liverpool Rd	VMS_0200_0403_S	Metro East
VMS Homebush; Homebush Bay Dr (S); 400m Nth of M4 on-ramp	VMS_0200_0404_S	Metro East
VMS Rhodes; Homebush Bay Dr (N); 200m south of Oulton Ave (IKEA Centre)	VMS_0200_0405_N	Metro East
VMS Rhodes; Church St (N); 1400m Sth of Victoria Rd	VMS_0200_0602_N	Metro East
VMS Narwee; King Georges Rd (N); 573m Sth of M5 on-ramp	VMS_0200_0604_N	Metro East
VMS Homebush, Centenary Dr (N), 1400m Sth of M4 on-ramp	VMS_0200_0606_N	Metro East

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Asset	ID/Ref	Zone
VMS Hurstville; King Georges Rd (S); 300m before Forest Rd	VMS_0200_1201_S	Metro East
VMS Caringbah; Kingsway (N); near Caringbah Railway Stn	VMS_0227_2271_N	Metro East
VMS Frenchs Forest; Warringah Rd (E); at Forest Way	VMS_0328_0374_E	Metro East
VMS Frenchs Forest; Warringah Rd (E); at Wakehurst Parkway	VMS_0328_0375_E	Metro East
VMS Forestville; Warringah Rd (E); 30m north of Brown St	VMS_0328_0377_E	Metro East
VMS Frenchs Forest; Warringah Rd (E); 40m East of Hilmer St	VMS_0328_0781_E	Metro East
VMS Moore Park Parking; Cleveland St (E); west of Anzac Pde (66P8)	VMS_0330_1408_E	Metro East
VMS Berowra Heights; Berowra Waters Rd; 4.5km east of Berowra Waters Ferry	VMS_0332_0331_W	Metro East
VMS Macquarie Park; Epping Rd (E); 900m west of Lane Cove Rd	VMS_0373_0002_E	Metro East
VMS Macquarie Park; Epping Rd (E); 400m west of Delhi Rd	VMS_0373_0010_E	Metro East
VMS Lane Cove West; Epping Rd (E); 400m west of Centennial Ave	VMS_0373_0030_E	Metro East
VMS Lane Cove West; Epping Rd (W); 50m east of Centennial Ave	VMS_0373_0032_W	Metro East
VMS Lane Cove; Longueville Rd (E); 250m west of Pacific Hwy	VMS_0373_0040_E	Metro East
VMS Oxford Falls; Wakehurst Pky (N); at Dreadnought Rd	VMS_0397_0373_N	Metro East
VMS Frenchs Forest; Wakehurst Parkway (N); at Warringah Rd	VMS_0397_0376_N	Metro East
VMS Oxford Falls; Wakehurst Parkway (S); 1.7km north of Warringah Rd	VMS_0397_0378_S	Metro East
VMS North Narrabeen; Wakehurst Pkwy (W), 20m West of Elanora Rd	VMS_0397_0397_W	Metro East
VMS Frenchs Forest; Frenchs Forest Rd (W); at Wakehurst Pkwy	VMS_0397_0848_W	Metro East
VMS Frenchs Forest; Frenchs Forest Rd (E); at Wakehurst Pkwy	VMS_0397_0849_E	Metro East
VMS Belrose; Morgan Rd (E), 20m East of Forest Way	VMS_0529_0224_E	Metro East
VMS Alexandria; Southern Cross Dr (N); 300m Nth of Travilyan Av Overbridge	VMS_0592_0105_N	Metro East
VMS Mascot; Southern Cross Drive (S); 50m Nth of Gardeners Road	VMS_0593_0106_S	Metro East
VMS Kyeemagh; Forshore Rd (N); approaching Gen. Holmes Dv	VMS_0617_9419_N	Metro East
VMS Lilyfield; City West Link (E); 330m west of The Crescent	VMS_0650_0902_E	Metro East
VMS Naremburn; Gore Hill Fwy (W); 1200m east of Hampden Rd Overpass	VMS_0651_0062_W	Metro East
VMS Cammeray; Warringah Fwy (S); 10m west of West St	VMS_0651_0066_S	Metro East

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Asset	ID/Ref	Zone
Overpass		
VMS Cammeray; Warringah Fwy (S); 370m north of Falcon St	VMS_0651_0068_S	Metro East
VMS Cammeray; Warringah Fwy (N); 30m south of Ernest St overpass	VMS_0651_0072_N	Metro East
VMS North Sydney; Warringah Fwy (N); 600m south of Falcon St exit ramp	VMS_0651_0084_N	Metro East
VMS North Sydney; Warringah Fwy (S); at Ridge St Pedestrian Bridge	VMS_0651_0085_S	Metro East
VMS Narwee; M5 (E); 1000m West of King Georges Rd exit	VMS_6005_1706_E	Metro East
VMS Bexley Nth; Slade Rd (W); 60m east of Bexley Rd (Flood Sign)	VMS_7030_7031_W	Metro East
VMS Moore Park Parking; Moore Park Rd (E); at Greens Rd (66P5)	VMS_7301_1402_E	Metro East
VMS Moore Park Parking; Moore Park Rd (W); west of Oatley Rd (66Q6)	VMS_7301_1406_W	Metro East
VMS Moore Park Parking; Oxford St (W); east of Moore Park Rd (67C7)	VMS_7310_1404_W	Metro East
VMS Woollomooloo; Cowper Wharf Rd (W); at Lincoln Cres; (236H9)	VMS_7311_3117_W	Metro East
VMS North Sydney; Miller St (N); 270m south of Falcon St	VMS_7464_0080_N	Metro East
VMS Woollomooloo; Sir John Young Cres (N); at Crown St; (236G10)	VMS_9126_1269_N	Metro East
VMS Woollomooloo; Crown St (N); 50m south of Sir John Young Cres; (236G11)	VMS_9129_1299_N	Metro East
VMS Moore Park Parking; Lang Road (E); at Driver Av (66Q9)	VMS_9187_1400_E	Metro East
VMS Moore Park Parking; Lang Road (W); at Driver Av (66Q9)	VMS_9187_1401_W	Metro East
Metro West Zone	143	
VMS Princes Hwy (S); 1.4km north of Illawarra Yallah	VMS_0001_0710_S	Metro West
VMS Batemans Bay; Princes Hwy (S); 1650m N of Kings Hwy Roundabout	VMS_0001_1031_S	Metro West
VMS Bargo; Hume Hwy (N); 9.1km south of Picton Rd	VMS_0002_0521_N	Metro West
VMS Wilton; Hume Hwy Off-Ramp (N); to Picton Rd	VMS_0002_0523_N	Metro West
VMS Wilton; Hume Hwy Off-Ramp (S); to Picton Rd	VMS_0002_0524_S	Metro West
VMS South Albury; Hume Hwy (N); 1km south of offramp	VMS_0002_0525_N	Metro West
VMS Mundarlo; Hume Hwy (S); 2.9km north of Sturt Hwy	VMS_0002_0526_S	Metro West
VMS Table Top; Hume Hwy (N); 2.73km south of Olympic Hwy	VMS_0002_0527_N	Metro West
VMS Table Top; Hume Hwy (S); 1km west of Knox Rd	VMS_0002_0528_S	Metro West
VMS Tarcutta; Hume Hwy (N); 1600m north of Lower Tarcutta Rd	VMS_0002_0529_N	Metro West

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Asset	ID/Ref	Zone
VMS Coolac; Hume Hwy (N); 3.2km south of Gobarralong - Adjungbilly Rd	VMS_0002_0530_N	Metro West
VMS Coolac; Hume Hwy (S); 4km north of Muttama Rd	VMS_0002_0531_S	Metro West
VMS Bookham; Hume Hwy (N); 5.6km west of Burley Griffin Way	VMS_0002_0532_N	Metro West
VMS Manton; Hume Hwy (S); 3.6km east of Barton Hwy	VMS_0002_0533_S	Metro West
VMS Douglas Park; Hume Hwy (S); 5.7km north of Picton Rd	VMS_0002_0534_S	Metro West
VMS Glenfield; Campbelltown Rd (N); 830m south of Hume Hwy	VMS_0002_0539_N	Metro West
VMS Meadow Flat; Great Western Hwy (W); 33m west of Diamond Swamp Rd	VMS_0005_0201_W	Metro West
VMS Yetholme; Great Western Hwy (E); 50m west of Timber Ridge Rd	VMS_0005_0202_E	Metro West
VMS Hartley; Great Western Hwy (W); 200m east of Jenolan Caves Rd	VMS_0005_0203_W	Metro West
VMS Bowenfels; Great Western Hwy (E); 600m west of Main St Lithgow	VMS_0005_0205_E	Metro West
VMS Kelso; Great Western Hwy (E); before Raglan Crk, 1300m W of Littlebourne St	VMS_0005_0206_E	Metro West
VMS Auburn; Parramatta Rd (W); 600 m east of Silverwater Rd	VMS_0005_0607_W	Metro West
VMS Granville; Parramatta Rd (E); 1100m west of James Ruse Drive	VMS_0005_0805_E	Metro West
VMS_0004_0807_E V0807 Great Western Highway (E) Eastbound before Cumberland Hwy Great Western Highway Wentworthville	VMS_0005_0807_E	Metro West
VMS Belford; New England Hwy (S); 4.3km north of Hunter Expressway	VMS_0009_1105_S	Metro West
VMS Tarro; New England Hwy (E); 600m west of Tarro Interchange	VMS_0009_1510_E	Metro West
VMS Metford; New England Hwy (E); 1400m west of Weakleys Drv	VMS_0009_1511_E	Metro West
VMS Tarro; New England Hwy (W); 980m east of John Renshaw Drv	VMS_0009_1517_W	Metro West
VMS Rutherford; New England Hwy (E); 45m east of Fourth Ave	VMS_0009_1530_E	Metro West
Willow Tree; New England Hwy (N); 2.6km south of Kamilaroi Hwy	VMS_0009_1550_N	Metro West
VMS Hexham; New England Hwy (N); ramp to Pacific Hwy Hexham Bridge; (NC 97J7)	VMS_0010_1101_N	Metro West
VMS Heatherbrae; Pacific Hwy (S); approx 3km south of Masonite Rd	VMS_0010_1504_S	Metro West
VMS Karuah; Pacific Hwy (N); 500m south of Medowie Rd	VMS_0010_1505_N	Metro West
VMS Grafton South; Pacific Hwy (N); near Six Mile Lane	VMS_0010_1506_N	Metro West
VMS Grafton North; Pacific Hwy (S); 100m south of Swan	VMS_0010_1507_S	Metro West

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Asset	ID/Ref	Zone
Lane		
VMS Ballina South; Pacific Hwy (S); 80m west of Smith Drive	VMS_0010_1508_S	Metro West
VMS Ballina South; Pacific Hwy (N); 200m east of Teven Rd	VMS_0010_1509_N	Metro West
VMS Sandgate; Maitland Rd (W) 350m east of Wallsend Rd	VMS_0010_1512_W	Metro West
VMS Kingscliff; Pacific Hwy (S); 80m north of Wommin Bay Road underpass	VMS_0010_1513_S	Metro West
VMS Coffs Harbour; Pacific Hwy (N); 220m north of Halls Rd	VMS_0010_1515_N	Metro West
VMS Taree; Pacific Hwy (S); 1500m south of Cundletown Interchange	VMS_0010_1516_S	Metro West
VMS Berowra; Pacific Hwy (N); 500m south of Windy Banks Interchange	VMS_0010_1521_N	Metro West
VMS Berowra; Pacific Hwy (S); 560m north of Windy Banks Interchange	VMS_0010_1522_S	Metro West
VMS Mooney Mooney; Pacific Hwy (S); 230m north of F3 Southbound Onramp	VMS_0010_1523_S	Metro West
VMS Mt White; Pacific Hwy (N); 680m South of Mt White Interchange	VMS_0010_1524_N	Metro West
VMS Mt White; Pacific Hwy (S); 170m north of Mt White Interchange	VMS_0010_1525_S	Metro West
VMS Calga; Pacific Hwy (S); 60m northeast of F3 s/b onramp	VMS_0010_1526_S	Metro West
VMS Ourimbah; Pacific Hwy (S); 500m north of Ourimbah Interchange	VMS_0010_1528_S	Metro West
VMS Blacksmiths; Pacific Hwy (S); 1000m north of Swansea Bridge	VMS_0010_1534_S	Metro West
VMS Swansea; Pacific Hwy (N); 650m south of Swansea Bridge	VMS_0010_1535_N	Metro West
VMS Lake Innes; Pacific Hwy (N); 1.5km south of offramp to Oxley Hwy	VMS_0010_1536_N	Metro West
VMS Raleigh; Pacific Hwy (S); 2.3km north of offramp to Waterfall Way	VMS_0010_1537_S	Metro West
VMS Ourimbah; Pacific Hwy (S); 960m north of Chittaway Rd	VMS_0010_1539_S	Metro West
VMS Ourimbah; Pacific Hwy (N); 170m south of Chittaway Rd	VMS_0010_1540_N	Metro West
VMS Bennetts Green; Pacific Hwy (S); 210m north of South St	VMS_0010_1547_S	Metro West
VMS Carlingford; Pennant Hills Rd (N); 400m south of Marsden Rd	VMS_0013_0800_N	Metro West
VMS Wentworthville, Emert St (S), 700m North of Gt Western Hwy	VMS_0013_0801_S	Metro West
VMS Beecroft, Pennant Hills Rd (S), 300m north of M2 onramp	VMS_0013_0802_S	Metro West
VMS Normanhurst, Pennant Hills Rd (N); 100 m south of	VMS_0013_0803_N	Metro West

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Asset	ID/Ref	Zone
Jasmine Rd		
VMS Woodpark; Betts Rd (N); 200m south of Woodpark Rd	VMS_0013_0804_N	Metro West
VMS Greystanes; Jersey Rd (S); 150m north of Greystanes	VMS_0013_0806_S	Metro West
VMS Parramatta; James Ruse Dr (E); 600m West of Pennant Hills Rd	VMS_0013_1601_E	Metro West
VMS_0023_1548_N VMS Shortland; Main Rd (N); 2.1km south of Maitland Rd	VMS_0023_1548_N	Metro West
VMS West Gosford; Central Coast Hwy (E); 1.35km west of Brisbane Water Rd	VMS_0030_1520_E	Metro West
VMS West Gosford; Central Coast Hwy (W); 630m east of Brisbane Water Drv	VMS_0030_1527_W	Metro West
VMS West Gosford; Central Coast Hwy (E); 850m west of Brisbane Water Dr	VMS_0030_1532_E	Metro West
VMS West Gosford; Central Coast Hwy (E); 1.4km west of Dane Drv	VMS_0030_1538_E	Metro West
VMS_0030_1541_W VMS East Gosford; Central Coast Hwy (W); 1.1km east of Henry Parry Drv	VMS_0030_1541_W	Metro West
VMS_0030_1545_W V1545 1.5 Km East of Terrigal Drive Erina Heights	VMS_0030_1545_W	Metro West
VMS Kariong; Central Coast Hwy (W); 1.2km east of F3 Fwy	VMS_0030_3007_W	Metro West
VMS Batemans Bay; Kings Hwy (E); 740m W of Princes Hwy Roundabout	VMS_0051_1032_E	Metro West
VMS Batemans Bay; Kings Hwy (W); 900m W of Princes Hwy Roundabout	VMS_0051_1033_W	Metro West
VMS Bungendore; Kings Hwy (W); at Rutledge St	VMS_0051_1034_W	Metro West
VMS Queanbeyan East; Kings Hwy (E); at Thurralilly St	VMS_0051_1035_E	Metro West
VMS Bungendore; DOD HQJOC Access Rd (N); 1.5km south of Kings Hwy	VMS_0051_1036_N	Metro West
VMS Lambton; Newcastle Rd (E); corner of Albert St	VMS_0082_1514_E	Metro West
VMS Hamilton North; Donald St (E); 30m east of Chatham Rd	VMS_0082_1533_E	Metro West
VMS Broadmeadow; Griffiths Rd (W); 280m east of Turton Rd	VMS_0082_1544_W	Metro West
VMS Castle Hill; Showground Rd (W); 1.2km east of Carrington Rd	VMS_0157_0632_W	Metro West
VMS Galston; Galston Rd (E); 2.8km west of Galston Gorge	VMS_0161_0334_E	Metro West
VMS Hornsby; Galston Rd (W); 5.6km east of Galston Gorge	VMS_0161_0335_W	Metro West
VMS Galston; Galston Rd (E); 3.2km west of Galston Gorge	VMS_0161_0336_E	Metro West
VMS Hornsby Heights; Galston Rd (W); 3.1 km east of Galston Gorge	VMS_0161_0337_W	Metro West
VMS Maroooota; Old Northern Rd (N); 10Km South of Wiseman's Ferry	VMS_0181_0333_N	Metro West

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Asset	ID/Ref	Zone
VMS Castle Hill; Windsor Rd (S); 350m north of Showground Rd	VMS_0184_0633_S	Metro West
VMS Rouse Hill; Windsor Rd (S); 650m north of Schofields Rd	VMS_0184_0634_S	Metro West
VMS Baulham Hills; Windsor Rd (N); 350m south of Old Northern Rd	VMS_0184_0639_N	Metro West
VMS Bald Hill; Lawrence Hargrave Drive (E);	VMS_0185_1005_E	Metro West
VMS Helensburgh, Walker St (S), Temple Road opposite Hindu Temple	VMS_0185_1007_S	Metro West
VMS Silverwater; Silverwater Rd (S); 550 m north of M4 Mwy	VMS_0190_0608_S	Metro West
VMS Wickham; Hannell St (N); 80m south of Albert St	VMS_0316_1546_N	Metro West
VMS Berowra Heights; Berowra Waters Rd (W); 4.5km east of Berowra Waters Ferry	VMS_0332_0331_W	Metro West
VMS Arcadia; Arcadia Rd (E); 7.6km west of Berowra Waters Ferry	VMS_0332_0332_E	Metro West
VMS Tuggerah; Wyong Rd (W); 700m east of Tuggerah Interchange	VMS_0335_1529_W	Metro West
VMS Tuggerah; Wyong Rd (E); 700m west of Pacific Hwy	VMS_0335_1542_E	Metro West
VMS Tuggerah; Wyong Rd(E); xm East of pacific hwy	VMS_0335_1543_W	Metro West
VMS Bald Hill; Lady Wakehurst Drive (S)	VMS_0393_1006_S	Metro West
VMS Moorebank; Heathcote Rd (S); 300m northwest of M5 Mwy	VMS_0512_0303_S	Metro West
VMS Hampton; Jenolan Caves Rd (S); 100m north of Duckmaloi Rd to Oberon	VMS_0558_0204_S	Metro West
VMS Wahroonga; F3 (N)	VMS_6003_3001_N	Metro West
VMS F3 - Mt. Kuring-Gai (N)	VMS_6003_3002_N	Metro West
VMS F3 - Brooklyn (N)	VMS_6003_3003_N	Metro West
VMS Brooklyn; F3 (S)	VMS_6003_3004_S	Metro West
VMS F3 - Mt. White (S)	VMS_6003_3005_S	Metro West
VMS F3 - South Kariong (S)	VMS_6003_3006_S	Metro West
VMS F3 - Somersby (S)	VMS_6003_3008_S	Metro West
VMS Mooney Mooney; F3 Fwy (N); 500m north of Hawkesbury Interchange	VMS_6003_3009_N	Metro West
VMS West Wallsend; F3 Fwy (N); 100m south of O'Donnelltown Rd Overpass	VMS_6003_3010_N	Metro West
VMS Black Hill; F3 Fwy (N); 200m south of John Renshaw Drv	VMS_6003_3011_N	Metro West
VMS Beresfield; John Renshaw Drv (S); 200m east of F3 Fwy	VMS_6003_3012_S	Metro West
VMS Lenaghan; F3 Fwy (N); 4.6km south of John Renshaw Drv	VMS_6003_3013_N	Metro West
VMS Berowra; F3 Fwy (S); 890m north of Berowra offramp	VMS_6003_3014_S	Metro West

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Asset	ID/Ref	Zone
VMS Bar Point; F3 Fwy (S); 3.52km north of Mooney Mooney Interchange	VMS_6003_3015_S	Metro West
VMS Mooney Mooney Creek Bridge; F3 Fwy (N); 2.17km south of Kariong Inter	VMS_6003_3016_N	Metro West
VMS Calga; F3 Fwy (N); 460m south of Peats Ridge offramp	VMS_6003_3017_N	Metro West
VMS Mt White; F3 Fwy (N); 1.1km south of Mt White offramp	VMS_6003_3018_N	Metro West
VMS Somersby; F3 Fwy (N); 2.35km south of Somersby Interchange	VMS_6003_3019_N	Metro West
VMS Ourimbah; F3 Fwy (S); 1.94km north of Ourimbah Interchange	VMS_6003_3020_S	Metro West
VMS Mt Colah; F3 Fwy (S); 2km north of Mt Colah Interchange	VMS_6003_3021_S	Metro West
VMS Mardi; F3 Fwy (N); 2.6km north of Tuggerah Interchange	VMS_6003_3022_N	Metro West
VMS Ourimbah; F3 Fwy (N); 2.8km south of Ourimbah	VMS_6003_3023_N	Metro West
VMS Kangy Angy; F3 Fwy (N); 2.8km south of Tuggerah Interchange	VMS_6003_3024_N	Metro West
VMS Mardi; F3 Fwy (S); 2.3km north of Tuggerah Interchange	VMS_6003_3025_S	Metro West
VMS Kiar; F3 Fwy (S); 2.3km north of Wamervale Interchange	VMS_6003_3026_S	Metro West
VMS Wyee; F3 Fwy (N); 6.6km south of Morisset Interchange	VMS_6003_3027_N	Metro West
VMS Cooranbong; F3 Fwy (S); 4.5 Km North of Morisset Interchange	VMS_6003_3028_S	Metro West
VMS Freemans Waterhole; F3 Fwy (N); 2.3km north of Freemans Drive offramp	VMS_6003_3029_N	Metro West
VMS Wakefield; F3 Fwy (S); 3.8km north of Palmers Rd offramp	VMS_6003_3030_S	Metro West
VMS Lenaghan; F3 Fwy (S); 3.4km north of Newcastle Link Rd offramp	VMS_6003_3031_S	Metro West
VMS Homebush Bay; M4 (W); at Hill Rd on ramp	VMS_6004_0130_W	Metro West
VMS Parramatta; M4 (E); before Church St off ramp	VMS_6004_0172_E	Metro West
VMS Girraween; M4 (E); 1200m west of Cumberland Hwy	VMS_6004_0190_E	Metro West
VMS M4 Eastern Creek (E); 1000m west of Reservoir Rd Exit	VMS_6004_0505_E	Metro West
VMS Holroyd; M4 Mwy (W); 830 m east of Burnett St	VMS_6004_4902_W	Metro West
VMS Penrith; M4 Mwy (E); 1020m west of The Northern Rd	VMS_6004_4903_E	Metro West
VMS Claremont Meadows; M4 Mwy (E); 1200m west of Mamre Rd offramp	VMS_6004_4906_E	Metro West
VMS Mays Hill; M4 Mwy (E); 1300m west of Church St offramp	VMS_6004_4907_E	Metro West
VMS Silverwater; M4 Mwy (E); 900m west of Silverwater	VMS_6004_4908_E	Metro West

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Asset	ID/Ref	Zone
Rd offramp		
M4 North Strathfield,(W) 980m before Homebush Bay Drive offramp	VMS_6004_4909_W	Metro West
M4 Homebush Bay,(W) 1300m before Silverwater Road offramp	VMS_6004_4910_W	Metro West
VMS Greystanes; M4 Mwy (W); 1350m east of Prospect Hwy offramp	VMS_6004_4911_W	Metro West
VMS St. Clair; M4 Mwy (W); 1450m east of Mamre Rd offramp	VMS_6004_4912_W	Metro West
VMS Orchard Hills; M4 Mwy (W); 1360m east of The Northern Rd offramp	VMS_6004_4913_W	Metro West
Southern Zone	30	
VMS Bulli; Princes Hwy (N); at Bulli Primary School	VMS_0001_1002_N	Southern Region (Maintenance by RMS)
VMS Helensburg; Princes Hwy SBND; at F6 interchange	VMS_0001_1081_S	Southern Region (Maintenance by RMS)
VMS Helensburg; Princes Hwy NBND; at F6 interchange	VMS_0001_1082_N	Southern Region (Maintenance by RMS)
VMS Helensburg; Princes Hwy WBND; at F6 interchange	VMS_0001_1083_W	Southern Region (Maintenance by RMS)
VMS Mt Pleasant; Mount Ousley Rd (N); 1km Nth of New Mt Pleasant Rd	VMS_0095_0195_N	Southern Region (Maintenance by RMS)
VMS Mt Pleasant; Mount Ousley Rd (S); 1200m Nth of New Mt Pleasant Rd	VMS_0095_0196_S	Southern Region (Maintenance by RMS)
VMS F6 Fog Warning System; SBND at Waterfall; (6074_S)	VMS_6006_6074_S	Southern Region (Maintenance by RMS)
VMS Helensburg; F6 200m before SBND offramp; (6082_S)	VMS_6006_6082_S	Southern Region (Maintenance by RMS)
VMS F6 Fog Warning System; Bulli Tops; (6089_N)	VMS_6006_6089_N	Southern Region (Maintenance by RMS)
VMS F6 Fog Warning System; Bulli Tops; (6090_S)	VMS_6006_6090_S	Southern Region (Maintenance by RMS)
VMS F6 Fog Warning System; Bulli Tops; (6091_N)	VMS_6006_6091_N	Southern Region (Maintenance by RMS)
VMS F6 Fog Warning System; Bulli Tops; (6092_S)	VMS_6006_6092_S	Southern Region (Maintenance by RMS)
VMS F6 Fog Warning System; Bulli Tops; (6093_N)	VMS_6006_6093_N	Southern Region (Maintenance by RMS)
VMS F6 Fog Warning System; Bulli Tops; (6094_S)	VMS_6006_6094_S	Southern Region (Maintenance by RMS)
VMS F6 Fog Warning System; Bulli Tops; (6095_N)	VMS_6006_6095_N	Southern Region (Maintenance by RMS)
VMS F6 Fog Warning System; Bulli Tops; (6096_S)	VMS_6006_6096_S	Southern Region (Maintenance by RMS)
VMS F6 Fog Warning System; Jn Princes Hwy; (6097_N)	VMS_6006_6097_N	Southern Region (Maintenance by RMS)

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Asset	ID/Ref	Zone
VMS F6 Fog Warning System; Jn Princes Hwy; (6098_S)	VMS_6006_6098_S	Southern Region (Maintenance by RMS)
VMS F6 Fog Warning System; Princes Hwy; Bulli Tops; (6099_N)	VMS_6006_6099_N	Southern Region (Maintenance by RMS)
VMS F6 Fog Warning System; Princes Hwy; Bulli Tops; (6100_S)	VMS_6006_6100_S	Southern Region (Maintenance by RMS)
VMS F6 Fog Warning System; Princes Hwy; Bulli Tops; (6101_N)	VMS_6006_6101_N	Southern Region (Maintenance by RMS)
VMS F6 Fog Warning System; Princes Hwy; Bulli Tops; (6102_S)	VMS_6006_6102_S	Southern Region (Maintenance by RMS)
VMS F6 Fog Warning System; Bulli Tops; (6103_N)	VMS_6006_6103_N	Southern Region (Maintenance by RMS)
VMS F6 Fog Warning System; Bulli Tops; (6104_N)	VMS_6006_6104_N	Southern Region (Maintenance by RMS)
VMS F6 Fog Warning System; Bulli Tops; (6105_N)	VMS_6006_6105_N	Southern Region (Maintenance by RMS)
VMS F6 Fog Warning System; Bulli Tops; (6106_S)	VMS_6006_6106_S	Southern Region (Maintenance by RMS)
VMS F6 Fog Warning System; Bulli Tops; (6107_S)	VMS_6006_6107_S	Southern Region (Maintenance by RMS)
VMS F6 Fog Warning System; Bulli Tops; (6108_N)	VMS_6006_6108_N	Southern Region (Maintenance by RMS)
VMS F6 Fog Warning System; NBND at Bulli Tops; (6109_N)	VMS_6006_6109_N	Southern Region (Maintenance by RMS)
VMS West Wollongong, Southern Fwy (N); Nth of On Ramp From Mt Kiera Rd	VMS_6006_6125_N	Southern Region (Maintenance by RMS)
Maintained by SHB Alliance	2	
VMS Millers Point; Western Distributor (N); at onramp from Kent St	VMS_0165_0905_N	SHB (Maintenance by RMS)
VMS The Rocks; Cahill Expressway (W); at Cumberland Street; (Map C N7)	VMS_0592_0520_W	SHB (Maintenance by RMS)
Demonstration VMS's Maintained by TMC	2	
VMS TMC Demonstration Sign at TMC	VMS_9015_9015_N	TMC (Maintenance by RMS)
VMS Connected to ESSIF same as VMS_9015_9016_N	VMS_9015_9016	TMC (Maintenance by RMS)

Variable Message Signs outside the Sydney Metropolitan Area, other than those VMS's in the Southern Region identified above which are maintained by RFS (Bellambi), are to be maintained by the ITS contractor(s).

3.2.3 Condition

RMS Variable Message Signs range in age from 10 years to new and have historically been maintained under a planned inspection and maintenance program. As the VMS assets are relatively new assets, the VMS population is generally in good condition. Approximately 10 Variable Message Signs are now replaced each year through a planned replacement program, targeting the oldest generation of VMS devices.

Structures are inspected annually as part of the planned maintenance program with 3 issues identified for immediate rectification in 2011/12 and no issues identified for planned rectification in the following year.

3.2.4 Installation

Variable Message Signs are installed in accordance with the requirements of:

- a) *Installation of ITS Devices & Systems ILC-ITS-TPO-006*
- b) *General Requirements for Variable Message Signs TSI-SP-008*
- c) *General Requirements for Portable Variable Message Signs TSI-SP-030*
- d) *Guidelines for the Location and Placement of Variable Message Signs TDT2005/02b.*

And other relevant technical specifications and procedures identified by RMS.

3.2.5 Operations

Unless otherwise identified Variable Message Signs are operated and monitored by TMC and monitored by RMS Network Operations. The relevant operational processes are:

- a) TMC/RMS Network Ops
- b) *Use of Variable Message Signs –RTA Policy TDT 2010/07*
- c) Fault Response
- d) Incident Response

3.2.6 Maintenance Approach

The maintenance approach for Variable Message Signs includes routine maintenance inspections and fault/incident response with the performance requirements and scope detailed in *Maintenance of Variable Message Signs R302*

Variable Message Signs Structures are to be inspected in accordance with the RMS (RTA) *Procedures Manual for Structural Integrity Inspection and Condition Assessment of Traffic Asset Structures (Draft v1.2)*

Detailed troubleshooting and technical information is available in the manufacturer’s manuals for Variable Message Signs that are currently held by RMS at Yennora.

3.2.7 Maintenance History

A detailed maintenance history for the VMS population is not centrally recorded. The number of fault/incident attendances at VMS sites is provided below for the period 2009/10 to 2012/13.

Table 3-4 VMS Maintenance History

Fault Type	Code	Maintenance History			
		2009/2010	2010/2011	2011/2012	2012/2013
Planned Inspection				46	46
Routine Maintenance				26	26
Fault Rectification				nil	6
Planned Replacement					

3.3 Variable Speed Limit Signs

3.3.1 Description

Variable Speed Limit Signs are used by RMS to increase or reduce the speed limits depending on traffic, road or weather conditions.

For maintenance purposes, the Variable Speed Limit Signs category includes

- a) the signs themselves,
- b) the associated control hardware,
- c) associated batteries or uninterruptible power supplies,
- d) associated structures,
- e) signs on VSLS structures,

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- f) a working utility power connection at the site,
- g) a working telecommunications connection at the site, and
- h) cleaning and removal of graffiti from VSLS assets.

3.3.2 Inventory

RMS has identified approximately 67 VSLS installations (excluding CCT, ED, LCT, M2, M5E, M7 and City of Sydney assets). Approximately 65 are presently maintained by RFS (Yennora) and of these 49 are included in the new Metro East and Metro West zones and 16 are in the SHB Special precinct. 2 demonstration VSLS's at the TMC are maintained by TMC. A detailed inventory of assets is maintained in RMS's MITS facility and by ITS Manufacturing. This information is summarised by zone in the following table.

Table 3-5 Variable Speed Limit Signs

Location	ID/Ref	Zone
Metro East Zone	17	
VSS Cammeray; Warringah Fwy (N); 60m North of Falcon St	VSS_0201	Metro East
VSLS Cammeray; Warringah Fwy (S); 150m North of Falcon St	VSS_0202	Metro East
VSLS Cammeray; Warringah Fwy (N); 580m North of Falcon St	VSS_0204	Metro East
VSLS Crows Nest; Warringah Fwy; 50m West of West St Overpass	VSS_0205	Metro East
VSLS Naremburn; Warringah Fwy; 50m South of Merreburn Av Overpass	VSS_0206	Metro East
VSLS Naremburn; Gore Hill Fwy; 150m North of Willoughby Rd	VSS_0207	Metro East
VSLS Naremburn; Gore Hill Fwy; 470m East of Pacific Hwy/Epping Rd Offramp	VSS_0208	Metro East
VSS Artarmon; Gore Hill Fwy (E); at Hampden Rd Overpass	VSS_0209	Metro East
VSS Artarmon; Gore Hill Fwy (E); onramp from Reserve Rd	VSS_0210	Metro East
VSS Artarmon; Gore Hill Fwy (E); 430m east of Pacific Hwy Overpass	VSS_0211	Metro East
VSS North Ryde; Epping Rd (E); 150m east of Pittwater Rd	VSS_0212	Metro East
VSS North Sydney; Warringah Fwy (S); south of Mount St Overpass	VSS_0229	Metro East
VSLS GHD north of Tancred Avenue	VSS_9402	Metro East
VSLS GHD 120m north of East Portal	VSS_9416	Metro East
VSLS GHD 400m north of East Portal	VSS_9418	Metro East
VSLS GHD North of Foreshore Rd	VSS_9421	Metro East
VSLS GHD Junction of Southern Cross Drive	VSS_9428	Metro East
Metro West Zone	32	
VSLS M4 Near Rail Bridge	VSS_103_104	Metro West
VSLS M4 Powell St	VSS_106_107	Metro West
VSLS M4 Near Pedestrian Bridge	VSS_108_109	Metro West
VSLS M4 Near Pedestrian Bridge	VSS_110_111	Metro West
VSLS M4 East of Homebush Drive	VSS_112_114	Metro West
VSLS M4 East of Homebush Drive (Ramp)	VSS_112_114_1	Metro West
VSLS M4 Homebush Drive	VSS_113	Metro West
VSLS M4 West of Homebush Drive (Ramp)	VSS_117	Metro West
VSLS M4 west of Homebush Drive	VSS_118_119	Metro West
VSLS M4 Hill St	VSS_120_121	Metro West

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Location	ID/Ref	Zone
VSLS M4 Hill St	VSS_122_123	Metro West
VSLS M4 Hill St	VSS_124_125	Metro West
VSLS M4 Hill St	VSS_126	Metro West
VSLS M4 Haslams Creek	VSS_133_134	Metro West
VSLS M4 Haslams Creek	VSS_135_136	Metro West
VSLS M4 East of Silverwater Rd	VSS_138_139	Metro West
VSLS M4 West of Silverwater Rd	VSS_142	Metro West
VSLS M4 Stubbs St	VSS_145_146	Metro West
VSLS M4 Stubbs St	VSS_147_148	Metro West
VSLS M4 west of Toll Plaza	VSS_151_152	Metro West
VSLS M4 west of Toll Plaza	VSS_153_154	Metro West
VSLS M4 West of Duck River	VSS_155_156	Metro West
VSLS M4 West of Duck River	VSS_157_158	Metro West
VSLS M4 East of James Ruse Drive	VSS_160	Metro West
VSLS M4 West of James Ruse Drive	VSS_163	Metro West
VSLS M4 Church St	VSS_167_168	Metro West
VSLS M4 Church St	VSS_169_170	Metro West
VSS Mt Boyce; Great Western Hwy (W); 210m east of Weighbridge Exit	VSS_0501	Metro West
VSS Mt Boyce; Great Western Hwy (E); 125m west of Weighbridge Entry	VSS_0502	Metro West
VSS Mt Boyce; Great Western Hwy (S); at Weighbridge Exit	VSS_0503	Metro West
VSS Bar Point; F3 Fwy (N); near Emergency Phone 469	VSS_3001	Metro West
VSS Bar Point; F3 Fwy (N); near Emergency Phone 471	VSS_3002	Metro West
SHB Special Precinct	16	Metro West
VSS Sydney; Cahill Expressway (N); over Circular Quay	VSS_0213	SHB (maintained by SHBA)
VSS Millers Point; Western Distributor (N); south of Bradfield Hwy	VSS_0214	SHB (maintained by SHBA)
VSS Millers Point; Bradfield Hwy (N); on Gantry 1	VSS_0215	SHB (maintained by SHBA)
VSS Millers Point; Bradfield Hwy (S); on Gantry 1	VSS_0216	SHB (maintained by SHBA)
VSS Dawes Point; Bradfield Hwy (N); on Gantry 3	VSS_0217	SHB (maintained by SHBA)
VSS Dawes Point; Bradfield Hwy (S); on Gantry 3	VSS_0218	SHB (maintained by SHBA)
VSS Sydney Harbour Bridge; Bradfield Hwy (N); on Gantry 5	VSS_0219	SHB (maintained by SHBA)
VSS Sydney Harbour Bridge; Bradfield Hwy (S); on Gantry 5	VSS_0220	SHB (maintained by SHBA)
VSS Milsons Point; Bradfield Hwy (N); on Gantry 7	VSS_0221	SHB (maintained by SHBA)
VSS Milsons Point; Bradfield Hwy (S); on Gantry 7	VSS_0222	SHB (maintained by SHBA)
VSS Milsons Point; Bradfield Hwy (N); on Gantry 9	VSS_0223	SHB (maintained by SHBA)
VSS Milsons Point; Bradfield Hwy (S); on Gantry 9	VSS_0224	SHB (maintained by SHBA)
VSS North Sydney; Cahill Expressway (S); south of High St onramp	VSS_0225	SHB (maintained by SHBA)
VSS North Sydney; Bradfield Hwy (S); on Lavender St Gantry	VSS_0226	SHB (maintained by SHBA)
VSS North Sydney; Cahill Expressway (S); on High St Overpass	VSS_0227	SHB (maintained by SHBA)
VSS North Sydney; Bradfield Hwy (S); on High St Overpass	VSS_0228	SHB (maintained by SHBA)
TMC Demonstration Signs	2	

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Location	ID/Ref	Zone
VSLs TMC Demonstration Sign at TMC	VSS_0915	TMC (maintained by RMS)
VSLs TMC Demonstration Sign at TMC	VSS_0916	TMC (maintained by RMS)

Variable Speed Limit Signs outside the Sydney Metropolitan Area are limited to the 2 VSLs on the F3 just to the north of the Hawkesbury River – these are to be maintained by the Metro West Zone ITS contractor.

3.3.3 Condition

RMS Variable Speed Limit Signs range in age from 15 years to new and have historically been maintained under a planned inspection and maintenance program. As the VSL assets are relatively new assets, the VSL population is generally in good condition. No Variable Speed Limit Signs are now replaced each year through a planned replacement program.

3.3.4 Installation

Variable Speed Limit Signs are installed in accordance with the requirements of:

- Installation of ITS Devices Procedure ILC-ITS-TP0-006*
- General Requirements for the Design, Installation, Commissioning and Maintenance of Variable Message Speed Limit Signs TSI-SP-011*
- Guidelines for the Location and Placement of Variable Message Signs TDT2005/02b.*

And other relevant technical specifications and procedures identified by RMS.

3.3.5 Operations

Variable Speed Limit Signs are operated by RMS Network Operations through the TfNSW SCATS system. The relevant operational processes are:

- TMC/RMS Network Ops
- Fault Response
- Incident Response

3.3.6 Maintenance Approach

The maintenance approach for Variable Speed Limit Signs includes routine maintenance inspections and fault/incident response with the performance requirements and scope detailed in *Maintenance of Variable Speed Limit Signs R303*

Variable Speed Limit Sign Structures are to be inspected in accordance with the RMS (RTA) *Procedures Manual for Structural Integrity Inspection and Condition Assessment of Traffic Asset Structures (Draft v1.2)*

Detailed troubleshooting and technical information is available in the manufacturer's manuals for Variable Speed Limit Signs that are currently held by RMS at Yennora.

3.3.7 Maintenance History

A detailed maintenance history for the VSL population is not centrally recorded. The number of fault/incident attendances at VSL sites is provided below for the period 2009/10 to 2012/13.

Table 3-6 VSLs Maintenance History

Fault Type	Code	Maintenance History			
		2009/2010	2010/2011	2011/2012	2012/2013
Planned Inspection				15	
Routine Maintenance			92	118	121
Fault Rectification			133	123	75
Planned Replacement			nil	nil	nil

3.4 Lane Use Signs

3.4.1 Description

Lane Use Signs are green downward pointing arrows or red crosses used to provide enhanced direction to road users regarding lane use and advanced warning of unsafe situations (e.g. traffic incident, maintenance closure, tidal flow changeover or vehicles traveling in opposite direction). Lane Use Signs form part of tidal flowsystems. For maintenance purposes, the Lane Use Signs category includes

- a) the signs themselves,
- b) the associated control hardware,
- c) associated batteries or uninterruptible power supplies,
- d) associated structures,
- e) static signs on LUS structures,
- f) a working telecommunications connection at the site, and
- g) cleaning and removal of graffiti from LUS assets.

3.4.2 Inventory

RMS has identified approximately 242 LUS installations in the Sydney Region. Of these 127 are within the SHB Special Precinct (excluded). The remaining 115 LUS are summarised in the following table. A detailed inventory of LUS assets is maintained by RMS Sydney Project Services (SPS).

Table 3-7 Lane Use Signs

Location	Qty	Zone
Metro East Zone	115	
Neutral Bay (Military Road) Tidal Flow System	10	Metro East
Spit Rd (Mosman) Tidal Flow System	36	Metro East
Inner West Busway (Victoria Rd Rozelle) Lane Management System	2	Metro East
Sydenham (Canal Rd) Tidal Flow System	44	Metro East
Mill Pond Drive (Botany) Tidal Flow System	3	Metro East
General Holmes Drive (Kyeemagh) Tidal Flow System	20	Metro East
Metro West Zone	0	
SHB Special Precinct	127	

3.4.3 Condition

RMS Lane Use Signs range in age from 15 years to new and have historically been maintained under a planned inspection and maintenance program of the associated Tidal Flow Systems. The LUS population is generally in good condition. No Lane Use Signs are now replaced each year through a planned replacement program.

Structures are inspected annually as part of the planned maintenance program with no issues identified for immediate rectification in 2011/12 and no issues identified for planned rectification in the following year.

3.4.4 Installation

Lane Use Signs are installed in accordance with the requirements of

- a) *Installation of ITS Devices Procedure ILC-ITS-TPO-006*
- b) *Lane Control Devices TSI-SP-023 -*

and other relevant technical specifications and procedures identified by RMS.

3.4.5 Operations

Lane Use Signs are operated by RMS as part of the Tidal Flow operations. The relevant operational processes are:

- a) TMC/RMS Network Ops
- b) *Tidal Flow Operations*
- c) Fault Response
- d) Incident Response

3.4.6 Maintenance Approach

The maintenance approach for Lane Use Signs includes routine maintenance inspections and fault/incident response for the relevant Tidal Flow Systems or Lane Use Management Systems with the performance requirements and scope detailed in *R316 Maintenance of Lane Use Management Systems* and *R305 Maintenance of Tidal Flow Systems*.

Lane Use Sign Structures are to be inspected in accordance with the RMS (RTA) *Procedures Manual for Structural Integrity Inspection and Condition Assessment of Traffic Asset Structures (Draft v1.2)*

Detailed troubleshooting and technical information is available in the manufacturer's manuals for Lane Use Signs that are currently held by RMS at Yennora.

3.4.7 Maintenance History

A detailed maintenance history for the LUS population is not available.

3.5 Shutter Signs

3.5.1 Description

Shutter signs are used across the Sydney region and are included within systems to facilitate tidal flow and other periodic traffic advisory activities, including the Sydney-Newcastle Freeway contra-flow scheme. For maintenance purposes, the Shutter Signs category includes:

- a) the signs themselves,
- b) the associated control hardware,
- c) associated batteries or uninterruptible power supplies,
- d) associated structures,
- e) static signs on Shutter Sign structures,
- f) a working utility power connection at the site,
- g) a working telecommunications connection at the site, and
- h) cleaning and removal of graffiti from Shutter Sign assets.

3.5.2 Inventory

RMS has identified approximately 31 Shutter Sign installations in the Sydney Region with a further 23 located on the F3 outside the Sydney Region. A detailed inventory of assets is maintained by Sydney Project Services and Sydney Traffic Services. This information is summarised by zone in the following table.

Table 3-8 Shutter Signs

Location	Qty	Zone
Metro East Zone	14	
Ernest St Contra Flow	2	Metro East
Spit Rd Contra Flow	2	Metro East
Loftus (Audley Weir)	7	Metro East

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Location	Qty	Zone
Bexley	1	Metro East
Spit Road Tidal Flow	2	Metro East
Metro West Zone	40	-
Various locations in the Metro West ITS MC Zone	10	Metro West
F3 Contra Flow (South of Hawkesbury River)	7	Metro West
F3 Contra Flow (North of Hawkesbury River)	23	Metro West

The F3 Shutter signs including those north of the Hawkesbury River will be maintained by the Metro West Zone ITS Contractor. Shutter signs are not typically used in other regional areas.

3.5.3 Condition

RMS Shutter Signs range in age from 10 years to new and have historically been maintained under a planned inspection and maintenance program. The Shutter Signs population is generally in good condition. Shutter Signs are typically replaced on an as-required basis following functional failure or as part of scheme upgrades.

To date structures have not been inspected as part of the planned maintenance program.

3.5.4 Installation

Shutter Signs are installed in accordance with the requirements of *Installation of ITS Devices Procedure ILC-ITS-TP0-006* and other relevant technical specifications and procedures identified by RMS.

3.5.5 Operations

Shutter Signs are typically operated by RMS as part of the tidal flow or contra-flow operation procedures. The relevant operational processes are:

- a) TMC/RMS Network Ops
- b) *Tidal Flow operations*
- c) *F3 Contra Flow procedure*
- d) Fault Response
- e) Incident Response

3.5.6 Maintenance Approach

The maintenance approach for Shutter Signs includes routine maintenance inspections and fault/incident response with the performance requirements and scope detailed in *Maintenance of Electromechanical Message Signs R320*.

Shutter Sign Structures are to be inspected in accordance with the RMS (RTA) *Procedures Manual for Structural Integrity Inspection and Condition Assessment of Traffic Asset Structures (Draft v1.2)*

Detailed troubleshooting and technical information is available in the manufacturer's manuals for Shutter Signs that are currently held by RMS at Yennora.

3.5.7 Maintenance History

A detailed maintenance history for the Shutter Sign population is not available.

3.6 Prismatic (Tri-Message) Signs

3.6.1 Description

Prismatic signs are used across the Sydney region and are included within systems to facilitate tidal flow and other variable traffic advisory activities. For maintenance purposes, the Prismatic Signs category includes

- a) the signs themselves,
- b) the associated control hardware,
- c) associated batteries or uninterruptible power supplies,
- d) associated structures,

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- e) static signs on Prismatic Sign structures,
- f) a working telecommunications connection at the site, and
- g) cleaning and removal of graffiti from Prismatic Sign assets.

3.6.2 Inventory

RMS has identified approximately 112 Prismatic Sign installations in the Sydney Region and a further 6 in the Southern Region. A detailed inventory of assets is maintained by Sydney Traffic Services and Sydney Project Services. This information is summarised by zone in the following table.

Table 3-9 Prismatic (Tri-Message) Signs

Location	Qty	Zone
Metro East Zone	50	
Mona Vale Rd HVIS	5	Metro East
Ernest St Contra Flow	6	Metro East
Ernest St Contra Flow Gantry	4	Metro East
Miller St Contra Flow Gantry	3	Metro East
Willoughby Rd Contra Flow Gantry	2	Metro East
Arthur St Contra Flow Gantry	3	Metro East
Spit Rd Contra Flow	2	Metro East
Canal Rd Contra Flow	3	Metro East
Spit Bridge Contra Flow	5	Metro East
Amcliffe Contra Flow	2	Metro East
Seaforth Contra Flow	4	Metro East
Heathcote Road HVIS	5	Metro East
Rozelle Contra Flow	6	Metro East
Metro West Zone	29	
Berowra	1	Metro West
Northmead Contra Flow	9	Metro West
Box Hill HVIS	5	Metro West
St Marys	1	Metro West
Bringelly Rd	4	Metro West
Windsor Rd Westmead	9	Metro West
Southern Region	6	
Kiama & Batemans Bay	6	Southern Region (excluded)
Other	33	
SHB	33	SHB Special Precinct (Excluded)

Prismatic Signs are not widely used in regional areas, with six signs located in Southern Region at Kiama and Batemans Bay. These will be maintained by Southern Region with support from ITS Manufacturing.

3.6.3 Condition

RMS Prismatic Signs range in age from 11 years to new and have historically been maintained under a planned inspection and maintenance program. The Prismatic Signs population is generally in fair condition with signs typically replaced on an as-required basis following functional failure or as part of traffic scheme upgrades.

Structures are currently not inspected as part of the planned maintenance program.

3.6.4 Installation

Prismatic Signs are installed in accordance with the requirements of *Installation of ITS Devices Procedure ILC-ITS-TPO-006* and other relevant technical specifications and procedures identified by RMS.

3.6.5 Operations

Shutter Signs are typically operated by RMS as part of the tidal flow or contra-flow operation procedures. The relevant operational processes are:

- a) TMC/RMS Network Ops
- b) *Tidal Flow operations*
- c) Fault Response
- d) Incident Response

3.6.6 Maintenance Approach

The maintenance approach for Prismatic Signs includes routine maintenance inspections and fault/incident response with the performance requirements and scope detailed in *Maintenance of Electromechanical Message Signs R320*.

Prismatic Sign Structures are to be inspected in accordance with the RMS (RTA) *Procedures Manual for Structural Integrity Inspection and Condition Assessment of Traffic Asset Structures (Draft v1.2)*

Detailed troubleshooting and technical information is available in the manufacturer's manuals for Prismatic Signs that are currently held by RMS at Yennora.

3.6.7 Maintenance History

A detailed maintenance history for the Prismatic Sign population is not available.

3.7 Traffic Monitoring Units

3.7.1 Description

Traffic Monitoring Units (TMU's) are used by RMS and TfNSW TMC to analyse traffic patterns (vehicle count, classification, average speed). For maintenance purposes, the TMU category includes

- a) Detector loops (up to 16)
- b) Traffic counter/classifier rack
- c) Equipment cabinet
- d) Power supply / UPS / battery
- e) Communications equipment
- f) Interconnecting cabling
- g) Removal of graffiti from cabinets

3.7.2 Inventory

RMS has identified approximately 116 traffic monitoring units in the Sydney Region. Two of these are demonstration units at the TMC, maintained by TMC. The remaining 114 TMU's are maintained by RFS (Yennora). A detailed inventory of assets is maintained by RMS's MITS database. This information is summarised by zone in the following table.

Table 3-10 Traffic Monitoring Units

Location	ID/Ref	Zone
Metro East Zone	20	
TMU Cammeray; Warringah Fwy (N); 60m north of Falcon St	TMU000201	Metro East
TMU Cammeray; Warringah Fwy (S); 150m North of Falcon St	TMU000202	Metro East

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Location	ID/Ref	Zone
TMU Cammeray; Warringah Fwy (S); 370m north of Falcon St	TMU000203	Metro East
TMU Cammeray; Warringah Fwy (N); 150m north of Ernest St	TMU000204	Metro East
TMU Crows Nest; Warringah Fwy; 50m west of West St Overpass	TMU000205	Metro East
TMU Naremburn; Warringah Fwy; 50m South of Merreburn Av Overpass	TMU000206	Metro East
TMU Naremburn; Gore Hill Fwy; 150m North of Willoughby Rd	TMU000207	Metro East
TMU Naremburn; Gore Hill Fwy; 470m East of Pacific Hwy/Epping Rd Offramp	TMU000208	Metro East
TMU Naremburn; Gore Hill Fwy; 70m East of Pacific Hwy/Epping Rd Offramp	TMU000209	Metro East
TMU Artarmon; Gore Hill Fwy; at Hampden Rd Overpass	TMU000210	Metro East
TMU Artarmon; Gore Hill Fwy; 120m east of Reserve Rd	TMU000211	Metro East
TMU Artarmon; Gore Hill Fwy; 40m West of Reserve Rd	TMU000212	Metro East
TMU Artarmon; Lane Cove Tunnel (W); 120m East of Tunnel Portal	TMU000213	Metro East
TMU Artarmon; Lane Cove Tunnel (E); above Tunnel Portal	TMU000214	Metro East
TMU Artarmon; Gore Hill Fwy; 40m West of Reserve Rd	TMU000215	Metro East
TMU Kings Cross Tunnel Site 1	TMU173920	Metro East
TMU Woronora Bridge, Eastern Side Site 1	TMU663901	Metro East
TMU Woronora Bridge, Eastern Side Site 2	TMU663902	Metro East
TMU Woronora Bridge, Western Side Site 3	TMU663903	Metro East
TMU Woronora Bridge, Western Side Site 4	TMU663904	Metro East
Metro West Zone	94	
TMU M4, E of Railway St, Nth Strathfield (4001)	TMU004001	Metro West
TMU M4, 290m E of Railway St, Nth Strathfield (4002)	TMU004002	Metro West
TMU M4, 240m W of Underwood Rd, Homebush (4003)	TMU004003	Metro West
TMU M4, 185m E of Ped Bridge, Homebush (4004)	TMU004004	Metro West
TMU M4, E of Homebush Bay Dr, Homebush (4005)	TMU004005	Metro West
TMU M4, W of Homebush Bay Dr, Homebush (4006)	TMU004006	Metro West
TMU M4, E of Australia Av, Homebush (4007)	TMU004007	Metro West
TMU M4, W of Australia Av, Homebush (4008)	TMU004008	Metro West
TMU M4, E of Hill St, Homebush (4009)	TMU004009	Metro West
TMU M4, E of Haslems Ck, Homebush Bay (4010)	TMU004010	Metro West
TMU M4, E of Silverwater Rd, Silverwater (4011)	TMU004011	Metro West
TMU M4, W of Silverwater Rd, Silverwater (4012)	TMU004012	Metro West
TMU M4, E of Toll Gates, Silverwater (4013)	TMU004013	Metro West
TMU M4, W of Toll Gates, Auburn (4014)	TMU004014	Metro West
TMU M4, near Deniehy St, Granville (4015)	TMU004015	Metro West
TMU M4, E of James Ruse Dr, Granville (4016)	TMU004016	Metro West

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Location	ID/Ref	Zone
TMU M4, W of James Ruse Dr, Granville (4017)	TMU004017	Metro West
TMU M4, at Good St, Granville (4018)	TMU004018	Metro West
TMU M4, E of Church St, Granville (4019)	TMU004019	Metro West
TMU M4, W of Church St, Granville (4020)	TMU004020	Metro West
TMU M4, E of Fox St, Granville (4021)	TMU004021	Metro West
TMU M4, W of Pitt St, Merrylands (4022) Flod sign	TMU004022	Metro West
TMU M4, E of Burnett St, Merrylands (4023)	TMU004023	Metro West
TMU M4, W of Burnett St, Mays Hill (4024)	TMU004024	Metro West
TMU M4, E of Coleman St, Mays Hill (4025)	TMU004025	Metro West
TMU M4, Pearson St. South Wentworthville (4026)	TMU004026	Metro West
TMU M4, W of Finlayson St, South Wentworthville (4027)	TMU004027	Metro West
TMU M4, E of Cumberland Hwy Wentworthville (4028)	TMU004028	Metro West
TMU M4, W of Cumberland Hwy Wentworthville (4029)	TMU004029	Metro West
TMU M4, E of Ettalong Rd Greystanes (4030)	TMU004030	Metro West
TMU M4, W of Ettalong Rd Greystanes (4031)	TMU004031	Metro West
TMU M4, E of Beresford Rd Greystanes (4032)	TMU004032	Metro West
TMU M4, W of Beresford Rd Greystanes (4033)	TMU004033	Metro West
TMU M4, W of Greystanes Rd Greystanes (4034)	TMU004034	Metro West
TMU M4, E of Quarry Rd Prospect (4035)	TMU004035	Metro West
TMU M4, W of Quarry Rd Prospect (4036)	TMU004036	Metro West
TMU M4, E of Prospect Rd Prospect (4037)	TMU004037	Metro West
TMU M4, W of Prospect Rd Prospect (4038)	TMU004038	Metro West
TMU M4, 825m W of Prospect Rd Prospect (4039)	TMU004039	Metro West
TMU M4, 664m E of Reservoir Rd Eastern Creek (4040)	TMU004040	Metro West
TMU M4, E of Reservoir Rd Eastern Creek (4041)	TMU004041	Metro West
TMU M4, E of Reservoir Rd Eastern Creek (4941)	TMU004041A	Metro West
TMU M4, 450m W of Reservoir Rd Eastern Creek (4042)	TMU004042	Metro West
TMU M4, 810m W of Reservoir Rd Eastern Creek (4043)	TMU004043	Metro West
TMU M4, 1275m W of Reservoir Rd Eastern Creek (4044)	TMU004044	Metro West
TMU M4, 1570m W of Reservoir Rd Eastern Creek (4045)	TMU004045	Metro West
TMU M4, E of Horsley Rd Eastern Creek (4046)	TMU004046	Metro West
TMU M4, W of Horsley Rd Eastern Creek (4047)	TMU004047	Metro West
TMU M4, E of Eastern Creek (4048)	TMU004048	Metro West
TMU M4, E of Wallgrove Rd, Eastern Creek (4049)	TMU004049	Metro West
TMU M4, Under Wallgrove Rd, Eastern Creek (4050)	TMU004050	Metro West
TMU M4, W of Wallgrove Rd, Eastern Creek (4051)	TMU004051	Metro West
TMU M4, adjacent to Pinegrove, Minchinbury (4052)	TMU004052	Metro West
TMU M4, adjacent to Tirage Pl, Minchinbury (4053)	TMU004053	Metro West

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Location	ID/Ref	Zone
TMU M4, adjacent to Rutherglen Pl, Minchinbury (4054)	TMU004054	Metro West
MS M4 E/B, adjacent to Eber Pl, Minchinbury (4055)	TMU004055	Metro West
TMU M4, E of Archbold Rd, Minchinbury (4056)	TMU004056	Metro West
TMU M4, W of Archbold Rd, Minchinbury (4057)	TMU004057	Metro West
TMU M4, 650m W of Archbold Rd, Minchinbury (4058)	TMU004058	Metro West
TMU M4, E of Roper Rd, Eastern Creek (4059)	TMU004059	Metro West
TMU M4, W of Roper Rd, Eastern Creek (4060)	TMU004060	Metro West
TMU M4, adjacent to Ashwick Ct, St Clair (4061)	TMU004061	Metro West
TMU M4, adjacent to Newtimber Ct, St Clair (4062)	TMU004062	Metro West
TMU M4, E of Bennett Rd, St Clair (4063)	TMU004063	Metro West
TMU M4,W of Bennett Rd, St Clair (4064)	TMU004064	Metro West
TMU M4, adjacent to Buckland St, St Clair (4065)	TMU004065	Metro West
TMU M4, E of Mamre Rd, St Clair (4066)	TMU004066	Metro West
TMU M4, W of Mamre Rd, St Clair (4067)	TMU004067	Metro West
TMU M4, W of Mamre Rd, St Clair (4967)	TMU004067A	Metro West
TMU M4, W of South Ck, Orchard Hills (4068)	TMU004068	Metro West
TMU M4, adjacent to Samual Marden Rd, Orchard Hills (4069)	TMU004069	Metro West
TMU M4, E of Kent Rd, Orchard Hills (4070)	TMU004070	Metro West
TMU M4, W of Kent Rd, Orchard Hills (4071)	TMU004071	Metro West
TMU M4, E of Calverts Rd, Orchard Hills (4072)	TMU004072	Metro West
TMU M4, W of Calverts Rd, Orchard Hills (4073)	TMU004073	Metro West
TMU M4, W of Claremont Ck, Orchard Hills (4074)	TMU004074	Metro West
TMU M4, W of Claremont Ck, Orchard Hills (4075)	TMU004075	Metro West
TMU M4, E of Kingswood Rd, Orchard Hills (4076)	TMU004076	Metro West
TMU M4, W of Kingswood Rd, Orchard Hills (4077)	TMU004077	Metro West
TMU M4, adjacent to Lord Rd, Orchard Hills (4078)	TMU004078	Metro West
TMU M4, E of The Northern Rd, Orchard Hills (4079)	TMU004079	Metro West
TMU M4, W of The Northern Rd, Penrith (4080)	TMU004080	Metro West
TMU M4, adjacent to South St, Penrith (4081)	TMU004081	Metro West
TMU M4, adjacent to Moolana Pde, Penrith (4082)	TMU004082	Metro West
TMU M4, adjacent to Gadara Dr, Penrith (4083)	TMU004083	Metro West
TMU M4, adjacent to Mensa Pl, Jamisontown (4084)	TMU004084	Metro West
TMU M4, adjacent to Ivory Pl, Jamisontown (4085)	TMU004085	Metro West
TMU M4, E of Mulgoa Rd, Jamisontown (4086)	TMU004086	Metro West
TMU M4, at Mulgoa Rd, Jamisontown (4087)	TMU004087	Metro West
TMU M4, W of Mulgoa Rd, Jamisontown (4088)	TMU004088	Metro West
TMU M4, 750m W of Mulgoa Rd, Jamisontown (4089)	TMU004089	Metro West
TMU M4, E of Nepean River, Jamisontown (4090)	TMU004090	Metro West

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Location	ID/Ref	Zone
TMU M4, W of Nepean River, Emu Plains (4091)	TMU004091	Metro West
TMU M4, E of Russell St, Emu Plains (4092)	TMU004092	Metro West
TMC Demonstration Units	2	
TMU, Transport Management Centre, Site 1	TMU901501	TMC (Maintained by TMC)
TMU, Transport Management Centre, Site 2	TMU901502	TMC (Maintained by TMC)

Traffic Monitoring Units are not used in regional areas.

3.7.3 Condition

RMS TMU's range in age from 13 years to new and have not historically been maintained under a planned inspection and maintenance program. The TMU population is generally in good condition, with the exception of the power supply/UPS batteries some of which are at the end of their life and require replacement. RMS is currently in the process of replacing batteries which provide less than 1hr of backup time upon power failure.

3.7.4 Installation

Traffic Monitoring Units are installed in accordance with the requirements of *Installation of ITS Devices Procedure ILC-ITS-TPO-006* and other relevant technical specifications and procedures identified by RMS.

3.7.5 Operations

TMU's are typically operated by RMS as part of the TfNSW TMC SCATS system. The relevant operational processes are:

- a) TMC/RMS Network Ops
- b) Fault Response – FMS
- c) Incident Response

3.7.6 Maintenance Approach

The maintenance approach for TMU's includes routine maintenance inspections and fault/incident response with the performance requirements and scope detailed in *Maintenance of Traffic Monitoring Units R304*.

Detailed troubleshooting and technical information is available in the manufacturer's manuals for Traffic Monitoring Units that are currently held by RMS at Yennora.

3.7.7 Maintenance History

A detailed maintenance history for the TMU population is not centrally recorded. The number of fault/incident attendances at TMU sites is provided below for the period 2009/10 to 2012/13.

Table 3-11 Traffic Monitoring Unit Maintenance History

Fault Type	Code	Maintenance History			
		2009/2010	2010/2011	2011/2012	2012/2013
Planned Inspection					
Routine Maintenance					
Fault Rectification			60	52	180*
Planned Replacement					

The maintenance history figures above are estimates only and based on the numbers of fault rectification visits for 78 TMU's (not the whole population) over the same three months in 2010, 2011 & 2012 then extrapolated over 2010/2011, 2011/2012 & 2012/2013. The increase in numbers of attendances for 2012/2013 could be due to other maintenance works (e.g. resurfacing) leading to failures.

3.8 Traffic Counters

3.8.1 Description

Traffic counters are used to record traffic volumes for input to RMS' annual publication of traffic volumes across the state road network. This data is used for planning decisions within and outside RMS. For maintenance purposes, the Traffic Counter category includes

- a) Traffic counter hardware;
- b) A working telecommunications connection (at permanent automatic download sites only);
- c) Periodic download of data from permanent manual download traffic counter sites (requires site attendance);
- d) On demand site installation, download of data and retrieval of temporary sample site traffic counters;
- e) Conversion of manually downloaded traffic counter data into a format suitable for upload to the traffic information server;
- f) Upload of manually downloaded traffic counter data to the traffic information server;
- g) Field maintenance and fault rectification of permanent traffic counter installations;
- h) Programming/configuration, maintenance and repair of traffic counters deployed to temporary sample sites.

3.8.2 Inventory

RMS has identified approximately 1200 permanent sample stations in NSW. There are 405 which are stand-alone, requiring attendance to manually retrieve the data. In addition there are 3000 identified traffic survey sites where each site is typically surveyed once every three years. These sites require attendance to deploy or activate traffic counter equipment and also to manually retrieve data. Historically survey rates per annum are around 1000 per year depending on the available and allocated funding. Data from manual permanent sample sites and temporary sample sites is downloaded by RFS STS for processing by RMS. At this time the processing and analysis of Traffic Counter data will be retained within RMS. In the future RMS may re-assess the traffic information necessary to support its business objectives. This has the potential to rationalize the large number of permanent and temporary sample sites and to reduce maintenance and support costs for traffic counter installations.

A detailed inventory of assets is maintained in RMS TDAS and RMS GSM. This information is summarised by zone and asset type in the following tables.

Table 3-12 Traffic Counters – By Zone

Asset	Metro East Zone	Metro West Zone (includes NSW country areas)
Permanent sample sites (data automatically uploaded)	520	700
Permanent sample sites (data manually uploaded)	100	305
Temporary traffic counters	100	305
Temporary sample sites per year (refer to note 1 below)	700	300

Note 1: Historically there are approximately 3000 sites in NSW which are surveyed for traffic data once every 3 years at a rate of 1000 per year.

Table 3-13 Traffic Counters

Note, the inventory information has been compiled using available databases and records. There are discrepancies between the computer records (i.e. in TDAS) and recent sample inventory checks undertaken by RMS. The differences are thought to be due to numbers of spare units and equipment held either at Yennora or in maintenance crew's vehicles. Note, RMS regions have also carried stock and these may not appear in the computer records, therefore the overall quantities of sites/units are subject to change.

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Device Type	Sensor	Qty	Notes
Metro East Zone		620	
ARRB Culway	transducer / piezo	-	
Applied Traffic Viper	inductive loop / piezo	-	
EXCEL LL	inductive loop	8	TDAS records indicate there are 9 units in total. These include spares & installed sites in East & West zones. 8 units are considered allocated to East Zone.
EXCEL LPL	inductive loop / piezo	37	TDAS records indicate there are 46 units in total. These include spares & installed sites in East & West zones. 37 units are considered allocated to East Zone.
EXCEL PP	piezo	3	TDAS records indicate there are 46 units in total. These include spares & installed sites in East & West zones. 3 units are considered allocated to East Zone.
Golden River	doppler radar	-	
Golden River	magnetometer	4	
Metrocount	piezo	33	
Metrocount	pneumatic tube	-	Temporary sites, all pneumatic are manual data retrieval
Mikros Raktel Kistler	inductive loop / piezo	-	TDAS records indicate there are a total of 2 sites across East and West Zones. To be confirmed during Transition
Mikros Raktel PLP	inductive loop / piezo	-	TDAS records indicate there are a total of 4 sites across East and West Zones. To be confirmed during Transition
Navtec	sonar radar	3	
PAT WIM	inductive loop / piezo / plate	-	
RMS Trafficorder (loop)	inductive loop	356	Across the Metro East and Metro West there are 78 units considered as spares. RMS has assumed 60 deployed in Metro East. These are included in the quantity of 356.
RMS Trafficorder (tube)	pneumatic tube	100	All pneumatics are manual data retrieval. The number of units in Metro East assumes 10 spares.
Sensys	magnetometer	14	
SICK TIC	laser	1	
TIRTL	infrared beam	26	Assumed Compliance & Enforcement Sites
Traficon	video	1	

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Device Type	Sensor	Qty	Notes
Metro West Zone		1005	
ARRB Culway	transducer / piezo	24	
Applied Traffic Viper	inductive loop / piezo	1	
EXCEL LL	inductive loop	1	TDAS records indicate there are 9 units in total. These include spares & installed sites in East & West zones. 1 unit is considered allocated to East Zone.
EXCEL LPL	inductive loop / piezo	9	TDAS records indicate there are 46 units in total. These include spares & installed sites in East & West zones. 9 units are considered allocated to East Zone.
EXCEL PP	piezo	4	TDAS records indicate there are 46 units in total. These include spares & installed sites in East & West zones. 4 units are considered allocated to East Zone.
Golden River	doppler radar	30	
Golden River	magnetometer	450	
Metrocount	piezo	2	
Metrocount	pneumatic tube	5	Temporary sites, all pneumatic are manual data retrieval
Mikros Raktel Kistler	inductive loop / piezo	-	TDAS records indicate there are a total of 2 sites across East and West Zones. To be confirmed during Transition
Mikros Raktel PLP	inductive loop / piezo	-	TDAS records indicate there are a total of 4 sites across East and West Zones. To be confirmed during Transition
Navtec	sonar radar	-	
PAT WIM	inductive loop / piezo / plate	8	
RMS Trafficorder (loop)	inductive loop	95	Across the Metro East and Metro West there are 78 units considered as spares. RMS has assumed 18 spares deployed in Metro West. These are included in the quantity of 95.
RMS Trafficorder (tube)	pneumatic tube	300	All pneumatics are manual data retrieval. The number of units in Metro East assumes 30 spares.
Sensys	magnetometer	26	
SICK TIC	laser	-	
TIRTL	infrared beam	29	Assumed Compliance & Enforcement Sites
Traficon	video	-	

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Traffic Counters are used across the state to record data for statistical and project purposes. Maintenance of the traffic counter population, retrieval of data from permanent manual sites, deployment of traffic counters to temporary sample sites and retrieval of data from temporary sample sites currently requires a team of 10 FTE personnel at RFS Yennora. The ITS Contractor(s) will be required to provide this function.

3.8.3 Condition

RMS Traffic Counters range in age from 30 years to new and have historically been maintained in the field to ensure continuity of service.

3.8.4 Installation

Traffic Counters are installed in accordance with the requirements of *Installation of ITS Devices Procedure ILC-ITS-TPO-006* and other relevant technical specifications and procedures identified by RMS.

3.8.5 Operations

Traffic Counters are typically operated by RMS as part of the TfNSW TMC SCATS system or as manual field systems, with data periodically downloaded to a central server at Yennora. The relevant operational processes are:

- a) *Traffic Volume Data Processing Manual - Permanent Sites ILC-AT-M-001*
- b) *Traffic Volume Data Processing Manual – Sample and Classifier Sites ILC-AT-M-002*
- c) Fault Response
- d) Incident Response

3.8.6 Maintenance Approach

The maintenance approach for Traffic Counters includes routine maintenance inspections, attendance for data download and fault/incident response with the data collection requirements and scope outlined in each request for work. Performance requirements and scope is outlined in *Maintenance of Vehicle Detection & Classification Systems R313*.

Detailed troubleshooting and technical information is available in the manufacturer's manuals for the Traffic Counter types that are currently held by RMS at Yennora.

3.8.7 Maintenance History

A detailed maintenance history for the Traffic Counter population is not centrally recorded. The number of attendances at Traffic Counter sites is provided below for the period 2009/10 to 2012/13.

Table 3-14 Traffic Counter Maintenance/Attendance History

Fault Type	Code	Maintenance History			
		2009/2010	2010/2011	2011/2012	2012/2013
Permanent Site Attendance		n/a	1481	1552	1381
Temporary Site Attendance		n/a	1500	1500	1500
Equipment Replacement/Maintenance		n/a	n/a	n/a	n/a

3.9 Tidal Flow Systems

3.9.1 Description

Tidal Flow Systems are used by RMS to provide additional peak capacity on critical sections of the road network. They comprise of a number of different ITS devices that are operated as a system, usually via a dedicated controller. For maintenance purposes, the Tidal Flow Systems category includes

- a) the devices themselves,
- b) the associated control hardware,
- c) associated batteries or uninterruptible power supplies,
- d) associated structures,

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- e) static signs on ITS structures,
- f) a working utility power connection at the site,
- g) a working telecommunications connection at the site, and
- h) cleaning and removal of graffiti from Tidal Flow System assets.

The Lane Use Signs and Shutter Signs identified used in Tidal Flow Systems are also included in the inventory provided in Sections A.4 and A.5 respectively.

3.9.2 Inventory

RMS operate 15 Tidal Flow arrangements across the Sydney region which are essentially a combination of ITS devices and manual traffic control measures. The ITS contractor(s) are responsible for the maintenance of the tidal flow ITS assets noted below. An upgrade of the Neutral Bay Tidal Flow System is scheduled for completion by June 2014.

A detailed inventory of assets is maintained by Sydney Project Services. This information is summarised by zone in the following table.

Table 3-15 Tidal Flow ITS Devices

Location	Type/Qty	Zone
Sydenham (Canal Rd) Tidal Flow System	Auto	Metro East
Changeable Message Signs	3	
Lane Use Signs	44	
Barrier Boards	3	
In Pavement Lights	37 Bi Directional 16 Uni Directional	
Neutral Bay (Military Rd) Tidal Flow System	Auto	Metro East
Fibre Optic Signs	4	
Lane Use Signs	10	
Movable Medians	1	
In Pavement Lights	35 Bi-Directional 10 Uni-Directional	
Mill Pond Drive (Botany) Tidal Flow System	Auto	Metro East
Lane Use Signs	3	
Spit Rd (Mosmon) Tidal Flow System	Auto/Man	Metro East - Manual Operations by DAS
Wireless Remote Control	1	
Changeable Message Signs	1	
Shutter Signs	2	
Lane Use Signs	36	
Movable Medians	1	
In Pavement Lights	35 Uni-Directional	
Inner West Busway (Victoria Rd Nth Drummoyne) Lane Management System	Auto/Man	Metro East - Manual Operations by DAS
Wireless Remote Control	1	

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Location	Type/Qty	Zone
Changeable Message Signs	2	
Shutter Signs	1	
Movable Medians	1	
In Pavement Lights	40 Uni-Directional	
Inner West Busway (Victoria Rd Sth Drummoyne) Lane Management System	Auto/Man	Metro East - Manual Operations by DAS
Wireless Remote Control	1	
Changeable Message Signs	2	
Movable Medians	1	
In Pavement Lights	40 Uni-Directional	
Inner West Busway (Victoria Rd Rozelle) Lane Management System	Auto/Man	Metro East - Manual Operations by DAS
Lane Use Signs	2	
Arncliffe (Princes Hwy) Tidal Flow System	Auto/Man	Metro East - Manual Operations by SMC
Wireless Remote Control	1	
Changeable Message Signs	2	
Blakehurst Tidal Flow System	Man	Manual Operations by SMC
No ITS Devices	-	Excluded
Chatswood (Pacific Hwy) Tidal Flow System	Man	Manual Operations by Downer EDI
No ITS Devices	-	Excluded
Westmead (Windsor Rd) Tidal Flow System	Man	Metro West - Manual Operations by Downer EDI
Changeable Message Signs	2	
Turrumurra (Pacific Hwy) Tidal Flow System	Man	Manual Operations by Downer EDI
No ITS Devices	-	Excluded
General Holmes Drive (Mascot) Tidal Flow System	Man	Metro East - Manual Operations by DAS
Lane Use Signs	20	
Spit Bridge Tidal Flow System	Man	Metro East - Manual Operations by DAS
Changeable Message Signs	4	
SHB ELCS System	Auto/Man	SHB Special Precinct Manual Operations by DAS
Fibre Optic Signs	11	Excluded
Changeable Message Signs	33	Excluded
Lane Use Signs	127	Excluded
LED Signs	8	Excluded
Movable Medians	24	Excluded
In Pavement Lights	40 Uni-Directional	Excluded

There are no Tidal Flow Systems in regional areas.

3.9.3 Condition

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RMS Tidal Flow Systems are comprised of a range of devices that range in age from 1 to 25 years and have historically been maintained under a periodic inspection and reactive maintenance program. The Tidal flow components vary from good to poor condition with upgrades in progress for the Sydney Harbour Bridge and Spit Road systems.

Structures are inspected annually as part of the planned maintenance program with no issues identified for immediate rectification in 2011/12 and no issues identified for planned rectification in the following year.

3.9.4 Installation

Lane Use Signs are installed in accordance with the requirements of

- a) *Installation of ITS Devices Procedure ILC-ITS-TP0-006*
- b) *Lane Control Devices TSI-SP-023*
- c) *General Installation Requirements for Self Illuminated In Pavement Lane Markers TSI-SP-031*
- d) *Self Illuminated In Pavement Lane Markers TSI-SP-001*

and other relevant technical specifications and procedures identified by RMS.

3.9.5 Operations

Tidal Flow Systems are typically operated by RMS as part of the TfNSW TMC SCATS system or locally via a dedicated controller. The relevant operational processes are:

- a) TMC/RMS Network Ops
- b) *Tidal Flow operations*
- c) Fault Response
- d) Incident Response

3.9.6 Maintenance Approach

The maintenance approach for Tidal Flow Systems includes routine maintenance inspections and fault/incident response with the performance requirements and scope detailed in *Maintenance of Tidal Flow Systems R305*. Other related references include *Maintenance of Lane Use Management Systems R316* & *Maintenance of Changeable Message Signs R320*

Structures are to be inspected in accordance with the RMS (RTA) *Procedures Manual for Structural Integrity Inspection and Condition Assessment of Traffic Asset Structures (Draft v1.2)*

Detailed troubleshooting and technical information is available in the manufacturer’s manuals for Tidal Flow System Devices that are currently held by RMS at Yennora.

3.9.7 Maintenance History

A detailed maintenance history for the Tidal Flow Systems is not centrally recorded. The number of fault/incident attendances at Tidal Flow System sites is provided below for the period 2009/10 to 2012/13.

Table 3-136 Tidal Flow System Maintenance History (*partial to 31 May 2013)

Fault Type	Code	Maintenance History			
		2009/2010	2010/2011	2011/2012	2012/2013*
Routine Maintenance				7	9
Fault Rectification				311	173
Planned Replacement				n/a	n/a

3.10 Stand Alone Flashing & Advanced Warning Signs

3.10.1 Description

Flashing and Advanced Warning Signs are used to provide advanced warning of an upcoming hazard (e.g. traffic signals, rail crossing etc.) The majority of these signs are connected to, and maintained as part of the Traffic Control Signals. However there are also a number of stand alone flashing and advanced warning systems that are not connected to TCS systems which are maintained separately. Some Advanced Warning Signs are static and some (e.g. at railway crossings) include a flashing element. For maintenance purposes, the Stand Alone Flashing and Advanced Warning Signs category includes

- a) the signs and flashers themselves,
- b) the associated control hardware,
- c) associated batteries or uninterruptible power supplies,
- d) a working utility power connection at the site,
- e) associated structures,
- f) static signs on ITS structures,
- g) cleaning and removal of graffiti from the assets.

3.10.2 Inventory

RMS has identified approximately 180 Stand Alone Flashing and Advanced Warning Signs throughout NSW that are not connected to Traffic Control Signals. A detailed inventory of assets is maintained by TfNSW TMC. This information is summarised by zone and asset type in the following table.

Table 3-17 Flashing and Advanced Warning Signs

Asset	Qty	Zone
Metro East Zone	94	-
Stand-Alone Warning Signs	74	Metro East
Stand-Alone Flashing Signs	20	Metro East
Metro West Zone	69	-
Stand-Alone Warning Signs	49	Metro West
Stand-Alone Flashing Signs	20	Metro West
Hunter Valley and Southern Zones and SHB Precinct	17	-
Stand-Alone Warning Signs	15	Hunter Valley and Southern (RMS)
Stand-Alone Warning Signs	1	SHB Precinct (RMS)
Stand-Alone Flashing Signs	1	Hunter Valley and Southern (RMS)

The ITS contractor(s) will not be required to maintain flashing and advanced warning signs in the Hunter Valley and Southern regional areas where these assets will continue to be maintained by the RMS regional teams.

3.10.3 Condition

RMS Flashing and Advanced Warning Signs have historically been maintained under a periodic inspection and reactive maintenance program. The sign components vary from good to poor condition with replacement occurring on functional failure or during upgrades to associated schemes.

3.10.4 Installation

Stand Alone Flashing and Advanced Warning Signs are installed in accordance with the requirements of *Installation of ITS Devices Procedure ILC-ITS-TPO-006* and other relevant technical specifications and procedures identified by RMS.

3.10.5 Operations

Stand Alone Flashing and Advance Warning Signs are typically self operating based on local sensors or time clocks. Periodic inspections to ensure proper operation may also be carried out. The relevant operational processes are:

- a) TMC/RMS Network Ops
- b) Fault Response
- c) Incident Response

3.10.6 Maintenance Approach

The maintenance approach for Stand Alone Flashing and Advance Warning Signs includes routine maintenance inspections and fault/incident response with the performance requirements and scope detailed in *Maintenance of Traffic Control Signals R301 & Maintenance of Advanced Warning Systems R315*.

Structures are to be inspected in accordance with the RMS (RTA) *Procedures Manual for Structural Integrity Inspection and Condition Assessment of Traffic Asset Structures (Draft v1.2)*

Detailed troubleshooting and technical information is available in the manufacturer’s manuals for Stand Alone Flashing and Advance Warning Signs that are currently held by RMS at Yennora.

3.10.7 Maintenance History

A detailed maintenance history for the Stand Alone Flashing and Advance Warning Signs is not available.

3.1 I School Zone Alert Systems (Excluded - For Information Only)

3.1.1.1 Description

School Zone Alert Systems are used to provide advanced warning of school zones where lower speed limits apply during certain periods of the day. These systems are not connected to TCS systems and are maintained under a separate statewide contract. For maintenance purposes, the School Zone Alert System category includes

- a) the signs and flashers themselves (N.B. each system comprises 2 or more flashing signs),
- b) the associated control and communications hardware,
- c) a working utility power connection or solar panel power source at the site,
- d) associated batteries,
- e) associated structures,
- f) static signs on the structures,
- g) cleaning and removal of graffiti from the assets.

School Zone Alert Systems are currently excluded from the ITS maintenance contracts but the ITS Contractor(s) may be invited to provide a proposal on completion of the existing contract in December 2015. By this time it is expected that there will be approximately 3,500 school zone alert systems installed across NSW.

3.1.1.2 Inventory

There are currently (as at March 2013) approximately 2,344 School Zone Alert Systems in NSW. A detailed inventory of assets is maintained by the RMS ITS Projects group in a database format.

3.1.1.3 Condition

School Zone Alert Systems have been maintained under a statewide contract that is due to expire in December 2015. The alert system components vary from good to poor condition with replacement typically occurring on functional failure.

3.1.1.4 Installation

School Zone Alert Systems are installed in accordance with the requirements of

- a) *Installation of ITS Devices Procedure ILC-ITS-TPO-006*
- b) *School Zone Alert Signs ITS-SZAS-SD-002 (TSI-SP-028)*
- c) *General Requirements for Flashing Lights for School Zones TSI-SP-009*

and other relevant technical specifications and procedures identified by RMS.

3.1.1.5 Operations

School Zone Alert Systems are connected to and monitored by a central management computer (CMC) located in RMS' Argyle St, Parramatta office. The CMC has the capability to initiate remote battery discharge/capacity tests at School Zone Alert System sites. Periodic inspections to ensure proper operation may also be carried out. The relevant operational processes are:

- a) *School Zone Alert Devices – Fault Reporting TMC-SOP-502007*
- b) Fault Response
- c) Incident Response

3.1.1.6 Maintenance Approach

The maintenance approach for School Zone Alert Systems includes routine inspections and fault/incident response with the performance requirements and scope detailed in:

- a) *ITS Projects – SZAS Project – Operations & Maintenance Procedures ITS-SZAS-OMD-001*

b) *ITS Projects – SZAS Project – Change Control Procedures for Maintenance Contractors ITS-SZAS-OMD-003.*

Structures are to be inspected in accordance with the RMS (RTA) *Procedures Manual for Structural Integrity Inspection and Condition Assessment of Traffic Asset Structures (Draft v1.2)*

3.12 Special Purpose ITS

3.12.1 Description

RMS maintains a number of Special Purpose ITS Systems to provide traffic monitoring and information services such as over-height detection, over length notifications, speed and travel time information. These typically comprise of a sensor/monitoring system and a Variable Message Sign. For maintenance purposes, the Special Purpose ITS Systems category includes

- a) the signs and flashers themselves,
- b) the associated control hardware,
- c) a working utility power connection at the site,
- d) associated batteries,
- e) associated structures,
- f) static signs on the structures,
- g) cleaning and removal of graffiti from the assets.

Various components of these systems (e.g. VMS, TIRTL units, tag readers) are already included in the device populations provided in other parts of appendices A.1 to A.20.

3.12.2 Inventory

Special Purpose ITS systems are summarised by zone and asset type in the following table. ITS assets associated with each system are also included in the specific asset classes (VMS, TTIS tag readers, etc).

Table 3-19 Special Purpose ITS Systems

Location	Qty	Zone
Mascot Tunnel Over Height Detection System	1	Metro East
Variable Message Sign	2	Metro East
Sensor	4	Metro East
Controller	2	Metro East
Tom Ugly's Bridge Over Height Detection System	1	Metro East
Variable Message Sign	2	Metro East
Sensor	6	Metro East
Controller	2	Metro East
Galston Gorge ITS System	1	Metro West
Variable Message Sign	4	Metro West
TIRTL	2	Metro West
Controller	4	Metro West
F3 Travel Time Information System	1	Metro West
Variable Message Signs	28	Metro West
Tag Readers	31	Metro West

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Location	Qty	Zone
Controller	35	Metro West
M4 Viaduct Stopped Vehicle Detection System (video detection)	1	Metro West
F6 Speed Detection System	1	Maintained by RFS Southern Region
Variable Message Signs	18	Excluded
Loops	TBA	Excluded
Domain Tunnel Over Height Detection System	2	SHB Special Precinct
Variable Message Sign	2	Excluded
Sensor	4	Excluded
Controller	2	Excluded
Batemans Bay Queue Detection System		Maintained by RFS Southern Region
Variable Message Signs	2	Excluded
Loops	4	Excluded
Controller	3	Excluded

The Batemans Bay Queue Detection System is maintained by Southern Region with support provided by ITS Manufacturing. The ITS Contractor(s) will be responsible for the Sydney Metropolitan and F3 special purpose ITS systems.

3.12.3 Condition

Refer to specific asset types.

3.12.4 Installation

Special Purpose ITS Systems are installed in accordance with the requirements of

- a) *Installation of ITS Devices Procedure ILC-ITS-TP0-006*
- b) *General Requirements for the Design Supply and Installation of Vehicle Detector Systems TSI-SP-019*
- c) *SRMS Protocol Specification for Detector Data TSI-SP-025*
- d) *Communications Protocol for Vehicle Detection Systems TSI-SP-026*
- e) *General Requirements for Design Installation Commissioning and Maintenance of Travel Time Signs TSI-SP-032*

and other relevant technical specifications and procedures identified by RMS. Note, copies of the technical reference documents c) and d) listed above are not included within the reference documentation provided in the ITS MC RFP documentation set. RMS will provide copies of these to the ITS Contractors during Transition.

3.12.5 Operations

Special Purpose ITS Systems are typically connected to the TfNSW TMC CMCS system for monitoring and central control purposes. Periodic inspections to ensure proper operation may also be carried out. The relevant operational processes are:

- a) *TMC/RMS Operational Procedures*
- b) Fault Response – FMS
- c) Incident Response

3.12.6 Maintenance Approach

The maintenance approach for Special Purpose ITS Systems includes routine inspections and fault/incident response with the performance requirements and scope detailed in:

- a) *Maintenance of Over-Speed Detection Systems R311*
- b) *Maintenance of Over Height Detection Systems R312*
- c) *Maintenance of Vehicle Detection and Classification Systems R313*
- d) *Maintenance of Variable Message Signs R302*

Structures are to be inspected in accordance with the RMS (RTA) *Procedures Manual for Structural Integrity Inspection and Condition Assessment of Traffic Asset Structures (Draft v1.2)*

Detailed troubleshooting and technical information is available in the manufacturer's manuals for the various components that are currently held by RMS at Yennora.

3.12.7 Maintenance History

Refer to specific asset types.

3.13 Travel Time Information Systems (TTIS)

3.13.1 Description

RMS operates a number of TTIS tag readers to monitor traffic movements across the State Road Network. These exclude the tag readers that are used for tolling purposes on RMS owned tollways which are maintained under separate contracts. For maintenance purposes, the TTIS Tag Reader category includes

- a) the devices themselves,
- b) the associated control hardware,
- c) a working utility power connection at the site,
- d) a working mobile (3G) telecommunications service at the site,
- e) associated structures,
- f) static signs on the structures,
- g) cleaning and removal of graffiti from the assets.

3.13.2 Inventory

There are currently approximately 35 tag readers deployed on the F3 and M4, installed on overpass bridges and VMS gantries. A detailed inventory of assets is maintained by the TfNSW TMC. This information is summarised by zone in the following table.

Table 3-20 Tag Readers

Location	ID/Ref	Zone
Metro West Zone	35	
F3 N/B - Edgeworth David Av, Wahroonga	F3TT_010_N	Metro West
F3 N/B - Edgeworth David Av, Wahroonga	F3TT_011_N	Metro West
F3 N/B - 3.6 km nth of Mt Colah exit, Mt Kuringai	F3TT_020_N	Metro West
F3 N/B - 3.0 km sth of Mooney exit, Brooklyn	F3TT_040_N	Metro West
F3 Exit S/B : F3 / Pacific Hwy, Wahroonga	F3TT_000_S	Metro West
F3 S/B - Edgeworth David Av, Wahroonga	F3TT_010_S	Metro West
F3 S/B - Edgeworth David Av, Wahroonga	F3TT_011_S	Metro West

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Location	ID/Ref	Zone
F3 S/B - 8km sth of Berowra exit, Mt Colah	F3TT_020_S	Metro West
F3 S/B - 0.9 km nth of Berowra exit, Berowra	F3TT_030_S	Metro West
F3 S/B - 3.7 km sth of Mooney exit, Brooklyn	F3TT_040_S	Metro West
F3 N/B - 2.0 km sth of Mt White exit, Mt White	F3TT_060_N	Metro West
F3 N/B - 0.6 km sth of Calga exit, Calga	F3TT_070_N	Metro West
F3 N/B - 3.9 km nth of Calga exit, Mooney Mooney Creek	F3TT_080_N	Metro West
F3 Exit N/B: Central Coast Hwy/ Wisemans Ferry Rd, Kariong	TT_3749_N	Metro West
F3 N/B - 4.8 km nth of Gosford exit, Somersby	F3TT_090_N	Metro West
F3 N/B - 2.3 km nth of Somersby exit, Somersby	F3TT_100_N	Metro West
F3 N/B - 2.3 km nth of Somersby exit, Somersby	F3TT_101_N	Metro West
F3 N/B - 5.8 km nth of Ourimbah exit, Tuggerah	F3TT_120_N	Metro West
F3 N/B - between Hue Hue Rd and Mandalong Rd, Wyee	F3TT_140_N	Metro West
F3 N/B - West Wallsend	F3TT_190_N	Metro West
F3 S/B - 4.6 km sth of Mt White exit, Bar Point	F3TT_060_S	Metro West
F3 S/B - 2.0 km sth of Calga exit, Mt White	F3TT_070_S	Metro West
F3 S/B - 2.6 km sth of Kariong exit, Kariong Sth	F3TT_080_S	Metro West
F3 S/B - 3.0 km sth of Somersby exit, Somersby	F3TT_090_S	Metro West
F3 S/B - 3.0 km sth of Tuggerah exit, Ourimbah	F3TT_110_S	Metro West
F3 S/B - Cooranbong	F3TT_150_S	Metro West
F3 S/B - Leneghan	F3TT_190_S	Metro West
M4 W/B - near Bill Boyce Reserve, Homebush	M4TT_010_W	Metro West
M4 W/B - near Tennyson St, Rosehill	M4TT_020_W	Metro West
M4 W/B - Clunies Ross St, Pemulwuy	M4TT_040_W	Metro West
M4 W/B - Mamre Rd, St Clair	M4TT_060_W	Metro West
M4 E/B - near Bill Boyce Reserve, Homebush	M4TT_010_E	Metro West
M4 E/B - near Tennyson St, Rosehill	M4TT_020_E	Metro West
M4 E/B - 1.0 km west of Reservoir Rd exit, Eastern Creek	M4TT_050_E	Metro West
M4 E/B - Mamre Rd, St Clair	M4TT_060_E	Metro West

The ITS Contractor(s) will be required to maintain all tag readers, including those on the F3 north of the Hawkesbury River. Currently there are no travel time tag readers in other regional areas.

3.13.3 Condition

The tag readers are relatively new (< 3 years old) assets and have been maintained under a periodic maintenance and fault rectification approach. The systems components are generally in good condition with replacement typically occurring on functional failure.

As the tag readers are installed on VMS gantry structures and overpass bridges, the requirements for inspection and maintenance of structures are covered under VMS assets. Inspection and maintenance of bridges is excluded from the ITS contractor's scope.

3.13.4 Installation

Special Purpose ITS Systems are installed in accordance with the requirements of

- a) *Installation of ITS Devices Procedure ILC-ITS-TP0-006*
- b) *General Requirements for the Design Supply and Installation of Vehicle Detector Systems TSI-SP-019*
- c) *SRMS Protocol Specification for Detector Data TSI-SP-025*
- d) *Communications Protocol for Vehicle Detection Systems TSI-SP-026*
- e) *General Requirements for Design Installation Commissioning and Maintenance of Travel Time Signs*

and other relevant technical specifications and procedures identified by RMS. Note, copies of the technical reference documents c) and d) listed above are not included within the reference documentation provided in the ITS MC RFP documentation set. RMS will provide copies of these to the ITS Contractors during Transition.

3.13.5 Operations

Tag Readers are typically operated by the TfNSW TMC SCATS system for monitoring and central control purposes and allow real time feedback on congestion management. Periodic inspections to ensure proper operation may also be carried out. The relevant operational processes are:

- d) *TMC/RMS Operational Procedures*
- e) Fault Response
- f) Incident Response

3.13.6 Maintenance Approach

The maintenance approach for tag readers includes routine inspections and fault/incident response with the performance requirements and scope detailed in:

- a) *Maintenance of Travel Time Information Systems R306*
- b) *Maintenance of Vehicle Detection & Classification Systems R313*

Detailed troubleshooting and technical information is available in the manufacturer's manuals for the various components that are currently held by RMS at Yennora.

3.13.7 Maintenance History

A detailed maintenance history for the tag readers is not available.

3.14 Enforcement Systems

3.14.1 Description

RMS operates a number of enforcement systems to manage compliance with speed limits and traffic signals across the State Road Network. These include:

- a) Fixed speed cameras (including school zone speed cameras);
- b) Safety (red light / speed) cameras;
- c) Safe-T-Cam (heavy vehicle driver fatigue) systems; and
- d) Point-to-Point Average Speed systems.
- e) Over-height and over-length programs.
- f) Bus Priority Enforcement
- g) Mobile Speed camera program

RMS Compliance Operations Branch (COB) is responsible for contractually managing the installation refurbishment and general maintenance including legislatively prescriptive testing, verification and calibration and breakdown maintenance of the camera systems through a panel of specialist accredited contractors.

COB is also responsible for procurement and installation of the speed detection and recording devices in new and refurbished installations. Referred as SRS below (Yennora) currently provides state-wide Infrastructure installation

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and maintenance support to COB, including maintenance of ITS assets (e.g. detectors, structures, power supplies) associated with enforcement systems. These support and maintenance responsibilities may be included in the ITS maintenance contracts.

3.14.2 Inventory

There are currently approximately 174 fixed enforcement cameras deployed across the Sydney region with a further 25 in the Hunter and Southern Regions. A detailed inventory of assets is maintained by COB. This information is summarized in the following table.

Table 3-21 Enforcement Systems

Asset	Metro East	Metro West	Total
Fixed Speed Cameras	53	74	127
Safety (Red Light / Speed) Cameras	67	69	136
Safe-T-Cam Systems	-	48	48
Point-to-Point Average Speed Segments	-	80	80
Bus Priority	36	21	57
Over-height	1		1
Over-length	1		1
Noise Enforcement		1	1
Inspection Stations		7	7
Smoke Enforcement (VEES)	1		1

3.14.3 Condition

The state and age of Infrastructure is dependent on the particular program and the dates of installation and level of refurbishment applied to the programs since their original installation

In general the following indicates the status of the equipment.

- a) Fixed Digital Speed Camera 60% end of life and due for refurbishment involving the electronics and support communications and control equipment. As refurbishment incorporates a competitive reevaluation of the site based on new technology and current road safety needs, the repositioning or replacement of infrastructure including poles, roadside cabinets, in-road sensors and road surfaces may also be part of the site refurbishment requirements. Road surface equipment, loops piezo's and road surfaces subject to replacement / Maintenance on average every 2 years.
- b) Red Light installations are on average 2-3 years old and would not be scheduled for replacement or refurbishment for another 4 – 6 years. As for fixed cameras Road surface equipment, loops piezo's and road surfaces subject to replacement / Maintenance on average every 2 years.
- c) Bus lane camera systems have been installed for approximately 10 years and are due for a technology refurbishment, Infrastructure is unlikely to be required as part of this renewal process. In-road loops and associated road surfaces are the subject of regular maintenance on average 3 years.
- d) Safe-T-Cam equipment has been installed for up to 20 years and various levels of infrastructure refurbishment or replacement is required, an evaluation of the program of required work has been conducted to evaluate the maintenance work required. Safe-T-Cam camera electronics are past its end of life and are due for renewal. Continuation and functionality of the program is impacted by the involvement of the National Heavy Vehicle regulator and a strategic plan for monitoring and regulations is currently under development by COB.
- e) Over-height and Over-length programs are recent and would not be subject of maintenance requirements for the next 5 years. Only road and loop replacement maintenance would be

required for this program in the foreseeable future. Over-height detection sensors and infrastructure are not part the COB responsibilities

- f) Inspection stations are subject of individual component refurbishment including weighbridge load cells but are in rural areas and are not likely to be the subject of this

3.14.4 Installation

Enforcement ITS Systems are at a minimum installed in accordance with the requirements of the following standards and other relevant technical specifications and procedures identified by RMS :

- a) *Installation of ITS Devices Procedure ILC-ITS-TP0-006*
- b) *General Requirements for the Design Supply and Installation of Vehicle Detector Systems TSI-SP-019*
- c) *SRMS Protocol Specification for Detector Data TSI-SP-025*
- d) *Communications Protocol for Vehicle Detection Systems TSI-SP-026*
- e) *General Requirements for Design Installation Commissioning and Maintenance of Travel Time Signs TSI-SP-019*
- f) *Installation Manual for Fibre Optic Traffic Sensor in SL Cast-90 (Sensorline_Installation_Instructions_revA.pdf)*
- g) *Revision 4 of BL Roadtrax Traffic Sensor Installation Instructions 1005974-1 MSI: (BL_Installation_Instructions.pdf)*
- h) *Cables for Traffic Signal Installations AS/NZS 2276.3:*
- i) *Cables for Traffic Signal Installations Part 2 AS/NZS 2276.2:*
- j) *TIRTL Site Construction Manual*
- k) *General requirements for the competence of testing and calibration laboratories ISO/IEC 17025*
- l) *Quality Management ISO 9001*

Note, copies of the technical reference documents c) and d) listed above are not included within the reference documentation provided in the ITS MC RFP documentation set. RMS will provide copies of these to the ITS Contractors during Transition.

In the future and for enforcement equipment RMS may supply or ask the ITS Contractor to provide additional documentation for critical processes, e.g. piezo and loop installation and testing.

3.14.5 Operations

The contractual services are currently separated in a number of parts:

Operations of enforcement devices are governed by the legislation that enables their use must be provided by approved and accredit organizations.

Camera related infrastructure which include poles gantries roadside cabinets, red light interfaces, VLSL interfaces road surface under management 30 meters surrounding the fixed sites and associated intersections, in- road piezo's and loops for speed measurement and traffic light infringement detection, all associated power and interface cabling GPS devices, Radar support systems and other peripheral equipment,

The management of the intelligent components of the Heavy vehicle inspection stations and Safe-T-Cam are currently under contractual management by Fujitsu as part of their server support contract and are generally located outside metropolitan areas.

Weighbridges and other related site safety hardware and triggering and vehicle classification systems are directly managed by the branch through direct service contracts.

P2P sites are currently directly managed by the branch using individual contractual arrangements, but as the sites are new permanent service and maintenance arrangements are yet to be finalized.

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Devices used for the purpose of enforcement must first be gazetted for the purposes for which they are designed as an approved traffic enforcement device. All devices so approved are subject of prescriptive certification requirements every 30 days to verify their correct operation.

Speed measuring devices and their associated components including in road sensors and radar devices are subject to annual certification and at minimum bi-annual inspection. This responsibility is managed by COB directly or under direct contract with the camera providers or other authorized certification services providers. This currently includes specific testing of in road sensors (Piezo's Loops) for their parametric status in accordance with manufacturer's recommended prescribed procedures.

These procedures are also "approved by the authority" as they are subject of regular legal inquiry. Each test, whether it is 30 day device test or speed measurement test is subject to prescriptive documentation and certificate generation.

- a) The maintenance and monitoring of all enforcement device electronics is the subject of panel contracts with the equipment providers who are responsible for their annual certification.
- b) Certification of devices on a 30 day basis is managed directly by internal COB accredited technical and certification personnel.
- c) The monitoring of all enforcement devices is subject to provision and maintenance of power is currently managed by SRS managed resources. Managed by internal COB
- d) Emergency repairs to infrastructure is managed on a 24 hour basis by SRS resources (Accidental damage graffiti etc) Managed by internal COB
- e) Specifically designed roadside cabinets have been designed and are pre purchased for enforcement applications with enhanced security and access GPS and UPS requirements.
- f) Communications services are currently directly managed by IM&IT, UXC and Internal COB technical personnel,
- g) Power for cameras may be sourced from the associated traffic light controllers or from independent special small service provision requirements.
- h) Interface with the traffic light is currently managed by SRS services.
- i) Installation and repair of in road detection and speed measurement devices are subject of specific training and certification requirements.
- j) Speed verification, traffic monitoring and triggering devices (TITRL's) are the subject of a direct maintenance and monitoring contract with the manufacturer CEOS.

All loop and piezo installation require survey and certification by a registered surveyor for the purpose of the provision of evidential material.

All camera management server infrastructures are the subject of a contract between IM&IT and Fijitsu.

All camera infrastructure is monitored online 24/7 by the Camera Enforcement System (CEB) which is a device monitoring and control, data retrieval, adjudication and reporting system and is the core of the maintenance management system. A maintenance and certification management system CEBDB also works to manage the maintenance of the cameras and certification requirements and is the intelligence source in respect to all operations at the camera sites.

3.14.6 Maintenance Approach

Maintenance and associated uptime of enforcement devices are the subject of prescriptive KPI's monitored by RMS executive on a weekly basis requiring a recourse uptime of greater than 94.5% at all time.

An internal team of project managers coordinate and monitor all equipment procurement, delivery and maintenance contracts to ensure that delivery timetables and KPI's are met.

The maintenance approach for enforcement cameras includes routine inspections and fault/incident response to support the COB's camera uptime (availability) KPI's.

The maintenance approach for Enforcement Systems includes routine inspections and fault/incident response with the performance requirements and scope detailed in *Maintenance of Enforcement Systems R319*

Currently work is separated in to a number of service provision models:

- a) Installation of new infrastructure in support of program delivery. (SRS, Direct contract and regional RMS services, managed by internal COB resources)
- b) Provision of approved enforcement devices (Cameras). (Panel contracts equipment manufacturers)
- c) Provision of certification services.(Equipment manufacturers and internal COB resources)
- d) Provision of maintenance services (Enforcement Systems Technical)(SRS, Direct contract and regional RMS services, managed by internal COB resources)
- e) Provision of maintenance services (Enforcement Systems Infrastructure))(SRS, Direct contract and regional RMS services, managed by internal COB resources)
- f) Provision of maintenance services communications. (IM&IT managed service and equipment provision contracts)
- g) Roadside equipment SRS managed prescriptive equipment procurement (Cabinet manufacturers)
- h) Provision of survey services, P2P shortest practical distance, in road sensors (internal COB, RMS survey and SRS)

3.14.7 Maintenance History

- a) A detailed maintenance history for the enforcement systems is not available

3.15 Road Weather Information Systems

3.15.1 Description

RMS operates weather monitoring stations across the state road network to gather weather data and to provide input to snow & ice, rain and fog monitoring ITS systems. For maintenance purposes, the Weather Monitoring category includes

- a) the devices themselves,
- b) the associated control hardware,
- c) the associated power supplies (utility power connection, solar, batteries, etc)
- d) associated structures,
- e) static signs on the structures,
- f) cleaning and removal of graffiti from the assets.

3.15.2 Inventory

There are currently approximately 25 weather stations and 8 flood detection systems deployed across NSW with 15 in the Sydney region. A detailed inventory of assets is maintained by Sydney Project Services. This information is summarised by zone and asset type in the following table.

Table 3-22 Weather Monitoring and Flood Detection

Location	ID/Ref	Zone
Weather Monitoring Stations	3	Metro East
W-Stn: Wakehurst Parkway Rainfall Monitor	WEA_0397_9701	Metro East
W-Stn: Bexley Rd Rainfall Monitor	WEA_0169_6921	Metro East
WEA Eveleigh; TMC Test	WEA_0915_0915	Metro East
Weather Monitoring Stations	4	Metro West
WEA Mt Boyce; Great Western Hwy; opposite HV Checking Station	WEA_0005_0502	Metro West

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Location	ID/Ref	Zone
WEA Mt Boyce (SMS); Great Western Hwy; opposite HV Checking Station	WEA_0005_0503	Metro West
WEA Jamisontown; Mulgoa Rd; at Wolseley St	WEA_0155_0100	Metro West
WEA Yennora; YEW Test	WEA_0916_0916	Metro West
Weather Monitoring Stations		RMS Hunter Valley Region
WEA Bar Point; F3 Fwy; near Emergency Phone 469	WEA_6003_3001	Excluded
WEA Bar Point; F3 Fwy; near Emergency Phone 471	WEA_6003_3002	Excluded
WEA Bar Point (backup); F3 Fwy; near Emergency Phone 469	WEA_6003_3003	Excluded
WEA Bar Point (SMS); F3 Fwy; near Emergency Phone 471	WEA_6003_3004	Excluded
Weather Monitoring Stations		RMS Southern Region
W-Stn: Lawrence Hargreave Drive Rainfall Monitor	WEA_0185_8501	Excluded
Rain,Pressure,temperature,wind speed and direction sensor at Bega	WEA_Bega	Excluded
Rain,Pressure,temperature,wind speed and direction sensor at BatemansBay	WEA_BatemansBay	Excluded
Rain,Pressure,temperature,wind speed and direction sensor at MacquariePass	WEA_MacquariePass	Excluded
Weather Monitoring Stations		RMS Western Region
W-Stn: Bathurst Snow and Ice Detection site#1	WEA_0005_05011	Excluded
W-Stn: Bathurst Snow and Ice Detection site#2	WEA_0005_05012	Excluded
W-Stn: Bathurst Snow and Ice Detection site#3	WEA_0005_05013	Excluded
W-Stn: Bathurst Snow and Ice Detection site#4	WEA_0005_05014	Excluded
W-Stn: Bathurst Snow and Ice Detection site#5	WEA_0005_05015	Excluded
W-Stn: Bathurst Snow and Ice Detection site#6	WEA_0005_05016	Excluded
W-Stn: Bathurst Snow and Ice Detection site#7	WEA_0005_05017	Excluded
W-Stn: Bathurst Snow and Ice Detection site#8	WEA_0005_05018	Excluded
W-Stn: Fog detection and advance warning system GWH west of Lithgow Coxs River	WEA_0005_COXSR	Excluded
Fog detection and advance warning	WEA_Hampton	Excluded
TOTAL Weather Stations (NSW)	25	
Flood Detection Systems		
Loftus (Audley Weir) & Bexley 8 off	8 off	South

3.15.3 Condition

The Weather Monitoring assets range in age from 8 years to new and have been maintained under a periodic inspection and fault rectification approach. The systems are generally in good condition with replacement typically occurring on functional failure.

Structures are inspected annually as part of the planned maintenance program with no issues identified for immediate rectification in 2011/12 and no issues identified for planned rectification in the following year.

3.15.4 Installation

Weather Monitoring Systems are installed in accordance with the requirements of *Installation of ITS Devices Procedure ILC-ITS-TPO-006* and other relevant technical specifications and procedures identified by RMS.

3.15.5 Operations

Weather Monitoring Systems are operated by the TfNSW TMC SCATS system for monitoring and central control purposes. Periodic inspections to ensure proper operation may also be carried out. The relevant operational processes are:

- a) *TMC/RMS Operational Procedures*
- b) Fault Response
- c) Incident Response

3.15.6 Maintenance Approach

The maintenance approach for weather monitoring systems includes routine inspections and fault/incident response with the performance requirements and scope detailed in *Maintenance of Road Weather Information Systems R308*

Structures are to be inspected in accordance with the RMS (RTA) *Procedures Manual for Structural Integrity Inspection and Condition Assessment of Traffic Asset Structures (Draft v1.2)*

Detailed troubleshooting and technical information is available in the manufacturer's manuals for the various components that are currently held by RMS at Yennora.

3.15.7 Maintenance History

A detailed maintenance history for the weather monitoring systems is not available.

3.16 Heavy Vehicle Checking Station ITS Assets

3.16.1 Description

Heavy Vehicle Checking Stations (HVCS)'s contain a number of assets that have previously been classified as ITS assets. For maintenance purposes, the HVCS ITS Assets category includes the HVCS:

- a) Electrical Signs,
- b) Weighbridges
- c) TIRTL & HARE Units
- d) Brake testers,
- e) Inductive Loops
- f) Radio Links
- g) Portable Weigh Scales
- h) Dead Load Weight Tester
- i) Working utility power supply at the site, and
- j) Working telecommunications service at the site.

There are other assets (e.g. CCTV and lighting) that are part of the office security system and environmental control for the offices in each HVCS. These are excluded from the ITS MC and are monitored and maintained by UGL in a separate contract.

3.16.2 Inventory

There are currently 2 Heavy Vehicle Checking Stations located in the Sydney region, with a further 6 spread throughout the remainder of the state. A detailed inventory of assets is maintained by RMS's ETS/ITS Projects. This information is summarised by zone and asset type in the following table. HVCS assets include TIRTL's and HARE's

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which are managed separately by RMS's Compliance Operations Branch (COB) and are excluded from the ITS MC.

RMS maintains a total stock of approximately 490 Portable Weigh Scales with 165 in the Sydney Metropolitan Region and 325 located outside. The routine maintenance and calibration and the repair of these are centrally managed by RMS's ITS Projects and are excluded from the ITS MC.

Table 3-23 Heavy Vehicle Checking Station ITS Assets

Site Location	Qty	Zone
HVCS Open/Closed Sign		
Mt Boyce, Bell	8	Metro West
Outside Sydney Metropolitan Area	28	Metro West
HVCS Weighbridges		
Mt Boyce, Bell	2	Metro West
Outside Sydney Metropolitan Area	10	Metro West
HVCS Weigh In Motion (WIM)		
Mt Boyce, Bell	2	Metro West
Outside Sydney Metropolitan Area	5	Metro West
HVCS TIRTL		
Sydney Metropolitan	-	-
Outside Sydney Metropolitan Area	32	Excluded, maintained by COB
HVCS HARE		
Sydney Metropolitan	-	-
Outside Sydney Metropolitan Area	9	Excluded, maintained by COB
HVCS Roller Brake tester		
Mt Boyce, Bell	2	Metro West
Outside Sydney Metropolitan Area	8	Metro West
HVCS Inductive Loops		
Mt Boyce, Bell	9	Metro West
Outside Sydney Metropolitan Area	23	Metro West
HVCS Must Enter Sign w/ amber warning & directional Arrows		
Sydney Metropolitan	-	-
Outside Sydney Metropolitan Area	3	Metro West
HVCS Variable Message Signs w/ directional Arrow		
Mt Boyce, Bell	2	Metro West
Outside Sydney Metropolitan Area	7	Metro West
HVCS Radio Links		
Sydney Metropolitan	-	-
Outside Sydney Metropolitan Area	4	Metro West

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Site Location	Qty	Zone
HVCS CCTV Maintenance		
Statewide Contract (RMS Corporate Property Maintenance)	-	Excluded
IVR Portable Weigh Scales		
PAT SAW 10A/II (Sydney Metropolitan)	36 in Metro East 115 in Metro West	Excluded, maintained by ITS Projects
HAENNI WL103 (Sydney Metropolitan)	14 in Metro East	Excluded, maintained by ITS Projects
PAT SAW 10A/II (Outside Sydney Metro Area)	325	Excluded, maintained by ITS Projects
Dead Load Weigh Tester		
RMS design & built Calibrated & verified every two years	1	Metro West

The ITS assets at regional HVCS locations are maintained under a reactive maintenance approach overseen by RMS ITS Projects.

3.1.6.3 Condition

Whilst some HVCS's have been constructed some 30+ years ago most HVCS ITS assets are a lot younger due to a program of repair, upgrade and replacement. HVCS ITS assets range in age from 1 or 2 years to maybe 10 years (excluding some weighbridge platforms) and have historically been maintained under either a fault rectification approach or routine maintenance approach depending on the asset type. The systems are generally in fair condition with replacement typically occurring on functional failure.

3.1.6.4 Installation

HVCS ITS assets are installed in accordance with the requirements of *Installation of ITS Devices Procedure ILC-ITS-TP0-006* and other relevant technical specifications and procedures identified by RMS.

3.1.6.5 Operations

HVCS ITS assets are operated by Vehicle Regulations within RMS's Compliance Operations. Most of these assets are maintained on a fix-on-failure approach however, periodic inspections (including calibration and verification) to ensure proper operation of assets may also be carried out. The relevant operational processes are:

- a) TMC/RMS Operational Procedures
- b) Fault Response
- c) Incident Response

3.1.6.6 Maintenance Approach

The maintenance approach for HVCS ITS Assets includes fault/incident response with the performance requirements and scope detailed in *Maintenance of Enforcement Systems, R319* and *Maintenance of Weigh-In-Motion (WIM) Systems, R321*.

Structures are to be inspected in accordance with the RMS (RTA) *Procedures Manual for Structural Integrity Inspection and Condition Assessment of Traffic Asset Structures (Draft v1.2)*

Detailed troubleshooting and technical information is available in the manufacturer's manuals for the various components held either by ITS Projects or Compliance Technology (part of Compliance Operations Branch).

3.16.7 Maintenance History

A detailed maintenance history for the HVCS ITS Assets is not available.

Table 3-24 HVCS Maintenance History

Weighbridges	Maintenance History		
	2010/2011	2011/2012	2012/2013*
Routine Maintenance		25	
Fault Rectification		12	
Planned Replacement		n/a	n/a
WIM	Maintenance History		
	2010/2011	2011/2012	2012/2013*
Routine Maintenance		0	
Fault Rectification		12	
Planned Replacement		1	n/a
Driver Guidance Sign	Maintenance History		
	2010/2011	2011/2012	2012/2013*
Routine Maintenance		0	
Fault Rectification		11	
Planned Replacement		n/a	n/a
Break & Suspension	Maintenance History		
	2010/2011	2011/2012	2012/2013*
Routine Maintenance		0	
Fault Rectification		2	
Planned Replacement		n/a	n/a
Screening Lanes	Maintenance History		
	2010/2011	2011/2012	2012/2013*
Routine Maintenance			
Fault Rectification		5	
Planned Replacement		4	n/a

3.17 Weigh in Motion & Classifiers (non-HVCS Sites)

3.17.1 Description

Weigh in Motion & Classifier systems are used to record vehicle mass and classification for analysis of traffic composition and volumes across the state road network. This data is used for planning decisions within and outside the RMS. For maintenance purposes, the Weigh in Motion & Classifier Assets category includes the:

- a) the devices themselves,
- b) the associated control hardware,
- c) a working utility power connection at the site,
- d) retrieval of data and upload to server,
- a) cleaning and removal of graffiti from the assets

3.17.2 Inventory

RMS has approximately 10 Weigh in Motion locations in the Sydney Region. The ITS Contractor will not be required to install, calibrate and maintain Weigh-in-Motion and Classifier systems in the Sydney region in accordance with ILC-AT-M-003 *Weigh in Motion Data Processing Manual*.

A detailed inventory of assets is maintained by Program and Systems (Asset Maintenance) and ITS Projects. This information is summarised by zone and asset type in the following table.

Table 3-25 Weigh in Motion (non-HVCS Sites)

Location	Type (Collection Method)	Site	Zone
Metro East Zone			
M2 Motorway, Epping, North Epping (opp East Tunnel Portal)	MIKROS (emailed)	226	Excluded
[Warringah Road, Forestville] (existing PSMC Contract)	MIKROS (emailed)	600	Excluded
M5 East Motorway, Kingsgrove Rd	PAT (mailed on CD)	291-292	Excluded
Metro West Zone			
Bells Line of Road, North Richmond (existing MIKROS Contract)	MIKROS (emailed)	202	Excluded
M7 Motorway,, Prestons	PAT (emailed)	110	Excluded
M7 Motorway, Eastern Creek	PAT (emailed)	120	Excluded
M7 Motorway, Quakers Hill	PAT (emailed)	130	Excluded
Pennant Hills Road, North Parramatta (existing MIKROS Contract)	MIKROS (emailed)	203	Excluded
M2 Motorway, Barclay Rd, North Rocks, (opp Barclay Rd)	MIKROS (emailed)	225	Excluded
[James Ruse Dr, Rose Hill] (existing PSMC Contract)	MIKROS (emailed)	500	Excluded
Outside Sydney Metropolitan Region			
Various	Various	25+	Excluded

Table 3-26 Classifiers (non-HVCS Sites)

Location	Type (Collection Method)	Site	Zone
West Zone			
Hume Hwy, Casula	TIRTL	1000100	Excluded
Camden Valley Way, Prestons	TIRTL	1000120	Excluded
Campbelltown Rd, Ingleburn	TIRTL	1000140	Excluded
M5 South West Mwy, Casula	Excel	1000160	Excluded
Hume Hwy, Douglas Pk	TIRTL	1000180	Excluded

Weigh in Motion Systems & Classifiers are currently maintained through contracts managed by RMS's ITS Projects. ITS Contractor(s) is not required to maintain the systems in Sydney or regional areas.

3.17.3 Condition

The Weigh in Motion assets range in age from 1 or 2 years old to 15+ years and have historically been maintained under a periodic inspection and fault rectification approach under work orders for specialist service providers. The systems are generally in good condition with replacement typically occurring on functional failure.

3.17.4 Installation

Weigh in Motion systems are installed in accordance with the requirements of *Installation of ITS Devices Procedure ILC-ITS-TPO-006* and other relevant technical specifications and procedures identified by RMS.

3.17.5 Operations

Weight-In-Motion assets are operated by Program and Systems (Asset Maintenance). Most of these assets are maintained on a fix-on-failure approach however, periodic inspections (including calibration and verification) to ensure proper operation of assets may also be carried out. The relevant operational processes are:

- a) *TMC/RMS Operational Procedures*
- b) *Weigh-In-Motion Data Processing Manual ILC-AT-M-003*
- c) Fault Response
- d) Incident Response

3.17.6 Maintenance Approach

The maintenance approach for Weigh in Motion assets includes fault/incident response with the performance requirements and scope detailed in *Maintenance of Weigh In Motion systems, R321*

Structures are to be inspected in accordance with the RMS (RTA) *Procedures Manual for Structural Integrity Inspection and Condition Assessment of Traffic Asset Structures (Draft v1.2)*

Detailed troubleshooting and technical information is available in the manufacturer's manuals for the various components held by ITS Projects.

3.17.7 Maintenance History

A detailed maintenance history for the Weigh in Motion Systems is not centrally recorded. The number of fault/incident attendances for these systems is provided below for the period 2009/10 to 2012/13.

Table 3-27 Weigh in Motion Maintenance History (*partial for 2012/13)

Fault Type	Code	Maintenance History			
		2009/2010	2010/2011	2011/2012	2012/2013*
Planned Inspection					
Routine Maintenance		2	2	2	3
Fault Rectification		6	6	8	5
Planned Replacement			1	1	2

3.18 Backup Power Supplies

3.18.1 Description

RMS has a number of mobile generators to provide backup to critical traffic signal sites in the event of an extended power outage. In addition there are six sites where some critical devices/systems are supported by permanent Uninterruptible Power Supplies (UPS) to ensure continuity of operations in the event of a power supply failure. These are deployed in accordance with TMC-SOP-502039 '*Deploying portable generators to designated blacked-out intersections*'. For maintenance purposes, the Backup Power Supply category includes the:

- a) Mobile generators
- b) Tidal Flow UPS units,
- c) Traffic Signal UPS units,
- d) Associated batteries and trailers.

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3.18.2 Inventory

There are currently 20 portable generators and 6 field UPS's to support critical RMS traffic signals and ITS devices in the Sydney region. A detailed inventory of assets is maintained by TfNSW TMC Systems. This information is summarised by zone and asset type in the following table.

Table 3-28 Backup Power Supplies

Location	ID/Ref	Zone
Mobile generators	20	
Rockdale	TMC 3126	TBA (mobile asset)
Rockdale	TMC 3124	TBA (mobile asset)
Rockdale	TMC 3116	TBA (mobile asset)
Rockdale	TMC 3130	TBA (mobile asset)
Rockdale	TMC 3128	TBA (mobile asset)
Pymble	TMC 3120	TBA (mobile asset)
Pymble	TMC 3131	TBA (mobile asset)
Pymble	TMC 3117	TBA (mobile asset)
Pymble	TMC 3121	TBA (mobile asset)
Pymble	TMC 3125	TBA (mobile asset)
TMC	TMC 3129	TBA (mobile asset)
TMC	TMC 3122	TBA (mobile asset)
TMC	TMC 3133	TBA (mobile asset)
TMC	TMC 3123	TBA (mobile asset)
TMC	TMC 3132	TBA (mobile asset)
Yennora	TMC 3114	TBA (mobile asset)
Yennora	TMC 3118	TBA (mobile asset)
Yennora	TMC 3119	TBA (mobile asset)
Yennora	TMC 3127	TBA (mobile asset)
Yennora	TMC 3115	TBA (mobile asset)
Uninterruptible Power Supplies	4	Metro East Zone
Spit Rd (Mosman) Tidal Flow System	1	Metro East
Arncliffe Tidal Flow System	1	Metro East
Sydneyham Tidal Flow System	1	Metro East
Hickson Rd TCS	1	Metro East
Uninterruptible Power Supplies	2	Metro West Zone
Windsor Rd (Westmead) Tidal Flow System	1	Metro West
Sunnyholt Rd Glenwood TCS	1	Metro West

Backup power supplies are not typically provided from Sydney to support regional areas. Therefore the ITS Contractor(s) is not required to provide backup power supply support to the RMS regions.

3.18.3 Condition

The Backup Power Supply assets range in age from 6 years to new and have historically not been maintained under a periodic inspection and fault rectification approach. The generators are not used frequently and generally remain in good condition.

3.18.4 Installation

Backup Power systems are installed in accordance with the requirements of *Installation of ITS Devices Procedure ILC-ITS-TPO-006* and other relevant technical specifications and procedures identified by RMS.

3.18.5 Operations

Backup Power Supply assets are to be deployed by the ITS contractor in response to TMC requests. The relevant operational processes are:

- a) *Deploying portable generators to designated blacked-out intersections TMC-POL-402006*
- b) *Deploying portable generators to designated blacked-out intersections TMC-SOP-502039*

3.18.6 Maintenance Approach

The maintenance approach for Backup Power Supply assets is based on periodic inspection in accordance with the manufacturers recommendations. Detailed troubleshooting and technical information is available in the manufacturer's manuals held by Yennora.

3.18.7 Maintenance History

A detailed maintenance history for the Back Up Power Supply assets is not available.

3.19 ITS Device Software

3.19.1 Description

RMS maintains a range of software and firmware to support the individual ITS devices used on the state road network.

3.19.2 Inventory

No detailed inventory information is available

3.19.3 Installation

Device software is typically installed on commissioning and updated in accordance with the device manufacturer's releases following RMS testing and approval.

3.19.4 Operations

Not applicable.

3.19.5 Maintenance Approach

Software and firmware updates are released periodically that may or may not be required to be implemented across the RMS population of devices. Where the update is not critical, it will typically be installed during the next routine service.

3.19.6 Maintenance History

No information is available.

3.20 Field Communications Networks

3.20.1 Description

Field communications networks provide the communications capability between the Field ITS devices and the TfNSW TMC/RMS centralised computer systems. These networks include private infrastructure owned and operated by RMS and public telecommunications networks owned and operated by Telstra, Optus and other telecommunications service providers. The arrangements for the field communications networks are summarised below. For maintenance purposes, the Field Communications Network category includes the:

- a) customer premises wiring/cabling,
- b) modems or routers
- c) protocol converters
- d) wireless (e.g. 3G, radio) antennas
- e) associated power supplies

3.2.0.2 Inventory

The SCATS CBD Copper Network is currently maintained by the TMC with assistance from the RMS Traffic Signals System Inspectors. The private Optic Fibre field communications networks are currently maintained under contracts managed by the TMC.

Field communication network information is summarised by zone and asset type in the following table.

Table 3-29 Private Field Communications Networks

Network Type	ID/Ref	Zone
Optic Fibre Networks		
Liverpool-Parramatta Transitway ITS (Visionstream)	-	Excluded
RMS Lane Cove Tunnel Fibre (Contractor)	-	Excluded
M4 Fibre Network (Visionstream)	-	Excluded
Other Private Fibre Networks (TfNSW corporate network services contract)	-	Excluded
SCATS CBD Copper Network		
RMS Copper Network	-	Excluded

3.2.0.3 Condition

The private field communications networks have historically been maintained under a periodic inspection and fault rectification approach. Where communication is via copper or wireless public telecommunications networks (e.g. Telstra, Optus) maintenance responsibility rests with the telecommunications service provider. However, the ITS Contractor is required to ensure a working connection at the ITS device. The RMS owned systems are generally in good condition with replacement typically occurring on functional failure.

3.2.0.4 Installation

Additional Field Communications Networks are installed in accordance with the requirements of *Installation of ITS Devices Procedure ILC-ITS-TP0-006* and other relevant technical specifications and procedures identified by RMS.

3.2.0.5 Operations

Field Communications are operated by the TfNSW TMC to support the SCATS and CMCS Systems and provide real time status monitoring and control of ITS devices in the field. The relevant operational processes are:

- a) TMC/RMS Operational Procedures
- b) Fault Response
- c) Incident Response

4 Critical ITS Assets

4.1 General

- 4.1.1 This section provides a current list of ITS Assets RMS and TMC have assessed as critical to the efficient operation of Sydney's road network on the basis that if they fail (e.g. at critical times and/or in important traffic corridors) this may result in major traffic incidents or significant disruption to road users (as assessed by RMS or TMC). RMS or TMC may re-assess the criticality of assets and change an assets classification of criticality as needed.
- 4.1.2 RMS believes that the ITS Contractor can ensure maximum availability of these assets at critical times through its Stewardship role, proactive maintenance and attention to detail. Failures outside the control of the ITS Contractor (e.g. caused by floods, bushfires, traffic accidents, vandalism, Force Majeure events) will not be counted as "validated events" provided that the ITS Contractor has exercised due diligence in responding to and rectifying such failures
- 4.1.3 Critical assets are identified as High Priority in the following reference documents;
- a) VMS_VSLS_TMU_WEA_Priority_Listing_20131223 updated 13 Jan 14.xls
 - b) PriorityTCS Listing 31 Jan 2014.doc
- 4.1.4 Note, Tidal Flow Systems are critical during those times when they are required to operate, that is during peak hour periods or high traffic demand. This means the reactive maintenance response for a particular major failure during critical periods would be high. However, if the same fault occurred during other times then a normal response could be satisfactory.

EXHIBIT 2
Initial Service Plans

**Intelligent Transport Systems
Maintenance Contract
Metro East Zone**

Exhibit 2 - Initial Service Plans



Transport
Roads & Maritime
Services

EXHIBIT 3

Information Documents

The documents listed and set out in this Exhibit 3 are Information Documents. All of these documents were contained in the online data room for the Request for Proposals titled "Road Maintenance Contestability Reform Program ITS Maintenance Contracts (ITS MCs)".

The Information Documents are as follows:

- 03.01.001 ILC-ITS-TP0-006_ Installation of ITS Devices & Systems.pdf
- 03.01.002 ILC-ITS-TP4-001_Testing of ITS Devices.pdf
- 03.01.003 ILC-ITS-TP0-001_Management of VMS installation projects.pdf
- 03.01.004 ILC-ITS-TP0-002_Requirements Engineering.pdf
- 03.01.005 ILC-ITS-TP0-002_ ITS Project Life Cycle Procedure.pdf
- 03.01.006 ILC-ITS-TP0-003_Requirements Analysis & Database Management.pdf
- 03.01.007 ILC-ITS-TP0-003_ Installation of Traffic Control Signals.pdf
- 03.01.008 ILC-ITS-TP0-004-G01_Failure Modes & Criticality Analysis.pdf
- 03.01.009 ILC-TP0-005-C01 Preliminary Design Review checklist.pdf
- 03.01.010 ILC-TP0-005-C02 Detailed Design Review Checklist.pdf
- 03.01.011 ILC-TP0-005-C03 Test Readiness Review Checklist.pdf
- 03.01.012 ILC-TP0-005-C04 Operational Readiness Review Checklist.pdf
- 03.01.013 ILC-TP0-005-C05 System Requirements Review Checklist.pdf
- 03.01.014 ILC.TPO-005-C06 System Functional Review Checklist doc.pdf
- 03.01.015 ILC-TP0-005-C07 Post Completion Review Lessons Learned Checklist.pdf
- 03.01.016 ILC-ITS-TP0-006-G01_Quality Plan.pdf
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**Intelligent Transport Systems
Maintenance Contract
Metro East Zone**

Exhibit 3 – Information Documents



Transport
Roads & Maritime
Services

EXHIBIT 4
RMS Specifications

**Intelligent Transport Systems
Maintenance Contract
Metro East Zone**

Exhibit 4 – RMS Specifications



**Transport
Roads & Maritime
Services**