Issue Date: 27 June 2014

GUIDE TO THE PREPARATION OF TRAFFIC MANAGEMENT PLANS

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## REVISION STATUS RECORD

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<td>August 2006</td>
<td>All</td>
<td>Extensive amendments throughout</td>
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<tr>
<td>December 2006</td>
<td>3.0, 3.1.5, 3.2.1, 3.4.2</td>
<td>Amendments to site inspection requirements</td>
</tr>
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<td>June 2014</td>
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Introduction

This Guide has been prepared primarily to assist the preparation of submissions to conduct works on roads that are under the care, control, and management of MRWA and may be used for arterial roads under Local Government control. It generally meets the Traffic Management requirements of MRWA Specification 202 – Traffic.

Traffic Management Plans (TMPs) for roadwork sites provide a means of planning and implementing how all likely road users will be safely and efficiently guided through a roadworks site and ensure the network performance is not unduly impacted, for the duration of the works.

Road users are not limited to motorists - they include pedestrians, such as school children and people with disabilities, cyclists and emergency vehicles. Management of work on roads requires consideration of all road user needs and obligations and attention should not focus just on the management of vehicular traffic through, past or around the work site.

Main Roads has adopted the Safe System approach to the management of the road network, recognising that humans make mistakes which can lead to death or serious injury. The Safe System philosophy demands that we make changes to the road network to prevent road trauma and reduce crash forces to survivable limits. This approach should be applied to all traffic management at worksites.

Traffic Management is the management of occupational safety and network performance risks associated with work activities undertaken in a traffic environment. Risk Management and the elements of the risk management process form the basis of this Guideline. In Western Australia (WA) TMPs are prepared and implemented by those who have gained relevant accreditation under the Main Roads Western Australia (MRWA)’s training programs. TMPs are prepared in advance of the works being conducted and should be subject to reviewing and/or auditing before and after implementation.

To review or endorse TMPs involving “complex traffic arrangements” Main Roads requires use of an accredited Roadworks Traffic Manager (RTM). Suitability and compliance audits are also only conducted by RTMs however suitability and operational checks can be done by people with Advanced Worksite Traffic Management accreditation (or equivalent experience). Onsite inspections can be done by people holding Basic Worksite Traffic Management accreditation. Components of these checks, audits and inspections can be found on the MRWA Website at www.mainroads.wa.gov.au (Go to “Our Roads” > “Traffic Management > “Plan Preparation” > “Reviewing and Auditing Traffic Management”).
All TMPs shall be based on the requirements of the current MRWA Traffic Management for Works on Roads Code of Practice (the Code of Practice) as displayed on the MRWA website at [www.mainroads.wa.gov.au](http://www.mainroads.wa.gov.au) (Go to “Our Roads” > “Traffic Management” > “Workzones on Roads”). This Code of Practice supplements the Australian Standard AS 1742.3, however, it also outlines additional requirements and variations from AS1742.3 which are applied in WA.

This Guide is intended to provide general information about the components and format of a TMP. It does not provide technical information on how to prepare a TMP. Such technical information should be detailed by accredited practitioners, by referring to the Code of Practice, AS1742.3 and other related documents.

For works undertaken through contract for Main Roads, the MRWA Specification 202 “Traffic” provides information to contractors about Main Roads’ specific requirements in developing a TMP.

**Preparation of Traffic Management Plans**

As each roadwork site is unique, individual TMPs are required for each site and may also be required for individual work activities during the term of the works (Note: for some routine/repetitive type works a generic TMP may be appropriate, see CoP). It needs to be remembered that the Traffic Management Plan is a Risk Management Plan and consists of:

- Documentation of the risk assessment for the project and the procedures and practices that will be utilised to manage the risk exposure. Importantly, the risk assessment process should be undertaken as the first step in the preparation of a TMP and the outcomes from the risk assessment used to develop appropriate strategies for managing and mitigating risks.

- Traffic control diagrams (TCDs) which outline signage and devices and their placement. TCDs should be drawn clearly and unambiguously indicate all traffic controls required for each and every stage of the works.

A worked example of a TMP containing the essential components for road construction on a Main Road, considered acceptable to Main Roads can be found on the MRWA website at [www.mainroads.wa.gov.au](http://www.mainroads.wa.gov.au) (Go to “Our Roads” > “Traffic Management” > “Plan Preparation” > “Work Zone Traffic Management Plans examples”).
TMPs shall only be prepared by those persons who have completed the MRWA Advanced Worksite Traffic Management course and have current accreditation. Traffic management planners must have the required knowledge, qualification and experience necessary to design traffic management schemes for the environment they will operate in. This may require specialist advisers or a team approach in some circumstances. For TMPs involving “complex traffic arrangements” an accredited Road Works Traffic Manager (RTM) shall be engaged to review and endorse the TMP (once deemed suitable), in accordance with the requirements of the Code of Practice.

The person preparing the TMP (or someone under his/her direction) shall inspect the site at least once prior to preparation of the TMP (Note: this may not apply to Generic TMPs). The site inspection is required to identify specific site conditions such as pavement condition, road layout, road geometry, sight distance, vulnerable road user facilities, existing signs, lighting, abutting accesses, adjoining road networks and other possible constraints. Inspections should be carried out during hours of the day similar to the proposed works scheduling to identify matters specific to the site.

A Traffic Management Plan is a key workplace document that has legal standing. As such it is critical that the structure and content of the Plan is sufficient to explain the potential hazards, the assessed risks and the proposed treatments for the proposed work activities and work site. The TMP should include all of the following. Where any of the following sections are not applicable, the TMP should indicate this accordingly.

Introduction

- Purpose and Scope,
- Objectives and Strategies.

Project Overview

- Project Location,
- Project Details and Site Constraints/Impacts

Project Representatives (Principal for the Works; Principal Contractor/Design Consultant including contact details).

Traffic Management Representatives

Safety Plan

- Occupational Safety and Health
- Competencies.
- Responsibilities General & Specific Responsibilities – Role, responsibility and authority of key personnel, management hierarchy including site representatives and contact details of the responsible personnel.
- Communicating TMP requirements
- Prior approvals (if any) granted by the Road Authority with relevant reference number.

Personnel Protective Equipment

Plant and Equipment

Incident / Accident Procedures

Trip Hazards

Environmental Conditions
- Weather
- Terrain
- Vegetation
- Existing signage
- Structures

Worksite Access
- Pedestrians
- Cyclists
- Works vehicles
- Emergency vehicles
- Public Transport
- Property Access
- Special events
- School crossings
- Impact on adjoining Road Network
- Heavy and Oversized Vehicles and Loads

Hazard and Risk Assessment
- Risk Classification Tables
- Risk Register
• Legal and Other Requirements

Emergency Arrangements and Contingencies
• Emergency Services
• Dangerous Goods
• Damage/Failure to Services (Traffic signals, street lighting, power, gas)
• Contingency Planning (Road crash or vehicle breakdown, serious injury or fatality)
• Emergency Contacts

Approvals

Public Notification

Traffic Assessment
• Existing and proposed speed zones
• Existing traffic environment
• Minimum lane requirements
• Duration and hours proposed for works
• Works near intersections
• Barrier requirements

Traffic Management Implementation (Staging)
• Staging
• Night Work
• After Care
• Hazard Identification and risk control
• TCDs
• Signage and device requirements
• Site Access

Communication

Monitoring
• Daily inspections
• Auditing
• Records

Traffic Management Implementation Standards
• Sequence and Staging
• Signage (alignments, requirements, tolerances)
• Flashing Arrow signs
• Delineation
• Speed zoning
• Provision for night works
• Site access
• Temporary pavement markings
• Aftercare signage
• Taper lengths

Management Review
• Review and improvement
• Variations from Standards

References

Appendices
A – Notification of Roadworks
B – Variation to Standards
C – Record Forms
  • Daily diary
  • Daily Inspection Sheet
  • Incident Report form
D – TCD’s
E – Traffic Volume Counts
F – Sidra Analysis
G – Temporary Barrier Design

**Components of a Traffic Management Plan**
The TMP shall incorporate appropriate document control details specific to the TMP in accordance with the organisation’s internal control procedures to ensure that approved documentation can be clearly identified. Information relating to who prepared the TMP and their AWTM accreditation details, details of initial site inspection and sign-off by an RTM
where required should be provided on the cover of the TMP. The TMP shall be authorised by an accredited person other than that who prepared the TMP. The MRWA TMP template, found on the MRWA website at www.mainroads.wa.gov.au (Go to “Our Roads” > “Traffic Management” > “Plan Preparation” > “How to prepare a traffic management plan”), along with this guide will help ensure that no TMP requirements are missed (for the majority of worksites).

1 Introduction

1.1 Purpose and Scope.
This section is used to provide a broad overview of the purpose of the TMP and the extent to which it covers.

1.2 Traffic Management Objectives and Strategies
The TMP must clearly state the objectives of the plan. Primary objectives will include requirements to ensure the safety and health of work personnel, the public and those who will be impacted by the work and to ensure that road users are not inconvenienced and the road network be kept at a satisfactory level of performance.

The TMP may also have other objectives that are specific to the location or work activities being undertaken. Objectives must be measurable and the monitoring and surveillance process structured to evaluate whether the objectives are being met throughout the project.

2 Project Overview

2.1 Project Location
A plan or sketch outlining the location of the worksite and its relationship to the surrounding street network should be included.

2.2 Project Details and Site Constraints/Impacts
Description of the proposed or existing section of road, land-use frontage, posted speed limit, lane width(s), traffic volume and heavy vehicle component. The lane-widths and number of traffic lanes to be retained at any time.
Details of the proposed commencement and completion dates, the scope of the works, the work staging, the working hours (e.g. day and/or night, start and finish times), and duration of the works must be provided.

3 Project Representatives

The TMP shall identify all key personnel and provide contact details for the relevant road authority, the affected local government, the client, the prime contractor, the project manager, the site supervisor and any key subcontractors.

This is considered essential information, in the event of an incident or emergency situation.

4 Traffic Management Administration

The TMP should also identify and provide contact details for the designer of the TMP and the person responsible for the implementation of the TMP.

This is considered essential information, in the event of an incident or emergency situation.

Details of the persons responsible for the administration of the traffic management are best presented in a tabular format. This will enable contact with the persons responsible and may need to be read by personnel not familiar with the job or the organisations conducting the works.

5 Safety Plan

5.1 Occupational Safety and Health

Traffic Management is risk management and principals, employers and persons in control of workplaces have a statutory duty under the Western Australian OSH Regulations (1996) to identify hazards, assess risks and consider means to control the risk exposure. In addition to these requirements, the Main Roads Code of Practice also requires a risk management approach to traffic management planning utilising Australian Standard AS/NZS/ISO 31000-Risk Management.

Specification 202 – Traffic, outlines the minimum requirements for establishing, implementing and managing a TMP for works under MRWA Contracts and is available on the Main Roads Website at www.mainroads.wa.gov.au (Go to “Building Roads” > “Tender
Annexure 202B of Specification 202 requires the identification and assessment process of traffic risk calculation to be determined by the utilisation of Table 202B.1, Table 203B.1, Table 202B.2 and 202B.3. Traffic management planners need to detail and consider potential hazards associated with both safety issues and the performance of the road network.

The Code of Practice also requires documented risk assessments to be undertaken by Roadworks Traffic Managers (RTMs) when variations from the requirements of the Code of Practice or Standard are required. Details of risks identified, the management responses and residual risk must be documented in the TMP.

The current versions of the following documents and legislative provisions apply for those planning to conduct works within the road reserve of any public road, or to manage traffic for an event. (The list is not exhaustive):

- AS 1742 – Manual of uniform traffic control devices
  - Part 1 – General introduction and index of signs
  - Part 2 – Traffic control for general use
  - Part 3 – Traffic control for works on roads
  - Part 4 – Speed controls
- AS/NZS ISO 31000– Risk Management – Principles and Guidelines
- AS/NZS 4602– High visibility safety garments
- Disability Services Act
- Local Government Act
- Main Roads Act
- MRWA Specification 202
- Occupational Safety & Health Act
- Occupational Safety & Health Regulations
- Road Traffic Act
- Road Traffic Code
- Traffic Controllers’ Handbook
- Traffic Management for Events Code of Practice
This Guide does not cover details contained within the above documents other than to note that practitioners should ensure they are fully aware of and compliant with the requirements of these documents when planning and implementing traffic management schemes. Traffic Management Planners must ensure that they use up-to-date information and that the Contractor or Authority responsible for the implementation of the Plan has procedures to ensure that amendments or changes to important documents can be identified and the Plan suitably modified to reflect the up-to-date requirements.

### 5.2 Competencies, Responsibilities and Communication

The TMP should include a commitment by the Construction Contractor to exercise duty of care to workers and all road users ahead in the implementation of the TMP. The TMP must provide details of responsibilities and authorities of all key personnel on the project including Project Manager, line managers (site engineers, supervisors etc.), contractors and workers, safety personnel and traffic management personnel. Ideally, the TMP should outline the management hierarchy in the form of a “flow chart” so that these roles are clearly identified.

Where there is an OSH Management Plan proposed for the project, the TMP should refer to that document. Where there is no such document the TMP should include details related to the management of OSH hazards in the traffic environment including:

- personal protective equipment (high visibility clothing, appropriate footwear, sun protection and possibly helmet, eye and respiratory devices) and
- plant and equipment – All equipment must have suitable flashing lights and reversing alarms to warn motorists and personnel on foot of their presence.
- communicating the TMP requirements - there should be procedures in place to ensure all TMP and safety requirements are communicated to personnel and pre-start inductions are conducted.

### 5.3 Incident Procedures

The TMP shall detail all procedures to be undertaken in the event of an incident occurring including first aid response, emergency services contact and clearing the site. The TMP
shall include requirements and procedures for reporting incidents. The TMP shall also detail requirements to ensure the worksite and its immediate surroundings are free of tripping hazards.

5.4 Environmental conditions

Any potential problems due to existing vegetation that may obscure positioning of signs and devices should be identified during a site visit. Care should be taken to make sure that traffic control device locations will not be affected by shadowing or glare on roads in the east-west direction. Where issues are identified, the TMP should include strategies to address those issues.

Potential conflict between existing signage or infrastructure and proposed temporary signage should also be identified and appropriate consultation entered into with the affected owners of such signage.

If applicable, measures to avoid potential impact of inclement weather, sun glare, fog, dust, or smoke on the worksite (including signs and devices) should be included in this section.

5.5 Worksite Access

The TMP should consider and comment on how all road users move past the worksite and / or access properties adjacent to the worksite and detail at least the following aspects.

5.5.1 Cyclists and Pedestrians

Consideration must be given to the impact works will have on pedestrians and cyclists. The TMP should indicate likely sources and routes taken by pedestrians and cyclists. As part of the site inspection the traffic management planner should identify schools, clubs or other facilities that may generate high volumes of pedestrian or cycle traffic and facilities such as hotels or taverns where pedestrians may have their judgement impaired.

It is important to recognise that cyclists and pedestrians are reluctant to retrace their steps to a prior intersection for a crossing. Where paths are interrupted, alternative safe access needs to be provided. All alternative paths must meet the requirements of the Code of Practice and the relevant Austroads Guide.

5.5.2 People with Disabilities and Other Vulnerable Road Users

The needs of people with disabilities and other vulnerable road users such as children, parents with perambulators, users of small-wheeled vehicles and mobility aides and the elderly should all be considered in preparing the TMP.
If any existing facilities are to be relocated they should be provided at least to the same standard as the existing facilities. All alternative paths must meet the requirements of the Code of Practice and the relevant Austroads Guide. Facilities for people with disabilities shall meet the requirements of AS 1428.3.

5.5.3 Site Access
Where there is a requirement for construction traffic to exit and enter the traffic stream, specific details of the location of the entry and exit points should be detailed on the Traffic Control Diagrams. A procedure for drivers looking to exit and enter the traffic stream safely should also be detailed.

5.5.4 Emergency Vehicle Access
The TMP should include provisions for priority of emergency services vehicles to travel through a roadworks site to another location, and also to access the site should an emergency situation arise on-site during the works.
Details of all proposed detours should be forwarded to each emergency service prior to the implementation of the scheme.
Vehicle breakdown and/or crashes can cause considerable delay and congestion and the TMP should detail arrangements for assistance in such circumstances to ensure the impact of crashes and breakdown on the network is minimised.

5.5.5 Public Transport
The TMP Planner should identify if any bus stops and railway crossings etc. are located within the traffic control zone and if so, there should be liaison with the relevant public transport authority to ensure that their facilities/services are not adversely affected and details of such liaison and alternative provisions made should be recorded in the TMP.
Where the traffic management scheme results in alternative bus stop locations and/or facilities being necessary, the TMP must indicate how access to the alternative facilities will be achieved and any notices and notification that will be erected. It must be remembered that bus patrons need safe access and egress from both sides of the roadway.

5.5.6 Access to Adjoining Development
The planning process should take into consideration all abutting property access, and ensure that access is maintained at all times or varied only following consultation with property owners and/or occupiers.
Access may be highlighted by driveway access signs and crossovers delineated with appropriate approved devices where necessary. Property access arrangements shall be detailed within the TMP.

5.5.7 Existing Parking Facilities
Existing parking facilities and parking limits that may be impacted by the proposed work activities and associated traffic management scheme need to be documented and consultation entered into with the relevant authority. Where on-street parking is retained, there may be difficulty in placing the temporary signage in a conspicuous location. The signs could be mounted on posts such that they are visible above the parked vehicles, alternately, parking bans may be necessary for the term of the works.

5.5.8 Special Events and Other Works
There may be instances where roadwork will be conducted on public holidays, and adjacent to sporting venues or other public places at times of peak use of that venue/location (e.g. sport grounds, railway crossings/stations, schools etc.).

The traffic management planner shall identify and document in the TMP:

- other works or special events that may impact on the effectiveness of the traffic management scheme; and/or
- those occasions when the traffic management scheme may adversely impact on an event.

The preparation of TMPs shall take account of such events to ensure safety and minimum inconvenience to road users and road workers.

Evidence of liaison/approvals and details of how such situations will be managed throughout the course of the project should be shown within the TMP.

5.5.9 School Crossings
Prior liaison with affected schools or the School Crossings Section of the WA Police Service may be required in order to ensure adequate provisions are made for the safe operation and continuity of the facility. The location of and demand for school crossings should be identified during site visits. Warden-controlled school crossings are identified by red and white striped bollards, coupled with transverse stop lines and short transverse guidelines. The special needs associated with School Crossings should be addressed. Where necessary, these
facilities should be relocated to a convenient site to ensure that the safety of the children is not compromised.

5.5.10 Impact on Adjoining Road Network

Change of normal traffic flow at a worksite can have significant impacts on the surrounding road network in terms of excessive delays, queue lengths etc, particularly at signalised or un-signalised intersections.

This may require specific traffic engineering analytical skills to assess the potential impacts. The TMP should document details of any such considerations and analysis and proposed measures to mitigate potential impacts on the adjoining road network.

Where detours are required the TMP must demonstrate that such detours can be accommodated in the adjoining street network. The TMP must meet the requirements of the relevant authority in respect to the redirected traffic flow and details of how such changes are to be communicated to those affected shall also be detailed in the TMP.

5.5.11 Heavy and Oversize Vehicles and Loads

Where it is likely that truck traffic and in particular over-sized loads may need to be accommodated as part of the traffic management scheme, traffic planners must ensure that lane width, turning movements and vertical alignments of temporary arrangements are suitable for these vehicles to traverse. Contact details for personnel in Main Roads’ Heavy Vehicle Services shall be contained within the TMP.

6 Hazard Identification, Risk Management and Legal Requirements

To clearly understand the risks associated with the Project and then outline the manner in which identified risks will be managed, the Traffic Management Plan (TMP) shall include an assessment of all significant foreseeable risks associated with the project and determine the treatment measures that, so far as practicable, minimise the risk.

The identification and assessment process must be undertaken in accordance with AS/NZS/ISO 31000 and the likelihood and consequences rated before the application of risk treatments (Primary Risk) and after the implementation of identified controls (Residual Risk) utilising Table 202B.1, Table 202B.2 and Table 202B.3 of Annexure 202B.
The Project Manager shall, so far as practicable, control or reduce identified risks in accordance with the hierarchy of control as defined by AS/NZS/ISO 31000. Treatment measures shall be implemented and managed by the Supervisor in accordance with Table 202B.4 Management Approach for Residual Risk Rating.

The Road Authority may direct the Project Manager as to the Primary Risk Rating and the Residual Risk Rating to apply to any risk. The Project Manager shall reassess, authorise and manage its risk control measures in accordance with the level of risk directed by the Road Authority.

The Contractors shall use the OSH risk classification in accordance with Main Roads WA Specification 203 OCCUPATIONAL SAFETY AND HEALTH when addressing safety hazards applicable to the general public and road users moving through the site.

7 Emergency Arrangements/Contingencies

When preparing the TMP, any dangerous goods sites (fuel stations, public pools, generating plants etc.), gas and electricity transmission features and any other potentially dangerous facilities/situations in the vicinity of the worksite should be recorded. Hazards associated with such hazardous facilities shall form part of the risk assessment and be included in the TMP. Contact details of the Police and Emergency Services in the area should be documented in the TMP.

The TMP should also include provisions for priority for emergency services vehicles to travel through a roadworks site to another location, and also to access the site should an emergency situation arise on-site during the works. (See Contingency Planning). When contacting the Police and Emergency Services prior to preparation of the TMP, details such as the nature of works, location, dates/duration, site conditions, access details, and contact details of responsible organisation/persons may need to be provided.

The TMP should detail procedures for the following events: incidents involving vehicles transporting dangerous goods; failure to traffic signals, street lighting or power.

The TMP shall detail all procedures to be undertaken in the event of an incident occurring (e.g. road crash or vehicle breakdown) including facilitation of passage past the incident, first aid response, emergency services contact and clearing the site (See also 3.5.4). Particular attention should be given to managing the site should a serious injury or fatality occur. In these circumstances securing the site until emergency services and police arrive is essential.
8 Approvals

The TMP should provide evidence of how road, utility and service authorities have been consulted with and their requirements complied with. Contact details shall be provided.

If approvals have not been obtained at the time of preparing the TMP, details of approvals to be obtained should still be included.

9 Public Notification

Depending upon the nature of the works and prevailing traffic conditions it may be necessary to provide advice to the public of the proposed works and traffic management arrangements in advance of the works commencing.

Notice will generally take the form of on-site advance roadwork notification signs, state/local newspaper notices, radio and television announcements, and written notification to specific commercial or residential premises.

Notifications to be provided including details of proposed wording and locations of signage together with the wording of newspaper notices, should be documented within the TMP.

Notification to relevant agencies will also need to be given using the ‘Notification of Roadworks’ form.

10 Traffic Assessment

10.1 General

For works on roads currently in use it is desirable to conduct the works with minimum disruption and inconvenience to road users. The following factors should be considered during the preparation of TMPs:

- Current traffic volumes, peak times and flows, vehicle types (consider heavy and permit vehicle routes, oversize vehicle routes, and other special needs),
- posted and operating speeds, delays,
- existing roadway geometry and capacity,
- methods to guide road users through, around or past the site, and
- methods of traffic control (e.g. Traffic Controllers, portable signals).
Traffic flow information is best displayed in a tabular format whilst other information is generally best displayed in drawing format.

Details of acceptable traffic flow volumes and lane dimension/configuration requirements are often available from the relevant road authority. AS1742.3 (Table 4.10) provides guidance for the desirable number of traffic lanes to be maintained mid-block and within 200 metres of an intersection.

Where the recommendations of Table 4.10 cannot be achieved, measures requiring parking bans, lane reversal, detours, sidetracks and crossovers may be required. Alternately the works should necessarily be confined to the hours of low traffic flow such as during nights and/or weekends. Details of the number of traffic lanes available and for the duration of the particular works should be specified.

Where queues are likely to occur as a result of the work activity the TMP must quantify the likely queue lengths and indicate what contingency treatment will be undertaken if queue lengths exceed acceptable limits. The TMP must clearly state at what stage the contingency treatment(s) will be implemented.

10.2 Existing & Proposed Speed Zones

Details of existing posted speed zones should be recorded in the TMP (i.e. speed zone limit and sign location) and advice should be provided on Traffic Control Diagrams (TCDs) where existing signs are to be covered or completely obscured.

The TMP must clearly state the existing traffic volumes (hour by hour) using the section of road, the existing speed limit and the need to “maintain a safe workplace” by the introduction traffic lane closures and lower temporary speed limits.

The nature of the work will determine the requirements to prevent injury to workers due to hazards within the work site, the protection of workers from oncoming or passing traffic, and the protection of road users from hazards within the work site. The TMP shall include Traffic Control Diagrams (TCD) which show the installation of the traffic control devices (signs, traffic cones, bollards etc.) relative to the work site. The TCD shall also identify the signs and devices which are to be retained on-site after work hours.

10.3 Mid-block Lane Capacity

Should it be found necessary and unavoidable to undertake work resulting in the specified lane capacities being exceeded, prior approval should be sought from the relevant Road Authority.
Road Authority approval shall be obtained in writing and attached as a supplement to undertake works on the State or Local Government Authority road.

10.4 Intersection Capacity

The Australian Standard (AS 1742.3) recommends traffic lane capacities within 200 metres (upstream or downstream) of an intersection. Where these cannot be achieved or there is a risk of the intersection performance being significantly impacted by the proposed work activity, intersection performance analysis (SIDRA) may need to be undertaken to quantify the likely impact before a suitable treatment can be determined. Generally Main Roads will require levels of service to not fall below Level of Service D (Austroads), and require provision of advance information signs/public notification.

Should it be found necessary and unavoidable to work outside the above parameters, prior approval should be sought from the relevant Road Authority. Road Authority approval shall be obtained in writing and attached as a supplement to undertake works on the State or Local Government Authority road.

10.5 Details of Work

In high traffic volume areas the proposed hours of work should wherever possible be selected to maintain through traffic volumes during peak hours. If this information is complicated and has more details, then it can be provided as a separate section.

10.6 Temporary Barriers

Where temporary barriers are required to protect works, these shall be designed in accordance with Austroads and MRWA technical guidelines and calculations appended to the TMP. TCDs shall provide sufficient detail so that installers can determine offset from traffic lanes, deflection distances required, start and finish points of the barrier, flare rates (if any) and necessary end treatments. Temporary barriers must be rated at the appropriate test level and be an approved barrier type listed on the MRWA Website (Go to “Building Roads” > “Standards and Technical” > “Road & Traffic Engineering” > “Roadside Items” > “List of Approved Road Safety Barrie Systems”). Where temporary barriers are required, implementation methods should be detailed in the TMP and if necessary TCDs should be prepared.
11 Traffic Management Implementation

11.1 Staging of Work
If works are to be conducted in stages due to the nature of construction or other constraints the TMP must take this into account and be detailed accordingly. If project staging is complicated and has more details, then it can be provided as a separate section.
The information in this section needs to be sufficient for the reader to clearly understand the nature of the work activities and the associated likely risk exposure. The specific nature of the potential sources of risk and the level of risk exposure associated with the specific work site will be considered and documented in greater detail in the TMP. The risks involved with implementation of the traffic management should also be detailed and mitigated in the TMP, and work methods or TCDs prepared.

11.2 Night Work Provisions
Roadwork sites may be in operation or shutdown during the hours of darkness, however, the need to manage traffic during either of these situations is still required. Where required, TMPs should make provisions for night work traffic controls, in accordance with the requirements of the Code of Practice.

11.3 Hazard Identification, Risk Assessment and Control
While the TMP outlines foreseeable hazards associated with the proposed project as part of the planning process, given the dynamic nature of the construction environment, the TMP should detail the mechanism that will be utilised to identify and assess future hazards as they arise throughout the term of the work.
The procedure for evaluating proposed risk treatments and confirming that they are effective (e.g. sign-off of such) shall be included in the TMP. The traffic management scheme shall be evaluated by qualified personnel following its initial implementation.
Variations to the treatment shall be recorded.

11.4 Traffic Control Diagrams
This section of the TMP provides details and location of all devices proposed to be used at the roadwork site for all situations. These will be shown on a Traffic Control Diagram (TCD) that should form an attachment to the TMP along with an itemised list of all required signs and devices. The Traffic Control Diagram comprises detailed drawings depicting the layout
and type of traffic control devices to be used for all situations likely to be encountered during the works. TCDs are site specific.

The drawings should reflect and expand upon the written component of the TMP, and be detailed and clearly dimensioned to enable a third party to install the devices without constant referral for additional information or interpretation. Existing signs should be identified and detailed in the TCD and it should be indicated where they are required to be covered or removed.

The TCD should show the precise type and location (by distances) between traffic control signs and the devices, relative to the works and other easily identifiable landmarks (e.g. power poles, intersecting streets, abutting premises etc.).

The TCD drawings should include the following:

- Document control details (unique drawing number and revisions etc.),
- A location diagram showing abutting roads and nearest intersections, north point, scale, timings of works,
- Location of Traffic Controllers, location (chainages) and legend of all devices to be used,
- Abutting development and access provisions, road layout/lane width dimension details both pre and during works,
- Provisions for other road users, site peculiarities (topography, geometry etc.), and pavement markings (both existing and proposed and indicating where existing markings are to be obliterated).
- Details of when the TCD applies including worker proximity to live traffic lanes.

The Traffic Control Diagrams (TCD) should be signed by the person preparing them and show his/her accreditation details on the TCD. TCDs involving complex traffic arrangements must be reviewed and endorsed by an accredited Roadworks Traffic Manager.

A listing of the type, size and quantity of devices to be used in a tabular format should be provided.

11.5 Work Sequence

Where the situation requires that there are several traffic management schemes to be developed for different work activities, the TMP shall detail the sequence of work and provide the links to the respective Traffic Control Diagram for each stage. The traffic control diagram
shall detail all works necessary for the effective implementation of each traffic management scheme for each stage.

12 Communication

The Code of Practice prescribes the use of the “Notification of Roadworks” form in Appendix 3 to the relevant agencies. This notification of the impending roadworks should be made at least seven (7) days prior to the works and should not be confused with contacting the relevant authorities to obtain approval for the works which should be done earlier in the process.

The TMP shall include a copy of the “Notification of Roadworks” form, contained in Appendix 3 of the Code of Practice with all the required contact details duly completed. A copy of the form in MS Word format is available on the Main Roads website at www.mainroads.wa.gov.au (Go to “Our Roads” > “Traffic Management” > “Forms and Publications”).

13 Monitoring

13.1 Site Inspections & Record Keeping

All temporary signs, devices and controls need to be maintained at all times. To achieve this, the TMP should outline suitable monitoring procedures to meet the requirements of Appendix A of AS 1742.3.

The monitoring program should generally incorporate inspections;

- Before the start of work activities on site;
- During the hours of work;
- Closing down at the end of the shift period; and
- After work hours.

13.1.1 After Work (hours) Care

Signs used to warn of the presence of personnel, such as Workers (symbolic) (T1-5) and Prepare to Stop (T1-8) should be taken down or laid flat after work hours. Similarly, the temporary speed limit signs should be removed or laid flat if the work activity or site conditions do not require such protection (Note: signs may need replacing with hazard makers if they are delineating traffic).
A daily record of the inspections should be kept. This should include:

- When traffic controls were erected;
- When changes to controls occurred and why the changes were undertaken;
- Any significant incidents or observations associated with the traffic controls and their impacts on road users or adjacent properties.

Where significant changes to the work or traffic environment or adverse impacts are observed, the controls should be reviewed as a matter of urgency.

The TMP should provide advice on the format of record keeping of daily inspection and any changes to the device layout. Daily records provide an excellent source of reference should the details of traffic management at a particular time during the works need to be recalled at a later date.

Where an incident associated with the site is observed or reported, the incident reporting and investigation procedures should be undertaken. Annexure 202D “Traffic incident Reporting Form” from Specification 202 should be used.

### 13.2 TMP Auditing

To ensure compliance with the requirements of the Code of Practice, it may be necessary to conduct audits of TMPs depending on the nature of the TMP. Formal auditing of TMPs takes two forms, namely Suitability Audits (pre-implementation) and Compliance Audits (during works).

The TMP should also make provision for internal audits by supervising personnel at the work site.


MRWA Traffic Management for Works on Roads Code of Practice requires that Suitability or Compliance Audits of the TMPs involving complex traffic arrangements are required to be carried out by an accredited RTM.

Where there are non-compliances identified the audit procedure should have a mechanism for the issuing of a formal corrective action. Corrective actions should be closed out and registered as such in accordance with the organisations normal practice.
13.3 Public Feedback

The TMP should detail mechanisms that ensure comments and complaints received from the public are registered. The procedure should ensure there is regular monitoring of the register by management and appropriate action taken.

14 Implementation Standards

14.1 Traffic Control Devices

Signs

All signs used shall conform to the designs and dimensions as shown in Australian Standard AS 1742.3, AS 1742.1 and MRWA Code of Practice. All signs shall utilise Class 1 retro-reflective material as required by AS 1742.3.

Prior to installation, all signs and devices shall be checked to ensure that they are in good condition. The TMP should detail inspection and maintenance procedures to ensure signs are in sound mechanical condition, they are clean and not faded, retro-reflectivity is adequate and where applicable batteries are fully operational.

Signs and devices shall be positioned and erected in accordance with the locations and spacing’s shown on the drawings. All signs shall be positioned and erected such that:-

- they are properly displayed and securely mounted;
- they are within the driver’s line of sight;
- they cannot be obscured from view;
- they do not obscure other devices from the driver’s line of sight;
- they do not become a possible hazard to workers or vehicles; and
- they do not deflect traffic into an undesirable path.

The TMP should detail the required installation and disassembly sequence for the signs. Clause 2.5.3 of AS 1742.3 sets out the sequence of erection of signs. Particular attention must be provided to the stabilisation of signs when located adjacent to high-speed traffic, truck traffic or in a windy environment.

Prior approval must be obtained from Main Roads WA for covering over any regulatory signs other than speed limit signs or pavement arrow markings. Where there is a potential for conflict of information between existing signage and temporary signage erected for the purpose of traffic control, the existing signs shall be covered. The material covering the sign
must not be adhered directly onto the sign or the painted surface of the post. The legend on
the sign should not be seen under all conditions i.e. day, night and wet weather.

Line marking
The TMP should detail how existing pavement markings including raised retro-reflective
markers will be removed or covered and how temporary marking will be managed where
required.

Variable Message Signs
Variable Message Signs (VMS) may be erected as part of the advanced warning signage on
the approach to the controlled work site. The TMP should detail under what circumstances
VMS will be utilised and the message that will be used. Signage maintenance procedure
should ensure that devices are operational at all times.

Delineation
The TMP shall provide adequate detail of the type of delineation that will be used for the
different elements of the traffic management scheme. Inspection procedure shall allow for
the replacement of damaged or displaced devices during and after working hours. Particular
attention must be provided to the stabilisation of these devices when located adjacent to high
speed traffic, truck traffic or windy environment.

Temporary Speed Zones
The use of temporary speed signs and covering up of permanent speed signs should be
carefully considered as these signs have regulatory significance and non-compliance by
road users may attract fines or penalty.

The details of the operation of regulatory signs should be accurately recorded, as such
information may be required as evidence in case of any future litigation.

Speed zones should only be applied where not to do so would place road users or work
personnel at risk. Determination for the need to apply speed zones shall be in accordance
with the requirements of AS 1742.3 and the Code of Practice.

The temporary speed limit signs must be approved by the agency having the “delegated
authority”, prior to their placement. The TMP should detail how the person in control of the
workplace will ensure that there is adherence to the temporary speed zones and what
contingencies will be put in place if motorists do not reduce their speed.
Communicating TMP Requirements

The TMP should outline how the requirements of the TMP and the associated procedures and practices will be communicated to works personnel who will enter the site. This may be undertaken in conjunction with other site induction mechanisms. Visitors to the site must also receive suitable instruction and wear the required personal protection equipment.

15 Management Review

15.1 TMP Review and Improvement

For long term projects (greater than 6 months) management should incorporate procedures into the TMP that involve a formal review of the Traffic Management Plan as part of a continuous improvement approach to ensure its continuing suitability, adequacy and effectiveness.

The management review process should ensure sufficient information is gathered over the term of the project to allow management to undertake an effective review.

15.2 Variations to Standards and Plans

Prior approval from the relevant Road Authority shall be obtained where the recommendations of the Traffic Management for Works on Roads Code of Practice or AS 1742.3, with respect to levels of service or safety, cannot be satisfied. This approval, inclusive of conditions imposed by the Road Authority shall be documented in the TMP.

Before seeking the Road Authority’s approval it is imperative that risk analyses are carried out by a RTM where there are variations to the Code of Practice or AS 1742.3. Risks of a lower level of service resulting in traffic congestion and subsequent delays should be addressed. The countermeasures (treatment) to address the lower service levels and the residual risk shall be clearly documented. Any variations to the Code of Practice or AS 1742.3 which result in a lower level of safety should be similarly addressed and documented.

The Road Authority may direct the Project Manager to implement countermeasures which can result in varying the work sequence, limiting the extent of the active work site, working hours or requiring the cessation of work if the levels of traffic congestion exceed specified parameters.

The Project Manager shall continuously assess the levels of safety to workers and road users where the variations compromise levels of safety. Work shall cease immediately and
the work site made safe for all road users. Work is not to recommence until the levels of safety are compliant with the requirements of the Code of Practice and AS 1742.3. The TMP should also contain provision for recording variations to the TMP, subsequent to obtaining approval and/or during implementation of the TMP. Such variations should be approved and recorded properly.

16 References
This section of the TMP should provide details of any documents referred to in preparing the TMP.

17 Submission of TMPs
Work within the road reserve of a public road requires prior approval from the relevant road authority. A Traffic Management Plan usually forms a part of the formal submission to the relevant road authority.

Main Roads has prepared ‘Application to Undertake Work on Roads’ guidelines to assist in preparation of submissions to undertake works within a Main Roads’ road reservation. These are available on the Main Roads website at www.mainroads.wa.gov.au (Go to “Our Roads” > “Conducting Works on Roads” > “Applications to Undertake Works”). There are separate application kits for Complex Works, Low Complexity Works and for Utility Service Providers. For Local Government roads, the relevant Local Government should be contacted for approval.

18 Other Documents
Example Traffic Management Plan
TMP template
Compliance Audit Checklist
Suitability Audit Checklist
Suitability Check Checklist
Operational Check and Onsite Inspection Check Checklist