

ROAD SAFETY ENGINEERING TECHNICAL ARTICLE I3C201903

LESSONS LEARNED FROM ROADWORK TRAFFIC MANAGEMENT AUDITS AND INSPECTIONS (TOP 10 REASONS FOR FAILURE)

INTRODUCTION

The stated purpose of roadworks traffic management is to protect road users and workers on-site. But there is another group of people that require protection of a different kind, and that is the people who design, administrate, supervise, audit, inspect and implement roadwork traffic management schemes.

A coroner recently reported that it was obvious the setup of the roadwork traffic management site at a fatal crash site in Darwin was unsafe and that offences had been committed under the Work Health and Safety Act that required reporting to the Commissioner of Police and the Director of Public Prosecutions. More details regarding this coronial finding, including a link to the report, can be found [here](#).

If you have read this coronial report, work in the Industry and can honestly say that you have never seen or been involved in any similar roadwork traffic management scheme in WA then read no further.

Still here?

Let's get started.

Roadwork Traffic Management is not rocket science, but it does require one thing in common with rocket science and that is ATTENTION TO DETAIL. You know it's important when it's in shouty capitals, bold text and underlined.

Everything you need to know about preparing, implementing and administrating roadwork traffic management sites in WA is covered in the following two documents:

- Traffic Management for Works on Roads Code of Practice (September 2018); and
- Australian Standard AS 1742.3-2009 Manual of uniform traffic control devices Part 3: Traffic control for works on roads.

To keep things simple, I will refer to these as the Code of Practice and the Standard. Yes, there is a different Code of Practice for Events on Roads, but I will concentrate on roadwork sites in this article.

As if the above two documents are not enough to help and guide you, there is also an incredibly helpful Main Roads WA [Temporary Traffic Management web-page](#) with everything you need to know, including links to the Code of Practice, templates for preparing Traffic Management Plans, generic Traffic Guidance Schemes and a whole lot more.

Most of us know all this, so why am I writing this article?

Because I, like many others in the industry and many road users, still see roadwork traffic management schemes on our roads that are clearly wrong and often dangerous.

As a Roadworks Traffic Manager (RTM) I have recently undertaken 37 Roadwork Traffic Management Audits or Checks of roadwork sites and only one of these passed with flying colours.

Auditing is a thankless task and auditors can be as popular as health and safety personnel. We are seen as trying to find all the things that are wrong and never reporting what is right. Fair enough. But auditors are required to follow checklists. This means that something either complies or does not. There are no fifty shades of grey in roadwork audits. If it complies it gets a tick and no more mention. If it does not comply then we have to report why and make recommendations for compliance.

The positive is that auditing is a useful process for identifying things that keep going wrong and providing an opportunity to address these. Hence this article. It's based on the top 10 common features of those 36 roadwork traffic management audits that did not pass with flying colours...

I POOR DOCUMENT CONTROL

It's not hard. You write a Traffic Management Plan (TMP) and you give it a number. Whenever you change the TMP you add a revision number. That way you will never have any problems with auditors or workers on site using different versions of the TMP. The same applies to Traffic Guidance Schemes (TGSs) that were previously referred to as Traffic Control Diagrams (TCDs).

Have a copy of the latest approved TMP and TGSs available on request and on-site at all times. The first thing I ask for when I'm undertaking an audit or inspection is a copy of the latest approved TMP and the TGSs that will be in place when I visit the site. It's also the first thing I ask for when I arrive on-site. I often don't receive this, or I'm given the wrong version.

Whilst it might seem clever for organisations to respond to audit reports with the simple comment that the wrong TMP or TGS was audited, what it really says is that the organisation has very poor records and document control procedures in place and is unable to demonstrate that any person working on-site can obtain a copy of the correct TMP when required. The TMP contains important Health and Safety procedures and requirements, so good luck with explaining that to the Coroner, particularly when all the other audit comments identify widespread non-compliance issues irrespective of which version is used.

2 APPROVALS, SIGNATURES AND DATES

Once again, it's not hard. You are required to use the MRWA template and this has a table on the cover page to include all signatures and details of all approvals obtained. What you may not be aware of is that a signature without a corresponding date for 'time sensitive' documents such as TMPs can be invalid, as can 'picture' signatures such as JPEG and PNG. I have seen signatures with corresponding dates that are prior to the TMP design date and I have seen 'picture' signatures of people that subsequently advised me that they had not seen or signed the document. There are a number of electronic document signature, approval and review software products available to address this.

If your signature has been scanned for use in documents, make sure you know when it has been used and jump up and down if it is used without your knowledge.

Just as important, don't sign something, or allow your signature to be used on a document you are not happy with. When the smelly stuff hits the oscillating cooling device your signature makes you responsible. The lawyers will say "you signed it so you are responsible" and you will find it difficult to argue against this.

A large number of TMPs that I reviewed had the standard:

"I, [Name] [AWTM XXX-####], declare that I have designed this Traffic Management Plan following a site inspection. The Traffic Management Plan prepared is in accordance with the Main Roads Code of Practice and AS 1742.3."

Quite often the TMP signed with the above statement was not based on the MRWA template and did not include any Variations. It clearly did not comply with the Code of Practice and to state that it did when it did not, raises significant legal issues.

In a nutshell, if in doubt, leave it out. Ask your boss to sign it instead. If they are accredited to do so and refuse, then you have proven to them that changes are required. If they are not accredited to do so, then you have reminded them that you are a better judge of this issue than them because you have been trained in this aspect of the work.

3 VARIATIONS

It is rare to have a ‘standard worksite’. I get this and so does Main Roads WA. Both the Code of Practice and the Standard allow for Variations.

The front cover of the TMP Template uses bold text to highlight this in its Declaration, i.e.:

<p>Declaration</p> <p>I XXXXX (AWTM Cert No.XXXX) declare that I have designed this Traffic Management Plan following a site inspection on XX/XX/XX. The Traffic Management Plan prepared, subject to the variations approved, is in accordance with the Main Roads Code of Practice and AS 1742.3</p> <p>Signature: Date: XX/XX/XX</p>

Once again, it’s quite simple. If your TMP and/ or TGS’s contain anything that do not comply with the requirements of the Code of Practice or Standard then you must follow the directions in Section 5.6 of the Code of Practice, i.e. Variation to the Code and Standards. If you don’t, then the TMP does not comply and should never have been signed or approved and all those that signed it or approved it are placing their accreditation at risk as well as themselves should there be an event resulting in coronial or legal procedures.

It is quite common to observe variations on site to those on the approved TMP and TGSs and there are often good reasons for this. There are also procedures within the Code of Practice to accommodate this. Basically, if there are differences on site to that in the TMP and the TGSs there are two options:

- If the change is long term or involves a ‘complex’ issue (e.g. changes to the road safety barrier, within traffic signals or on a Freeway), then get the TGS and/ or TMP revised and approved to reflect this;
- If the change is short-term and does not involve a ‘complex’ issue, have the change made and approved by an appropriately accredited person and record this in the Daily Diary each day;

It is important to remember that if the change is a Variation to the Code of Practice and/ or Standard that it needs to be assessed and approved in accordance with Section 5.6 of the Code of Practice.

Designers should be aware that traffic management personnel on-site have a very good understanding of how drivers are reacting to, and behaving within, the roadworks site. Visiting the site and talking to personnel after implementation will allow designers to continuously improve roadwork sites as well as change requirements within the Code of Practice through the Main Roads Traffic Management for Works on Roads Advisory Group.

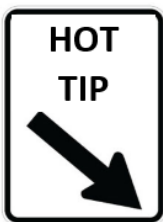
4 RISK ASSESSMENTS

Please, please, please, stop telling me that digging a hole in the road without any traffic management is very dangerous and requires signs.

It's interesting that designers accept that no two roadwork sites are the same, but they keep pasting the same old risk assessment table in the TMP.

Yes, we need to include 'generic risks' but we also need to include risks that are unique to the TMP and unique to each TGS. Quite a few designers are including two risk tables in the TMP, one for generic risks and the other for site specific risks. Fantastic, however many of the risks have identified treatments that are not in the TMP and/ or TGSs. If the remedial treatment is not included, then the initial risk remains and quite often this places the entire project in the "Unacceptable risk. HOLD POINT. Work cannot proceed until risk has been reduced" category. And once again I become as popular as a camel with diarrhoea.

The solution? Add another column to the right of the Risk Table with a 'TMP Ref' heading. That way you can check and ensure that each remedial treatment is clearly communicated in the TMP or TGS.



The Austroads Research Report *AP-R403-12 Implementing National Best Practice for Traffic Control at Worksites – Risk Management, Audit and Field Operations* is a very good reference document for identifying and managing risks at roadwork sites and includes some very good generic worksite risks and associated consequences and causes in Appendix B. It can be downloaded for free from the [Austroads website](#).

5 INSPECT YOUR SITE YOURSELF BEFORE SOMEONE ELSE DOES

Main Roads WA requests auditors to provide prior notice of intended audits. I find it very surprising that I am still able to observe and record some very basic non-compliance issues when I undertake the audit.

As I mentioned earlier, auditors are required to use checklists and these checklists are freely available on the [Main Roads WA Temporary Traffic Management webpage](#).

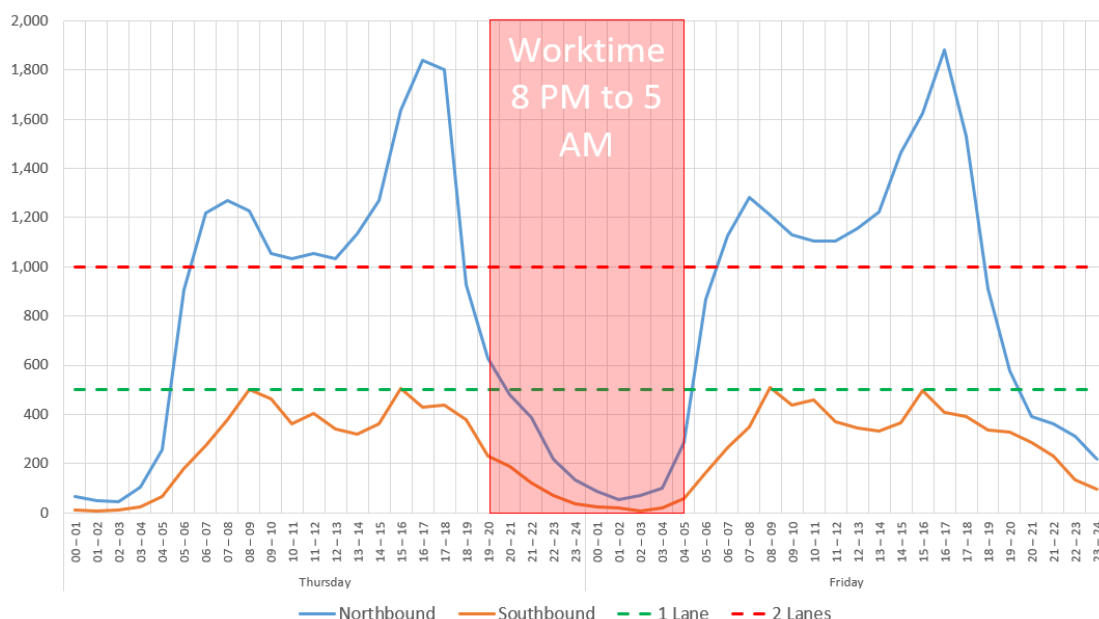
If you are about to have an audit, why don't you download the relevant checklist and do one yourself first? You may then become the second perfect worksite on my audit list.

6 ASSESS TRAFFIC VOLUMES (DON'T JUST PASTE THEM IN THE TMP)

In addition to Main Roads WA's road network capacity requirements, there are significant risks associated with congested roadwork sites. Driver's get frustrated and start ignoring traffic management measures and abusing workers and traffic controllers when delays and queues are excessive.

The Code of Practice and Standard provide clear guidance on acceptable traffic volumes per lane per hour for both mid-block and intersection roadwork sites.

Main Roads WA provides easy access to traffic volume and traffic signal (SCATS) data on their on-line [Traffic Map](#). Instead of copying this data and pasting it into the document, take the time to copy it into a spreadsheet to allow for easy assessment of appropriate work times. This also allows for workers on site to get a clear indication of whether or not they can extend the time if the works require another hour to finish. Here's an example I prepared earlier:



7 INCLUDE TEMPORARY ROAD SAFETY BARRIER DETAILS (NOT JUST THICK LINES ON TGS'S WITH RSB TEXT)

Section 6.5.4 of the Code of Practice is very specific with what is required whenever Temporary Road Safety Barrier Systems are used but very few TMPs include all the required details. Appendix G of the Main Roads Template allows for the relevant details to be recorded. If this is not completed and no similar details are provided elsewhere, then the TMP is non-compliant and should never have been approved or signed off by an RTM.

8 EXCAVATIONS (A 'HOLE' LOT OF ISSUES)

There seems to be a misconception that an excavation less than 250 m deep is not a hazard. Let's debunk this myth. Firstly, an excavation is deemed to have been formed when material is removed by digging as a result of the work, as defined in the Code of Practice. There is a different definition in the Standard, but the Code of Practice takes precedence (Section 1 para 4).

Excavations require special consideration to ensure their structural integrity and to minimise the risk of vehicles driving into them and losing control.

Section 6.5.1 of the Code of Practice states "As there is an increased risk of motor vehicles driving into excavations during the hours of darkness, where practicable, works should be planned so that the excavations are to be backfilled and compacted by the end of each working day. On sections where excavations cannot be backfilled and compacted, delineation and other requirements shall be provided during the hours of darkness in accordance with Clause 2.4.3 of AS 1742.3 - 2009."

So there you have it. All excavations must be backfilled and compacted by the end of each working day. If this is not possible or practicable, then delineation and other requirements shall be provided during the hours of darkness in accordance with Clause 2.4.3 of the Standard.

And don't forget to also comply with the requirements of Appendix D of the Standard with respect to protection and delineation of all excavations during the day and night. If you know that there will be deep excavations then you need to provide the correct level of protection, e.g. road safety barriers. Placing a note that all excavations will be less than 250 m deep and backfilled at the end of the day when it's clear this this will not be the case could get you in a whole lot of trouble.

9 VISIT THE SITE (STOP RELYING ON GOOGLE EARTH AND NEARMAPS AND GET OUT ON SITE)

The Code of Practice requires a statement on the TMP confirming that a site visit was undertaken by the person who prepared the TMP or another person under his/ her direction, prior to preparing the TMP.

The Roadwork Traffic Manager Code of Conduct requires that RTMs make at least one site visit prior to endorsing a Traffic Management Plan.

Based on the above, you would think it is impossible to turn up on site and find a different existing road layout than that shown on the TGS, but it happens. It is also common to see signs erected behind trees, bushes, parked cars and other obstacles because the TGS fails to take these obstructions into account when indicating where these signs are to be located.

One of the strongest indicators of the lack of a site visit is the lack of existing signs on TGSs. All existing road signs should be shown on the TGSs with notes indicating whether they are to be retained, covered up or removed.

So get out there. Spend some time getting to know the site and start planning sign locations on site taking into account existing signs and roadside obstructions.



Nearmap aerial showing no left turn auxiliary lane and site visit showing recently constructed lane

10 MAKE SURE YOUR HI-VIS PPE IS HIGHLY VISIBLE

When is high-vis PPE not high vis? If you don't want a lawyer to prove that your high-vis is not high-vis after an incident, then I suggest the following:

1. Check the label. If it does not have one or does not state that it complies with AS/NZS 4602.1:2011 Class D/N and AS/NZS 1906.4 Class R/F, I suggest you chuck it;
2. Check its brightness against newer items with the correct label. Lawyers will argue that it only complies at time of manufacture and constant washing or exposure to sunlight, or age, diminishes this until such time as it no longer complies;
3. Don't print large logos on the clothing or vests. There is a minimum area that is required to be high vis and/ or reflective to meet the standard;
4. If you rely on high vis clothing, make new high vis vests available for traffic controllers and other personnel when working close to traffic to ensure that it complies; and
5. Make sure that if vests or jackets are used that they are done-up at the front and tell others to do them up instead of walking past them. You have a duty of care to everyone on site.



Example of faded hi-vis clothing on traffic controller on right compared to new hi-vis on left

So that's it. Pay attention to detail, especially the top 10 issues discussed, and you will most likely end up with a high-quality roadwork traffic management scheme that not only keeps road users and your workers safe but will also help in protecting your business reputation and viability.

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David Wilkins

Principal & Senior Traffic Engineer – i3 consultants WA

Accredited Senior Road Safety Auditor - Crash Investigation Team Leader - Roadworks Traffic Manager

T (08) 9467 7478 | M 0407 440 327 | E dwilkins@i3consultants.com | Skype i3consultantswa

T (08) 9467 7478 | www.i3consultants.com | [LinkedIn](#)

ABN 53 745 566 923

David Wilkins is a Main Roads WA accredited Roadworks Traffic Manager and Senior Road safety Auditor with extensive knowledge and experience in the roadwork traffic management industry. He is the WA Engineers Australia Representative on the Main Roads Traffic Management for Works on Roads User Group and an active member of Transport Australia society in promoting the safe system approach to road safety issues. David is the Principal and Senior Road Safety Engineer at i3 consultants WA and works as an expert witness in the field of Roadworks Traffic Management and Road Safety Engineering.

This article is also available on-line at:

https://www.linkedin.com/pulse/lessons-from-roadwork-traffic-management-audits-david-wilkins?lipi=urn%3Ali%3Apage%3Ad_flagship3_detail_base%3B4B6xOKR8TVmnROZs4jkH7Q%3D%3D&licu=urn%3Ali%3Acontrol%3Ad_flagship3_detail_base-link

<https://www.i3consultants.com/tnt-news-blog/lessons-learned-from-roadwork-traffic-management-audits-and-inspections-top-10-reasons-for-failure>

Further relevant articles are available at:

<https://www.i3consultants.com/tnt-news-blog>