

1 Introduction

1.1 Purpose and scope

This Technical Manual is to be read and used by personnel responsible for designing, implementing, operating, reviewing and inspecting temporary traffic management (TTM) at Transport maintenance or construction work sites.

Where this Technical Manual refers to a Transport roadwork site, it includes any Transport construction or maintenance work that impacts on the road network, this could include rail or maritime infrastructure projects.

In the context of TTM, the Technical Manual contains instructions for the following:

- Manage risks associated with TTM;
- Develop a traffic management plan (TMP);
- Design, select, obtain approval, record and store a traffic guidance scheme (TGS); and
- Undertake traffic management in a number of specific situations.

The purpose of this Technical Manual is to ensure that traffic control at Transport work sites continually strives for best practice. It is also intended to help personnel understand their obligations under the *Work Health and Safety Act 2011* and the *Work Health and Safety Regulation 2017*.

For works conducted by contract, this Technical Manual complements the following Transport specifications:

- G10 (Traffic Management);
- D&C G10 (Traffic Management);
- G10M (Traffic Management (Maintenance Works));
- G22 (WHS Construction Work); and
- D&C G22 (WHS Construction Work).

Appendices of this Technical Manual noted as *mandatory* are key to the application of the Technical Manual. Appendices noted as *informational* are optional, and have been provided to assist practitioners with application.

Variations to and departures from the requirements of this Technical Manual must be in accordance with the departure process described in [Section 2.8 Departures from this Technical Manual](#).

1.2 Exclusions, evaluation and review

1.2.1 Exclusions

The requirements of this Technical Manual do not apply to 'standard work activities' outside the scope of construction or maintenance of a Transport managed road, or where traffic is not being managed via a traffic management plan or through the use of a traffic guidance scheme. Activities considered to be 'standard work activities' and excluded from the requirements of this Technical Manual include, but are not limited to:

- Transport Traffic Emergency Patrol work;
- School Crossing Supervisors;

- Emergency service related work including the use of crossovers as intended design;
- Inspections that do not require traffic to be managed, or where traffic is not affected by the inspection;
- Heavy vehicle inspection conducted by Compliance Operations Inspectors; and
- Speed camera certifications and maintenance activities.

Standard work activities such as those listed above should be managed in line with divisional requirements and through the development of localised risk assessment and procedures to manage the risk associated with these works.

Unless specifically determined by the relevant division, any procedures that are developed for these activities need not adhere to this Technical Manual or prepared by a TTM qualified person, however, this Technical Manual may be used as a point of reference.

Readers are advised to consult the Transport website for additional information, guidance and requirements for these specialist activities.

1.2.2 Evaluation and review

Implementation of this Technical Manual will be evaluated as part of Transport’s program of audits.

A Transport Traffic Control at Work Sites committee exists to assist in the review of this Technical Manual on a regular basis. Factors taken into account in these reviews include the circumstances of incidents at work sites and the results of safety audits and inspections.

The committee is also responsible for:

- Developing strategies to improve safe systems of work; and
- Providing input into traffic management innovation and new technology.

Feedback on the Technical Manual is encouraged and can be forwarded to the Director, Traffic Engineering Services via Traffic.Engineering@transport.nsw.gov.au. When new information becomes available and new techniques are developed, they will be assessed and if suitable, will be incorporated into this Technical Manual. Amendments to the Technical Manual will be published on the Transport website.

1.3 Terms and definitions

For the purposes of this Technical Manual the terms and definitions provided in *Table 1-1* apply.

Table 1-1. Terms and definitions

Term	Definition
85th percentile speed	speed at or below which 85% of vehicles are observed to travel under free flowing conditions past a nominated point
AADT (annual average daily traffic)	total traffic volume over the whole year, divided by the number of days in the year
ADT (average daily traffic)	total traffic volume during a stated period, divided by the number of days in that period
advance warning signs	roadwork warning signs which have a general message and used in advance of other roadwork signs with a more specific message

Term	Definition
advance warning vehicle	vehicle used in advance of dynamic works to provide advance warning of those works
alternate flow	see shuttle flow entry
approach speed	speed of traffic approaching the work site measured in km/h and may be the speed limit applying to the road
built-up area	for roads longer than 500 m: area of land next to a road that contains on average, buildings or street lights spaced less than 100 m for roads shorter than 500 m: area of land next to the entire length of road that contains buildings or street lights spaced less than 100 m
carriageway	portion of a road or bridge devoted particularly to the use of vehicles, inclusive of shoulders and auxiliary lanes
competent person	any person who has, through a combination of training, qualification and experience, acquired knowledge and skills to enable that person to perform specified tasks
condition signs	temporary signs indicating the condition of the road surface through the work area
consequence	effect such as illness, injury, loss of life or property damage resulting from a hazardous event occurring or a risk being realised
containment fencing	physical barrier that provides separation between pedestrians or cyclists and the work area, or between separate work areas, but not so rigid as to become a hazard if struck by a vehicle
controlled area	area of a roadway where temporary traffic management is in place, i.e. between the first advance warning sign and where normal traffic arrangement resume
contraflow	when a carriageway of a divided road is closed to traffic and the traffic is transferred to the other carriageway which then operates as a two-way road
controller	device which regulates the order and duration of the displays of the signal lanterns
crossover	access point from one carriageway to the adjacent carriageway for emergency vehicles (e.g. police, ambulance, fire etc.)
date of publication	date Issue 6.0 of the Traffic Control at Work Sites Technical Manual is made available on the Transport for NSW website
delineation	general term for treatments which regulate, warn or provide tracking information and guidance to drivers (e.g. linemarking, raised pavement markers, traffic cones, bollards and post-mounted reflectors are delineation devices)
dimension D	distance expressed in metres for the positioning of TTM signs, devices and determining other TTM related factors
escort vehicle	vehicle used under the Heavy Vehicle National Law to escort an Oversize Overmass vehicle on the road network
footpath	paved area in a footway

Term	Definition
footway	public way largely reserved for the movement of pedestrians
hazard	situation, condition or source that has the potential to lead to negative consequences, harm or loss, but not the negative outcome itself
high risk pedestrian	subgroup of pedestrians at greater risk to hazard such as persons with a disability, the elderly and children
high speed road	road which is posted at speeds greater than 85 km/h
high volume road	road which has traffic volumes greater than 20,000 vpd
implement traffic control plan (ITCP)	SafeWork NSW qualification principally concerned with the competency of implementing a work zone traffic management plan (TMP)
intermittent work	work which is undertaken on travel lanes, in gaps in traffic, without obstructing traffic and without compromising the safety of road workers
lead vehicle	vehicle used at the head of a work convoy on two-way roads (e.g. to give advance warning of the works to traffic approaching from the opposite direction and/or to enable the driver to alert following road workers of any impending hazard)
long-term work	work requiring traffic control for longer than one work shift and where some form of traffic control remains when the site is left unattended
lookout person	any person whose sole responsibility is to watch out for and warn road workers of approaching traffic
may	indicates permission or an option, often accompanied by one or more condition
modification	with reference to a TGS and the positioning of signs and devices, any change which exceeds a permitted tolerance
motorway	divided highway for through traffic with full or partial control of access and generally with grade separation at intersections. Term includes expressways, freeways and tollways
must	indicates a mandatory requirement
open road area	roadside development less frequent than that specified for a built-up area
pedestrian movement plan (PMP)	diagram showing the allocated travel paths for road workers and/or pedestrians around, past or through a work site
pilot vehicle	vehicle used to guide traffic by controlling the desired path and to manage speed through the work site
portable traffic control device (PTCD)	portable device that removes the need for manual traffic control or allows traffic controllers to perform their roles at a safe distance from traffic (e.g. type 2 (automatic) portable traffic signals, type 1 (manual) portable traffic signals and portable boom barriers)

Term	Definition
portable traffic signal (PTS)	approved traffic signals that are transportable and not permanently installed
prepare work zone traffic management plan (PWZTMP)	SafeWork NSW qualification principally concerned with the competency of developing or modifying a work zone traffic management plan (TMP) and/or a traffic guidance scheme (TGS)
prescribed traffic control device	sign, signal, marking, structure or other device to direct or warn traffic on a road (or part of a road)
Regional Road	see Schedule of Classified Roads and State and Regional Roads publication. See also Portal for State Roads
risk	possibility of suffering harm or loss
road occupancy	consists of any activity likely to affect the operational efficiency of the road network (e.g. an activity that requires the road to be used in such a way as to affect traffic flow)
road occupancy licence (ROL)	permit which conditionally allows the holder to use or occupy a specified road space at approved times
road user	any driver, rider, passenger or pedestrian using the road
roadside	area between the reserve boundary and the nearest road shoulder
roadway	portion of the road devoted to the use of vehicles, inclusive of shoulders and any auxiliary lanes
roadwork site	works that are conducted on a public road, including bridge or light rail works that impact a public road
safety barrier	physical barrier designed to resist penetration by an errant vehicle and as far as practicable, to redirect errant vehicles back into the travelled path
shadow vehicle	vehicle which provides close up protection to the rear of road workers on foot
short-term work	work requiring traffic control taking less than or equal to one work shift and where road conditions are returned to normal when the shift ends
should	indicates a non-mandatory recommendation
shuttle flow (aka alternate flow)	where a single lane is used alternately by both directions of traffic (e.g. where insufficient width is available for a lane to be provided in each direction)
sight distance	distance between the point at which an approaching driver first sees the whole of an object and the object itself (in the context of this Technical Manual the object is the traffic control sign or device)

Term	Definition
so far as is reasonably practicable (SFAIRP)	see WHS Act, Section 18
State Road	see Schedule of Classified Roads and State and Regional Roads publication. See also Portal for State Roads
tail vehicle	vehicle used in a dynamic work convoy to provide advance warning of the works and protection
temporary traffic management (TTM)	the organisation, arrangement, guidance and control of both stationary and moving traffic, including pedestrians, cyclists and all types of vehicles, around a hazard or work site for the safety of both road workers and road users
traffic control	direction of traffic around, past or through a roadwork site, accident or other disruption
traffic controller	person holding a SafeWork NSW qualification principally concerned with the competency of directing traffic in accordance with a work zone traffic management plan
traffic gap	time interval between the detection of two successive vehicles in a traffic stream
traffic guidance scheme (TGS)	<p>diagram showing signs and devices arranged to warn traffic and guide it around, past or, if necessary through a work site or temporary hazard</p> <p>Note to entry: <i>Traffic guidance scheme (TGS) was previously referred to as traffic control plan (TCP)</i></p>
traffic management plan (TMP)	document detailing work to be undertaken, identifying associated risks and the accepted control measures to reduce risks by describing its effect on the general area, especially its effect on public transport, cyclists, pedestrians, motorists and commercial operations with required approvals from road authorities
traffic management strategy	document containing work related conditions and constraints to assist the development of a traffic management plan
traffic staging plan	road design drawings that show how traffic passes safely around, past or through the work area during various stages of a roadwork project
travelled path	part of the roadway which is available to vehicles and consisting of one or more running lanes
vehicle movement plan (VMP)	diagram showing the preferred travel paths for vehicles associated with a work site entering, leaving or crossing the through traffic stream
vehicles per day (vpd)	number of vehicles observed passing a point on a road in both directions in a 24 hour period
vehicles per hour (vph)	number of vehicles observed passing a point on a road in both directions in a given hour
vulnerable road user	subgroup of road user including pedestrians, cyclists, motorcyclists, scooter users

Term	Definition
work area	area on the road or within the road reserve where the construction or maintenance work is being undertaken
work site	an area of road or road reserve which includes the work area or areas and any additional length of road required for traffic control such as signs and tapers
work vehicle	vehicle or item of plant which undertakes the work and supports the road workers on foot within the work area

1.4 References

The following documents, provided in *Table 1-2*, are referred to in the text in such a way that some or all of their content constitutes requirements, recommendations or informative elements of this document.

Table 1-2. References

Document	Publisher
<i>AS 1742.1, Manual of uniform traffic control devices, Part 1: General introduction and index of signs</i>	Standards Australia
<i>AS 1742.2, Manual of uniform traffic control devices, Part 2: Traffic control devices for general use</i>	Standards Australia
<i>AS 1742.3, Manual of uniform traffic control devices, Part 3: Traffic control for works on roads</i>	Standards Australia
<i>AS 1743, Road signs—Specifications</i>	Standards Australia
<i>AS 2700, Colour standards for general purposes</i>	Standards Australia
<i>AS 4852.2, Variable Message Signs, Part 2: Portable Signs</i>	Standards Australia
<i>AS/NZS 1906.1, Retroreflective materials and devices for road traffic control purposes, Part 1: Retro-reflective sheeting</i>	Standards Australia
<i>AS/NZS 1906.2, Retroreflective materials and devices for road traffic control purposes, Part 2: Retro-reflective devices (non-pavement application)</i>	Standards Australia
<i>AS/NZS 3845, Road safety barrier systems and devices</i>	Standards Australia
Delineation guide	Transport for NSW
<i>Guide to Road Design</i>	Austrroads
<i>Guide to Temporary Traffic Management</i>	Austrroads
<i>Guide to Traffic Management</i>	Austrroads
IC-QA-G10, Traffic Management	Transport for NSW
IC-DC-G10, Traffic Management	Transport for NSW
IC-QA-G10M, Traffic Management (Maintenance Works)	Transport for NSW
IC-QA-G22, Work Health and Safety (Construction Work)	Transport for NSW

Document	Publisher
IC-DC-G22, Work Health and Safety (Construction Work)	Transport for NSW
QA Specification R141, Pavement Marking	Transport for NSW
QA Specification R145, Pavement Marking (Performance Based)	Transport for NSW
QA Specification 3352, Fluorescent Plastic Traffic Cones	Transport for NSW
QA Specification 3385, Barrier Boards	Transport for NSW
QA Specification M209, Road Openings and Restorations	Transport for NSW
Schedule of Classified Roads and State and Regional Roads	Transport for NSW
Traffic Signs Register	Transport for NSW
TS200, Register of ITS Field Equipment	Transport for NSW
TSI-SP-049, Traffic Signal Systems	Transport for NSW
TSI-SP-059, Type 1 Portable Traffic Signals	Transport for NSW
TSI-SP-060, Illuminated Flashing Arrow Signs	Transport for NSW
TSI-SP-081, Type 1 Portable Traffic Signals with Boom Barrier	Transport for NSW