

Technical Direction

Traffic Engineering

TETD 2019/03 | RMS.19.1236 – 13 May 2019

Use of Portable Boom Barriers

Summary:	Audience:
<p>A Portable Boom Barrier is a portable traffic control device designed as an alternative to traffic control personnel with hand held STOP/SLOW bats or other devices used to control traffic flow (e.g. portable traffic signals).</p> <p>This technical direction outlines the operational requirements for portable boom barriers in NSW. These devices must only be used for a single-lane operation where the speed is 60km/h or less only.</p>	<ul style="list-style-type: none"> • Designers • Program, Project & Contract managers • Regional Maintenance Delivery • Operations Branch • Network & Safety teams • Industry Partners

Purpose

This Technical Direction outlines the operational requirements for the use of portable boom barrier systems in NSW and should be read in conjunction with the following:

- Roads and Maritime Services (RMS) "Traffic control at work sites" (TCaWS) Technical Manual
- Transport Infrastructure Product Evaluation Scheme (TIPES), Australian Road Research Board

Approvals:

Owner:	Kellee McGilvray Director Traffic Engineering Services	Review Date:	13 May 2022
Authorised by:	Chris Harrison	Effective Date:	13 May 2019

Summary of Use

Considerations	Requirements
Lane Configuration	Single lane in a single direction only (e.g. in shuttle flow situations)
Operation	Manual control (cannot be left unattended)
Speed at Work site	≤ 60km/h

Background

A portable boom barrier (also known as a portable boom gate) is a portable traffic control device designed to support the elimination of risk to traffic control personnel with hand held STOP/SLOW bats by removing them from the live lane of traffic.

A portable boom barrier is manually controlled by a traffic controller via a remote control. The use of the remote allows the traffic controller to be removed from the live lane of traffic whilst still enabling them to monitor and control the traffic at roadworks from a safer location. A portable boom barrier can be used as an alternative to other devices such as portable traffic signals.

Specification

There is currently no RMS specification for portable boom barriers. Portable boom barriers are required to have either a Transport Infrastructure Product Evaluation Scheme ('TIPES') certification or RMS type approval.

Installation and Operation

In accordance with Section 5.2.1 of TCaWS the use of a portable traffic control device must be considered prior to use of a manual traffic controller with a STOP/SLOW bat. Where it has been identified that a portable boom barrier is to be used, it must be documented in the traffic management plan (TMP) and supporting risk assessments.

During development of the traffic management plan, consideration should be given to the expected traffic flows, operational efficiency of the device and the expected delay and queue lengths. The "lost time" associated with raising and lowering of the boom should also be considered. The queue length must be estimated and documented in the traffic management plan, to ensure the traffic control plan (TCP) is designed appropriately and the traffic impacts are acceptable from road user perspective. In higher traffic flows there may also be a reduced ability for drivers to anticipate the lowering of the boom.

Portable boom barriers may not be suitable in all traffic environments and must only be used in locations where there will be sufficient gaps in traffic to safely lower the boom. Traffic monitoring must be undertaken to identify adverse driving behaviour such as heavy braking or swerving on approach to the boom. In the event of frequent adverse driver behaviour, consideration should be given to additional control devices such as cones, temporary kerbing or bollards to deter motorists swerving or from driving around the boom

barrier. If adverse behaviour continues to occur, the replacement of the portable boom barrier with an alternative form of traffic control must be considered.

Equipment Installation

When installing a portable boom barrier, appropriate manual handling techniques should be used in the set-up, pack up and transportation of the device. In addition the portable boom barrier must be installed:

- Where the sight distance between the device and oncoming traffic is at least 1.5D. A distance less than 1.5D may be used if a site-specific risk assessment has been undertaken and additional measures are adopted to ensure traffic controller safety. For “Dimension D” refer to TCaWS CI 2.11, AS1742.3 CI 4.1.5
- In a location clear of overhead hazards or obstructions
- So the end of the boom is 500mm from the edge of the adjoining travel lane
- So that additional weight can be added to the stability legs via sandbags or other stabilisation methods if winds greater 50km/h are expected during operation
- In accordance with the manufacturer’s operation manual and guidelines

At the end of the work shift the portable boom barrier must be removed from the traffic lane. The barrier must be stored in a safe location outside of the clear zone or behind barriers.

Equipment Operation

Portable boom barriers must only be used under the following conditions:

- When under the direct control of an authorised traffic controller who is trained and competent in the operation of the specific proprietary product. The system must not be left unattended during operation
- In a single-lane of traffic in a single direction. Two portable boom barriers may be used when controlling a single lane in opposite directions where either shuttle flow or plant crossing control is required
- In accordance with the same general operating principles and procedures used by a manual traffic controller with a hand held STOP/SLOW bat in single lane operation
- In worksites where the traffic speed in the work zone is 60km/h or less
- When there are sufficient gaps in traffic to allow for the predictable and safe lowering of the boom without adversely affecting driver behaviour

During the operation of a portable boom barrier:

- Queue lengths and driver behaviour should be regularly monitored and reviewed. Controls must be implemented to mitigate the risk of adverse driver behaviour if swerving, adverse braking or end of queue incidents are observed. These events and any additional controls implemented must also be recorded.
- If two or more traffic controllers are required to operate the system, each traffic controller must be equipped with radio communication
- Traffic controllers are not to use STOP/SLOW signage that may conflict with the portable boom barrier
- Items not directly related to the operation of the product must not be attached to the unit (such as roadwork signage) unless it has been approved by Traffic Engineering Services

Low visibility and night time operation

When operating a portable boom barrier in low visibility environments such as fog, low light or under night conditions, the area in which it is to be used must be sufficiently lit as to ensure the visibility of the boom to road users.

Traffic Controller Requirements

In addition to the standard requirements for traffic controllers in accordance with TCaWS, the following specific considerations should be taken into account when using portable boom barriers.

Number of Traffic Controllers Required

A risk assessment must be conducted to determine the number of traffic controllers required to operate the portable boom barriers. The risk assessment should consider the safe location of the traffic controller in relation to their visibility of the portable boom barriers and traffic. A single traffic controller can operate up to two portable boom barrier devices.

Location of Traffic Controllers

Traffic Controllers operating the portable boom barriers must be positioned:

- Off the road pavement and out of the travel lane or path of vehicles
- With a clear and predetermined escape route
- With clear visibility of the portable boom barrier and the front of traffic queues. For a single traffic controller operating two barriers, visibility of both barriers and the front of traffic queues for each approach is required
- Behind a safety barrier where available

The location of the traffic controller should be determined by a risk assessment which must consider:

- Weather conditions, lighting, road geometry and roadside objects that may obstruct visibility or the escape route
- Road side conditions such as long grass or vegetation, uneven and sloping surfaces or other hazards that may be a risk to workers on foot
- Radio signal range between the portable boom barrier and the remote controls
- Visibility of traffic controllers to motorists to encourage compliance

Signage

Advanced warning needs to be given to alert motorists of the portable boom barrier ahead. The placing of the sign T1-35N (**Figure 1** below) must be as per Section 2.11 of the TCaWS manual with all other relevant advanced warning signs required in the TCP. When the device is not in operation, these signs must be covered or removed. A recommendation of the worksite layout is contained in Appendix A.

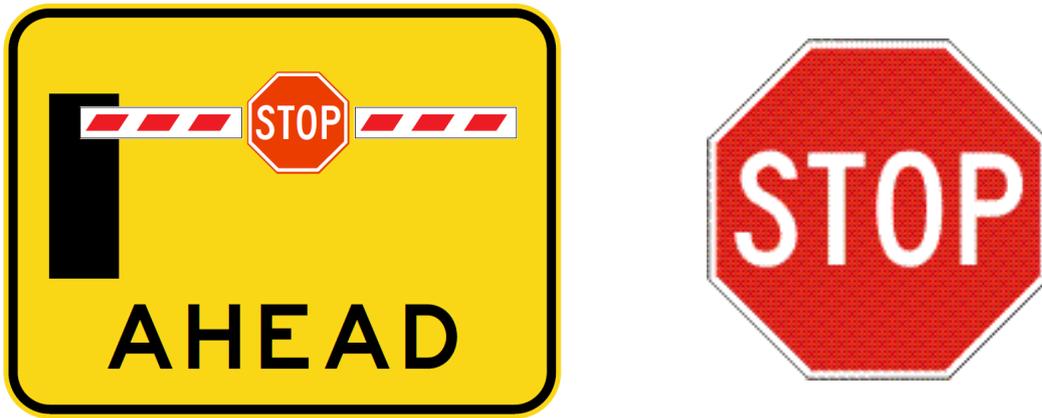


Figure 1 - Portable Boom Barrier Ahead sign (T1-35N) and Stop Sign (R1-1)

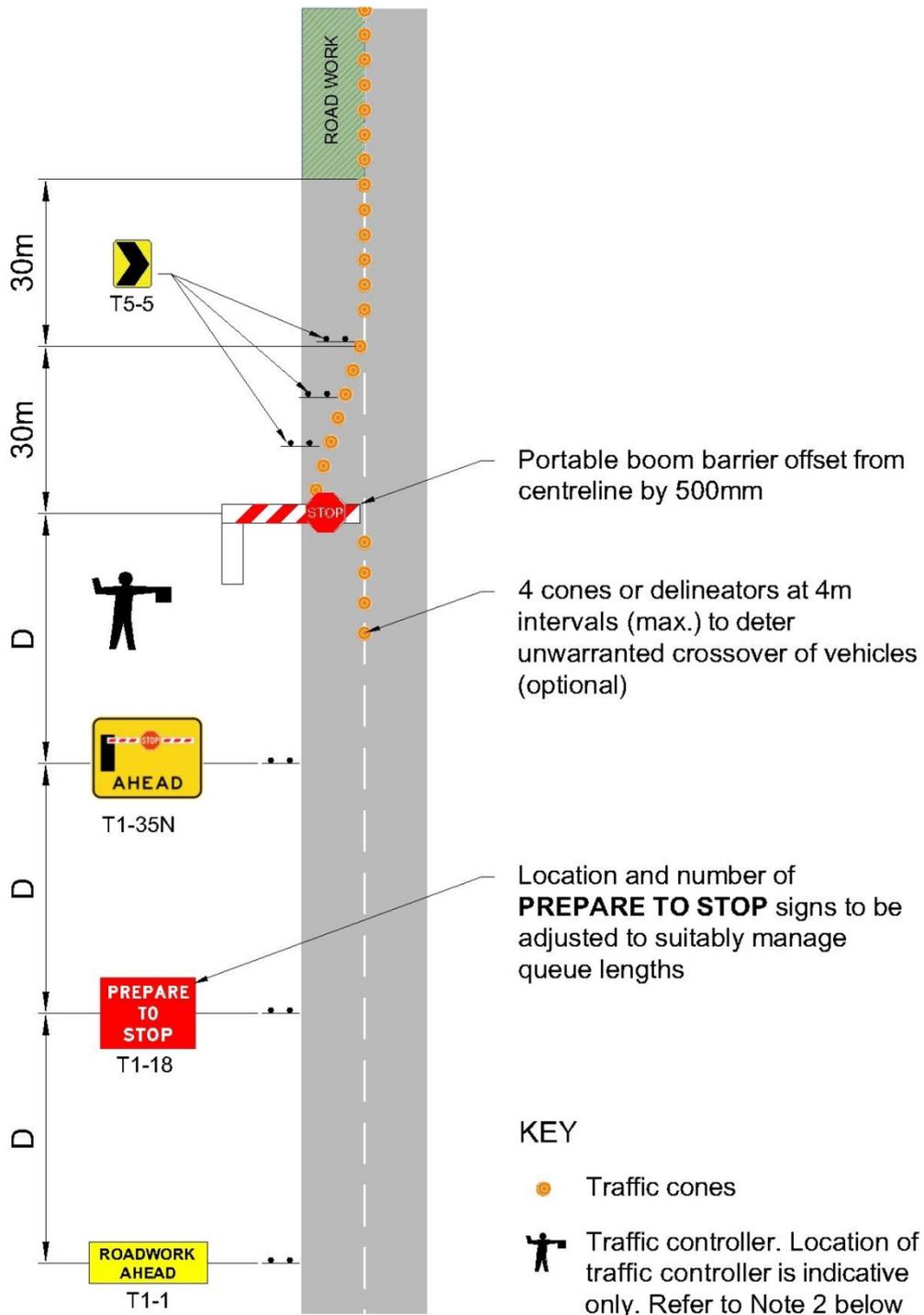
The Stop Sign (R1-1) must be installed on the boom barrier so that it is positioned vertically and horizontally in the centre of the boom, and is clearly visible to approaching road users.

Critical faults:

If a critical fault occurs, traffic controllers with STOP/SLOW bats must be available to perform traffic control for each portable boom barrier.

The traffic management plan must specify how any unexpected occurrences in terms of equipment or control will be managed to ensure the safety of workers and road users is not compromised.

Appendix A – Recommended layout for a Portable Boom Barrier



Notes

1. Speed reduction signage not shown for clarity
2. Position of traffic controller to be off road pavement in a location with clear escape route. Location of "safe zone" is to be determined on site and in preparation of the Traffic Management Plan (or equivalent)

References:

- *AS1742.3 Manual of Uniform Traffic Control Devices - Traffic control for works on road*, Standards Australia
- *Traffic Control at Work Site (TCaWS) Manual*, Roads and Maritime Services
- *Transport Infrastructure Product Evaluation Scheme, (TIPES)* Australian Road Research Board



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