Traffic Engineering Manual

Volume 3 – Additional Network Standards and Guidelines

Part 2.21

Use of Innovative Traffic Control Devices for Works on Roads

Edition 1.0, September 2022

VICTORIA State Government | Department of Transport

Traffic Engineering Manual Volume 3

Additional Traffic Engineering Standards and Guidelines

Document purpose

This document is a Department of Transport (DoT) Additional Traffic Engineering Standards and Guidelines document.

The aim of this document is to provide practitioners guidance on a topic not covered (or not covered sufficiently) by other national or state standards and guidelines.

Practitioners are advised that guidance in this document be followed in order to achieve best practice outcomes.

Document hierarchy

This document has been published as a *Guideline* in DoT's document hierarchy. A *Guideline* contains relevant engineering knowledge which MUST be acknowledged and considered by a practitioner.

Where information contained in this guideline cannot be followed, the practitioner should seek technical advice from DoT and gain acceptance (where necessary) for a departure from the content in this guideline.

Document information and revision history

Further document information and revision history can be found at the end of this document.

CONTENTS

1 INTRODUCTION

Department of Transport (DoT) is supportive of the use of innovative treatments, products and devices that are proven to be safe and effective. Innovative traffic control devices for works on roads that are introduced to Victoria generally fall under two categories;

- State (DoT) Led; and
- Industry Led.

1.1 State (DoT) led innovative traffic control devices for works on roads

Where there is a problem or new opportunity that warrants the consideration of State (DoT) investment in an innovative traffic control device for works on roads, **it can be considered for trial use and evaluation on DoT managed roads in accordance with *TEM Vol 3, Part 2.01 – Conducting on-road trials of new and innovative treatments* guideline**.

The *Conducting on-road trials of new and innovative treatments* guideline provides a framework for DoT to conduct a thorough on-road trial and evaluation of new and innovative treatments, products and devices and is based on the 6 principles listed below (detail on how to apply each of these principles can be found in the document):

- Principle 1: Ensure that any proposed new or innovative treatment is a viable option that addresses an identified problem or offers a new opportunity.
- Principle 2: Minimise, as far as practicable, all safety, legal, reputational and financial risks associated with the on-road trial.
- Principle 3: Ensure that the on-road trial will enable the benefits and disbenefits of a new or innovative treatment to be evaluated.
- Principle 4: Identify and engage key internal and external stakeholders to ensure that the on-road trial is conducted in a robust and efficient manner.
- Principle 5: If there are unacceptable safety, operational or other adverse impacts during a trial, or the trial is unsuccessful, trial sites must be reinstated to their original, or acceptable, condition as soon as practicable.
- Principle 6: The outcome of the trial is to be communicated to all key stakeholders.

***TEM Vol 3, Part 2.01 – Conducting on-road trials of new and innovative treatments* guideline shall be used for State (DoT) led innovative traffic control devices for works on roads. Section 2 onwards of the *Use of Innovative Traffic Control Devices for Works on Roads* guideline (this guideline) DOES NOT apply for these State (DoT) led type situations.**

1.2 Industry led innovative traffic control devices for works on roads

From time to time, industry proponents will approach DoT seeking to bring an innovative traffic control device for works on roads to the market. **For these industry led type situations, Section 2 onwards of the *Use of Innovative Traffic Control Devices for Works on Roads* guideline (this guideline) applies.**

Note: Innovative traffic control devices for works on roads led by other State Authorities should discuss the preferred approach to product evaluation with DoT.

2 USE OF INNOVATIVE TRAFFIC CONTROL DEVICES FOR WORKS ON ROADS (INDUSTRY LED)

2.1 Overview

Industry led innovative traffic control devices for works on roads should first obtain assessment through either of the following schemes:

- Austroads – Innovative Temporary Traffic Management Device and Solution Assessment (AITDSA) scheme; or

https://austroads.com.au/network-operations/temporary-traffic-management/AITDSA

- Australian Road Research Board (ARRB) – Transport Infrastructure Product Evaluation Scheme (TIPES).

www.arrb.com.au/tipes

Both of these schemes are recognised by DoT as being independent, fit-for-purpose, end-to-end approaches to the assessment of innovative products.

Innovative traffic control devices for works on roads that are AITDSA recommended or TIPES certified will be accepted by DoT for use on its roads (as part of an authorised Traffic Management Plan) in accordance with the stated application of the product, any associated conditions and product user guides and/or instructions.

Industry proponents should consider their preference of either scheme in relation to their innovative traffic control device.

2.2 Authorisation to use as part of a Traffic Management Plan

When innovative traffic control devices for works are introduced on the Victorian road network there are additional risks that need to be considered. These additional risks may arise from the device itself, how it is used and the environment in which it is being used. Innovative devices may have a direct safety impact when being developed, trialled and implemented on a road if associated risk is not carefully considered.

Other factors may also present risk, such as road user behaviours associated with being unfamiliar with the traffic control device through to operators being unfamiliar with the certified parameters and operational requirements for use. These risks should be taken into consideration when ascertaining whether or not a device should be used, and as such, so should the availability of higher levels of risk control.

For these reasons, the use of AITDSA recommended or TIPES certified innovative traffic control devices for works on roads are subject to DoT authorisation on a case-by-case basis as part of the Memorandum of Authorisation (MOA) application process.

As part of the MOA application process:

The applicant should:

- Include a declaration of the use of the AITDSA recommended or TIPES certified innovative traffic control device on the submitted MOA form.
- Include a copy of the current TIPES certification for the device.
- Include the innovative traffic control device in the Traffic Management Plan (TMP). The TMP shall be site specific (not generic) and include specific detail for the use of the innovative traffic control device such as:
    - A risk assessment.
    - The relevant, site specific Traffic Guidance Scheme (TGS) in use for the project detailing the device and where it will be used.
    - The type of road and road traffic volume.
    - Any associated Safe Work Method Statement (SWMS) or operational procedures used to provide a safe system of work for the device.
    - Any other information required to be included as per the Road Safety (Traffic Management) Regulations 2019, Part 4 – Traffic Management Plans.
- Include a completed checklist for the use of the innovative traffic control device (see Figure 3).

  Note: Figure 3 is a generic checklist that should be adapted by operational areas to suit the product and any AITDSA or TIPES stated application of the product, associated conditions and product user guides and/or instructions. Examples of adapted checklists have been provided in Appendices B and C.

The DoT assessor should:

- Confirm that the innovative traffic control device is listed as either an AITDSA recommended or TIPES certified product by visiting the Austroads and ARRB websites (see Section 2.1).

  Note: Appendix A contains a list of AITDSA recommended and TIPES certified products at the time of publishing this document, however practitioners should always refer to the AITDSA and TIPES websites as new products may be added from time to time.

- Complete a checklist as part of its assessment of the use of the innovative traffic control device (see Figure 4).

  Note: Figure 4 is a generic checklist that should be adapted by operational areas to suit the product and any AITDSA or TIPES stated applications of the product, associated conditions and product user guides and/or instructions. Examples of adapted checklists have been provided in Appendices B and C.

If 'yes' has been answered to all of the questions in the abovementioned checklists, the assessor may accept the innovative traffic control device for use as part of the MOA application and continue to assess the submission in accordance with DoT permitting procedures.

The application for the use of innovative traffic control devices for works on roads may be rejected by DoT if higher levels of risk control are considered more suitable through the review process.

User / operator to complete

USER / OPERATOR checklist for the use of *<INSERT PRODUCT NAME>* on DoT managed roads

Project: .....

Location: .....

Have you familiarised yourself with the *<INSERT PRODUCT NAME>* AITDSA recommendation / TIPES certification and attached it to your application for a Memorandum of Authorisation (MOA)?

☐ Yes ☐ No ☐ Not sure

Is the planned use of *<INSERT PRODUCT NAME>* and associated planned controls considered the highest most practical safety control as per the 'Hierarchy of Safety Controls' requirements of the Code of Practice for Worksite Traffic Management?

☐ Yes ☐ No ☐ Not sure

Has a site specific, compliant Traffic Management Plan (TMP) been developed in accordance with the Road Safety (Traffic Management) Regulations 2019, Part 4 – Traffic Management Plans, detailing the use of *<INSERT PRODUCT NAME>* including a risk assessment identifying risks such as excessive wind gusts, visibility, traffic volumes, traffic speed, training of users in assembly and operational procedures, etc.?

☐ Yes ☐ No ☐ Not sure

Has the TMP and all supporting documentation been attached to your application for a MOA?

☐ Yes ☐ No ☐ Not sure

Have relevant personnel been inducted to the requirements of the *<INSERT PRODUCT NAME>* User Manual and trained in accordance with the *<INSERT PRODUCT NAME>* User Manual?

☐ Yes ☐ No ☐ Not sure

Is the planned usage of *<INSERT PRODUCT NAME>* at this road works site in accordance with the stated application of the product and any associated conditions, including:

- *<List specific conditions of use of the product (as per AITDSA or TIPES) here>*
- *<List specific conditions of use of the product (as per AITDSA or TIPES) here>*
- *<List specific conditions of use of the product (as per AITDSA or TIPES) here>*

☐ Yes ☐ No ☐ Not sure

Is the use of *<INSERT PRODUCT NAME>* clearly listed on the Memorandum of Authorisation (MoA) Request Form?

☐ Yes ☐ No ☐ Not sure

Checklist completed by: ..... (Name)

..... (Company and Title)

Figure 3: Generic USER / OPERATOR Checklist

Road Authority to complete

ROAD AUTHORITY checklist for the acceptance of *<INSERT PRODUCT NAME>* on DoT managed roads

Project: .....

Location: .....

Have you familiarised yourself with the *<INSERT PRODUCT NAME>* AITDSA recommendation / TIPES certification attached to the Memorandum of Authorisation (MOA) application?

☐ Yes ☐ No

Is the proposed use of *<INSERT PRODUCT NAME>* detailed in the Traffic Management Plan (TMP) compliant to the operational parameters identified in the TIPES certification?

☐ Yes ☐ No

Has a *USER / OPERATOR Checklist for the use of <INSERT PRODUCT NAME> on Victorian roads* checklist been submitted with all other approval documentation as part of the MOA application?

☐ Yes ☐ No

Have all questions in the *USER / OPERATOR Checklist for the use of <INSERT PRODUCT NAME> on DoT managed roads* checklist been answered with a 'yes'?

☐ Yes ☐ No

If you have answered 'yes' to the above questions and you are comfortable with the submitted information you may continue to assess the planned works in accordance with normal planned works procedures.

Checklist completed by: ..... (Name)

..... (Organisation and Title)

Figure 4: Generic ROAD AUTHORITY checklist

3 APPENDIX A – AITDSA Recommended and TIPES Certified Products

The following is a list of AITDSA recommended and TIPES certified innovative traffic control devices for works on roads products at the time of publishing this document. Practitioners should always refer to the AITDSA and TIPES websites (See Section 2.1) as new products may be added from time to time.

Table 1: AITDSA recommended and TIPES certified innovative traffic control devices for works on roads products

Product	AITDSA / TIPES	Link to Recommendation / Certificate
Portaboom by Traffic and Access Solutions 	TIPES	https://3003125.fs1.hubspotusercontent-na1.net/hubfs/3003125/20220707_Portaboom%20Certificate.pdf
Gibney Barrier by Fulton Hogan 	TIPES	https://3003125.fs1.hubspotusercontent-na1.net/hubfs/3003125/ARRB-5962%20NTRO%20Cert%20Report_GIBNEY_BARRIER%20v5.pdf

Note: At the time of publishing this document, no AITDSA recommendations have been officially issued.

4 APPENDIX B – Portaboom Case Study

At the time of publication of this document, two innovative traffic control devices relating to works on roads had been certified under TIPES. This section provides a summary of each certification, information on how where to find additional information about the product, and some guidance for both industry and road authorities to support the safe and efficient introduction of certified products on Victorian roads.

Product: Portaboom

TIPES Certificate No.: 16/001
https://3003125.fs1.hubspotusercontent-na1.net/hubfs/3003125/20220707_Portaboom%20Certificate.pdf

Date Issued: Initial 15/07/2016, renewed 15/07/2022

Issued to: Traffic and Access Solutions Pty Ltd

Summary of certification: This TIPES certification is issued with respect to the product Portaboom that is used as a traffic control device. Existing, industry accepted traffic management principles, techniques and advanced signage layouts are utilised, with the device acting as the focus for traffic control, in lieu of alternatives (STOP/SLOW bats) as detailed and permitted by relevant road agency requirements. As Portaboom is radio controlled (from a distance of up to 100 metres), the traffic controller is not directly exposed to live traffic, operating within an adjacent safe zone. Up to four devices can be operated by one controller, affording significant operational savings.

A summary of the conditions of the TIPES certification include:

- Portaboom is intended for usage at all road works sites where traffic does not exceed 60 km/h (either in normal operation or when subject to temporary speed management),
- The device is not used in response to any on-site/site specific risk assessment concerns, e.g. excessive wind gusts, visibility, traffic volumes, traffic speed etc.
- The certificate recognises the requirement of operators to comply with all local regulations including traffic management plans and signage approaching the location and on the product. Accordingly this certificate is issued on the condition of compliance with all traffic management requirements within the jurisdiction of use.
- Appropriate and detailed quality control records continue to be maintained with respect to the manufacture, site preparation and installation of Portaboom as detailed in the standard procedures provided by the proponent in its application for TIPES evaluation.

The product has been certified with the following support documents:

- Portaboom User Manual
- Safe Operating Procedure Manual
- A generic Traffic Management Plan

The latest version of these documents can be accessed from: http://www.trafficaccess.com.au/resources

The checklists provided below are examples of those that should be developed by operational areas to support the safe and efficient introduction of Portaboom on Victorian roads. The checklists must be completed with all questions answered 'yes' in order for the device to be accepted for use as part of a traffic management plan.

User / operator to complete

USER / OPERATOR checklist for the use of PORTABOOM on Victorian roads

Project: .....

Location: .....

Have you familiarised yourself with the Portaboom TIPES certification and attached it to your application for a Memorandum of Authorisation (MOA)?

☐ Yes ☐ No ☐ Not sure

Is the planned use of Portaboom and associated planned controls considered the highest most practical safety control as per the 'Hierarchy of Safety Controls' requirements of the Code of Practice for Worksite Traffic Management?

☐ Yes ☐ No ☐ Not sure

Has a site specific, compliant Traffic Management Plan (TMP) been developed in accordance with the Road Safety (Traffic Management) Regulations 2019, Part 4 – Traffic Management Plans, detailing the use of Portaboom including a risk assessment identifying risks such as excessive wind gusts, visibility, traffic volumes, traffic speed, training of users in assemble and operational procedures, etc.?

☐ Yes ☐ No ☐ Not sure

Has the TMP and all supporting documentation been attached to your application for a MOA?

☐ Yes ☐ No ☐ Not sure

Have relevant personnel been inducted to the requirements of the Portaboom User Manual and trained in accordance with the Portaboom User Manual?

☐ Yes ☐ No ☐ Not sure

Is the planned usage of Portaboom at this road works site where traffic does not exceed 60 km/h (either in normal operation or when subject to temporary speed management)

☐ Yes ☐ No ☐ Not sure

Has the Traffic Guidance Scheme (TGS) for this site been developed with consideration of the generic TGS as part of Portaboom certification?

☐ Yes ☐ No ☐ Not sure

Is the use of 'TIPES certified Portaboom' clearly listed on the Memorandum of Authorisation (MoA) Request Form?

☐ Yes ☐ No ☐ Not sure

Checklist completed by: ..... (Name)

..... (Company and Title)

Road Authority to complete

ROAD AUTHORITY checklist for the acceptance of PORTABOOM on Victorian roads

Project: .....

Location: .....

Have you familiarised yourself with the Portaboom TIPES certification attached to the Memorandum of Authorisation (MOA) application?

☐ Yes ☐ No

Is the proposed use of Portaboom detailed in the Traffic Management Plan (TMP) compliant to the operational parameters identified in the TIPES certification?

☐ Yes ☐ No

Has the *USER / OPERATOR Checklist for the use of PORTABOOM on Victorian roads* checklist been submitted with all other approval documentation as part of the MOA application?

☐ Yes ☐ No

Have all questions in the *USER / OPERATOR Checklist for the use of PORTABOOM on Victorian roads* checklist been answered with a 'yes'?

☐ Yes ☐ No

If you have answered 'yes' to the above questions and you are comfortable with the submitted information you may continue to assess the planned works in accordance with normal planned works procedures.

Checklist completed by: ..... (Name)

..... (Organisation and Title)

DoT acknowledges the collaboration from Traffic and Access Solutions Pty Ltd in the development of the example industry and road authority checklists for the use of Portaboom.

5 APPENDIX C – Gibney Barrier Case Study

Product: Gibney Barrier (Australian Model)

TIPES Certificate No.: 21TCD01
https://3003125.fs1.hubspotusercontent-na1.net/hubfs/3003125/ARRB-5962%20NTRO%20Cert%20Report_GIBNEY_BARRIER%20v5.pdf

Date Issued: Initial 26/02/2021, revised 30/08/2022

Issued to: Fulton Hogan Australia Pty Ltd

Summary of certification: This TIPES Certificate is issued with respect to the Australian model of the Gibney Barrier that is used as a TCD. Existing, industry and road agency accepted traffic management principles, techniques and advanced signage layouts are utilised, with the device acting as the focus for traffic control, in lieu of alternatives (STOP/SLOW bats). As Australian model of the Gibney Barrier incorporates an extendable 'boomerang handle', the TC's exposure to live traffic and risk of impact by an errant vehicle is much reduced. As with 'STOP/SLOW' bats, Gibney Barriers are operated in pairs.

A summary of the TIPES certification's intended application of the product includes:

- The Australian model of the Gibney Barrier is intended for usage by Fulton Hogan (and its approved sub-contractors) at its road works sites.
- The device is to be used at locations / in situations where a traditional STOP/SLOW bat would be adopted as the default solution.
- The device is not used in response to any on-site/site specific risk assessment concerns, e.g. excessive wind gusts, visibility, traffic volume and composition, compliance of traffic with speed controls etc.
- The Applicant has devised a dedicated TCD Decision Tree Flowchart to guide decision making on selection and retention of a device on a site-by-site basis.
- Full compliance with a Traffic Management Plan (TMP) or Traffic Control Plan (TCP) which has been pre-approved with the client for the works is essential.

The product has been certified with the following support documents:

- Gibney Barrier Operators Guide
- Traffic Control Decision Tree (AU Edition)
- Generic TGSs

The latest version of these documents can be accessed from: https://www.fultonhogan.com/move-traffic-controllers-out-of-live-lanes/

The checklists provided below are examples of those that should be developed by operational areas to support the safe and efficient introduction of Gibney Barrier on Victorian roads. The checklists must be completed with all questions answered 'yes' in order for the device to be accepted for use as part of a traffic management plan.

User / operator to complete

USER / OPERATOR checklist for the use of GIBNEY BARRIER on DoT managed roads

Project: .....

Location: .....

Have you familiarised yourself with the Gibney Barrer (Australian Model) TIPES certification and attached it to your application for a Memorandum of Authorisation (MOA)?

☐ Yes ☐ No ☐ Not sure

Is the planned use of Gibney Barrier (Australian Model) being used at locations / in situations where a traditional STOP / SLOW bat would otherwise be adopted in accordance with the Austroads Guide to Temporary Traffic Management?

☐ Yes ☐ No ☐ Not sure

Is the planned use of Gibney Barrer (Australian Model) and associated planned controls considered the highest most practical safety control as per the 'Hierarchy of Safety Controls' requirements of the Code of Practice for Worksite Traffic Management?

☐ Yes ☐ No ☐ Not sure

Has the Fulton Hogan Traffic Control Decision Tree been used in the correct use of the Gibney Barrer (Australian Model)?

☐ Yes ☐ No ☐ Not sure

Has a site specific, compliant Traffic Management Plan (TMP) been developed in accordance with the Road Safety (Traffic Management) Regulations 2019, Part 4 – Traffic Management Plans, detailing the use of Gibney Barrier (Australian Model) including a risk assessment identifying risks such as excessive wind gusts, visibility, traffic volumes, traffic speed, training of users in assemble and operational procedures, etc.?

☐ Yes ☐ No ☐ Not sure

Has the TMP and all supporting documentation been attached to your application for a MOA?

☐ Yes ☐ No ☐ Not sure

Have relevant personnel been inducted to the requirements of the Fulton Hogan Operators Guide: The Gibney Barrier and trained in accordance with Fulton Hogan Operators Guide: The Gibney Barrier?

☐ Yes ☐ No ☐ Not sure

Has the Traffic Guidance Scheme (TGS) for this site been developed with consideration of the generic TGS as part of Gibney Barrer (Australian Model) certification?

☐ Yes ☐ No ☐ Not sure

Is the use of 'TIPES certified Gibney Barrer (Australian Model)' clearly listed on the Memorandum of Authorisation (MoA) Request Form?

☐ Yes ☐ No ☐ Not sure

Checklist completed by: ..... (Name)

..... (Company and Title)

Road Authority to complete

ROAD AUTHORITY checklist for the acceptance of GIBNEY BARRIER on DoT managed roads

Project: .....

Location: .....

Have you familiarised yourself with the Gibney Barrer (Australian Model) TIPES certification attached to the Memorandum of Authorisation (MOA) application??

☐ Yes ☐ No

Is the proposed use of the Gibney Barrier (Australian Model) detailed in the Traffic Management Plan (TMP) compliant to the operational parameters identified in the TIPES certification?

☐ Yes ☐ No

Has a *USER / OPERATOR Checklist for the use of GIBNEY BARRIER on Victorian roads* checklist been submitted with all other approval documentation as part of the MOA application?

☐ Yes ☐ No

Have all questions in the *USER / OPERATOR Checklist for the use of GIBNEY BARRIER on Victorian roads* checklist been answered with a 'yes'?

☐ Yes ☐ No

If you have answered 'yes' to the above questions and you are comfortable with the submitted information you may continue to assess the planned works in accordance with normal planned works procedures.

Checklist completed by: ..... (Name)

..... (Organisation and Title)

DoT acknowledges the collaboration from Fulton Hogan in the development of the example industry and road authority checklists for the use of Gibney Barrier.

6 DOCUMENT INFORMATION

Title:	Use of Innovative Traffic Control Devices for Works on Roads
Edition:	1.0
Department:	Assets and Engineering
Directorate:	Standards and Transport Engineering
Lead Author(s):	Road Engineering Standards
Authorised by:	Principal Engineer – Road and Traffic, Standards and Transport Engineering
Date of Authorisation:	September 2022

Document Revision History			
Edition / Revision	Pages(s)	Issue Date	Amendment Description
Edition 1.0	All	September 2022	First Edition

This document is also available in an accessible format at transport.vic.gov.au