AS 1742.7:2016
(Incorporating Amendment No. 1)

AS 1742.7:2016

Australian STANDARD

Manual of uniform traffic control devices

Part 7: Railway crossings

STANDARDS Australia

This Australian Standard® was prepared by Committee MS-012, Road Signs and Traffic Signals. It was approved on behalf of the Council of Standards Australia on 11 February 2016.
This Standard was published on 21 March 2016.

The following are represented on Committee MS-012:

- ARRB Group—Australian Road Research Board
- Association of Consultants in Access Australia
- Australian Automobile Association
- Australian Chamber of Commerce and Industry
- Australian Industry Group
- Australian Motorcycle Council
- Austroads (Representative from VicRoads)
- Department of Lands, Planning and the Environment, NT
- Department of Territory and Municipal Services ACT
- Department of Transport and Main Roads, Qld
- Institute of Public Works Engineering Australasia
- Main Roads Western Australia
- Rail Industry Safety and Standards Board
- Roadmarking Industry Association of Australia
- Roads and Maritime Services, NSW

Additional Interests:

- Australian Level Crossing Assessment Model (ALCAM) Committee

---

This Standard was issued in draft form for comment as DR2 AS 1742.7:2015.

Standards Australia wishes to acknowledge the participation of the expert individuals that contributed to the development of this Standard through their representation on the Committee and through the public comment period.

Keeping Standards up-to-date

Australian Standards® are living documents that reflect progress in science, technology and systems. To maintain their currency, all Standards are periodically reviewed, and new editions are published. Between editions, amendments may be issued.

Standards may also be withdrawn. It is important that readers assure themselves they are using a current Standard, which should include any amendments that may have been published since the Standard was published.

Detailed information about Australian Standards, drafts, amendments and new projects can be found by visiting **www.standards.org.au**

Standards Australia welcomes suggestions for improvements, and encourages readers to notify us immediately of any apparent inaccuracies or ambiguities. Contact us via email at **mail@standards.org.au**, or write to Standards Australia, GPO Box 476, Sydney, NSW 2001.

AS 1742.7:2016
(Incorporating Amendment No. 1)

Australian Standard®

Manual of uniform traffic control devices

Part 7: Railway crossings

Originated as AS CA14—1935.
Previous edition AS 1742.7—2007.
Fourth edition AS 1742.7:2016.
Reissued incorporating Amendment No. 1 (January 2019).

Published by SAI Global Limited under licence from Standards Australia Limited, GPO Box 476, Sydney, NSW 2001, Australia

ISBN 978 1 76035 429 9

PREFACE

This Standard was prepared by the Standards Australia Committee MS-012, Road Signs and Traffic Signals, to supersede AS 1742.7—2007. It is Part 7 in a series of fourteen Standards which together form the *Manual of uniform traffic control devices*. The series comprises the following Standards:

AS		
1742	Manual of uniform traffic control devices	
1742.1	Part 1:	General introduction and index of signs
1742.2	Part 2:	Traffic control devices for general use
1742.3	Part 3:	Traffic control devices for works on roads
1742.4	Part 4:	Speed controls
1742.5	Part 5:	Street name and community facility name signs
1742.6	Part 6:	Tourist and services signs
1742.7	Part 7:	Railway crossings (this Standard)
1742.9	Part 9:	Bicycle facilities
1742.10	Part 10:	Pedestrian control and protection
1742.11	Part 11:	Parking controls
1742.12	Part 12:	Bus, transit, tram and truck lanes
1742.13	Part 13:	Local area traffic management
1742.14	Part 14:	Traffic signals
1742.15	Part 15:	Direction signs, information signs and route numbering

This Standard incorporates Amendment No. 1 (January 2019). The changes required by the Amendment are indicated in the text by a marginal bar and amendment number against the clause, note, table, figure or part thereof affected.

This revised Standard results from ongoing review by both road authorities and railway companies of the safety requirements at railway crossings.

In addition to clarifications and general improvements, a key change in this revised Standard is that there is a greater emphasis on cooperation between rail companies and road authorities, e.g. through level crossing interface agreements (where they exist). It also provides more information in the appendices, particularly at Appendix D (sight distances), across a range of vehicle types, grades and driving behaviours such that safety decisions can be more risk-based.

The relationship between Australian Standards and publications produced by Austroads should be noted. Australian Standards provide specifications and procedures that ensure that products and services are safe and reliable, and consistently perform the way they are intended. Austroads provides guidance documents that deal with the design, construction maintenance and operation of the road network. Austroads documents are also used by road authorities in New Zealand.

In cases of similar subject matter, Australian Standards and Austroads documents aim to provide information that is consistent, complimentary and supportive of the other. This is the case with the following documents: Austroads, *Guide to Road Safety*, Part 3: *Speed Limits and Speed Management*, Austroads, *Guide to Traffic Management*, Part 5: *Road Management*, and Australian Standard AS 1742.4, *Manual of uniform traffic control devices*, Part 4: *Speed controls*.

Statements expressed in mandatory terms in notes to figures are deemed to be requirements of this Standard.

The terms ‘normative’ and ‘informative’ have been used in this Standard to define the application of the appendix to which they apply. A ‘normative’ appendix is an integral part of a Standard, whereas an ‘informative’ appendix is only for information and guidance.

CONTENTS

Page

Page

APPENDICES

FOREWORD

Uniform standards and practices in the use of signs, markings and other devices at railway crossings are essential in the interests of safety for both rail traffic and road users.

Essential to this compliance is an understanding of the risks inherent at railway crossings. Long, heavy freight trains and high-speed passenger trains constitute a massive energy source that can be highly destructive. Trains, even those moving relatively slowly, cannot be stopped anywhere near as readily as road traffic and this factor may not be apparent to some road users. It is imperative that vehicle occupants do not come into contact with such large energy sources and that road users recognize the need and are given every opportunity to give way to trains.

Problems associated with long and heavy road vehicles can influence both the location and safe operation of crossings. Long and heavy vehicles with slow acceleration from the stopped position can, when sight distance along the railway is poor, have difficulty starting up and clearing a crossing before the arrival of a previously unseen train unless there is some form of active control to warn that a train is approaching. Likewise, long vehicles can present problems if there is an intersection or other vehicular check point close to the crossing on the departure side and the rear of such a vehicle inadvertently fails to clear the conflict area. Appropriate solutions need to be considered for all of these conditions.

Before any works, features or devices (e.g. pedestrian crossing, bus stop, intersection control, temporary works site) are introduced at or in the vicinity of a railway crossing, the relevant road authorities and rail infrastructure managers need to confer (e.g. via level crossing interface agreements where they exist, as per National Rail Safety Law) to determine the most suitable method of handling the situation; especially if those works, features or devices could cause road traffic to queue across the crossing.

Other problems, such as ill-defined crossings which may occur within freight loading areas, and crossings that are only used seasonally or very rarely at any time of the year may present operational and management challenges that can only be partially met (if at all in some cases) by application of this Standard. Where possible, this Standard provides ranges in various parameters such that decisions in these and other situations can be risk based.

Railway crossings should be located to avoid sub-standard geometric features of the road, such as sub-standard curves, reduced pavement widths and vertical obstructions. If this cannot be avoided, special attention should be given to the signing and marking of these features as well as the railway crossing itself. Sub-standard geometric features can lead to increased numbers of crashes not involving trains as well as having an effect on the incidence of vehicle/train collisions.

This Standard does not provide guidance on when a crossing should progress from one hierarchical step in the type of control to the next, i.e. passive control to active control and active control to elimination.

STANDARDS AUSTRALIA

Australian Standard
Manual of uniform traffic control devices

Part 7: Railway crossings

SECTION 1 SCOPE AND GENERAL

1.1 SCOPE

This Standard specifies traffic control devices to be used to control and warn traffic at and in advance of railway crossings at grade. It specifies the way in which these devices are used to achieve the level of traffic control required for the safety of rail traffic and road users, including pedestrians. Requirements and guidance are also given in appendices on the illumination and reflectorization of signs, on their installation and location, and on selection of the appropriate sign size.

1.2 OBJECTIVE

The objective of this Standard is to provide for the uniform application of the traffic control devices specified for each method of control for traffic approaching and using a railway crossing and for the uniform application of safety measures designed to provide the separation of road and rail traffic.

1.3 APPLICATION

This Standard shall apply to new crossings and existing crossings where a change, such as an upgrade or addition of a new vehicle type, is planned. Otherwise, this Standard is not intended to be retrospective.

The requirements of this Standard are not applicable to railway crossings provided for the exclusive use of the occupier of private land or by other people with the knowledge and agreement of the occupier (sometimes known as ‘occupation’ crossings).

1.4 REFERENCED DOCUMENTS

The following documents are referred to in this Standard:

AS	
1428	Design for access and mobility
1428.1	Part 1: General requirements for access—New building work
1742	Manual of uniform traffic control devices
1742.2	Part 2: Traffic control devices for general use
1742.3	Part 3: Traffic control devices for works on roads
1742.4	Part 4: Speed controls
1742.12	Part 12: Bus, transit, tram and truck lanes
1742.14	Part 14: Traffic signals
1743	Road signs—Specification
2144	Traffic signal lanterns
2979	Traffic signal mast arms
7658	Railway infrastructure: Railway level crossings

A1

AS/NZS
1158 Lighting for roads and public spaces
1158.3.1 Part 3.1: Pedestrian area (Category P) lighting—Performance and design requirements
1428 Design for access and mobility
1428.4.1 Part 4.1: Means to assist the orientation of people with vision impairment—Tactile ground surface indicators
1906 Retroreflective materials and devices for road traffic control purposes
1906.1 Part 1: Retroreflective sheeting

HB 197 An introductory guide to the slip resistance of pedestrian surface materials

Austroads
Research Report, AP_R347/09, Heavy Vehicle Sight Distance Requirements at Rail Crossings (Stage 2), November 2009
Guide to Traffic Management
Guide to Road Design

ARRB
ARRB report 'Determination of vehicle average acceleration and grade correction factors based on Austroads project R347/09' May 2014.

National Heavy Vehicle Regulator (NHVR)
PBS Scheme—The Standards and Vehicle Assessment Rules
Available at:
https://www.nhvr.gov.au/road-access/performance-based-standards/about-performance-based-standards

1.5 DEFINITIONS

For the purpose of this Standard, the definitions below apply.

1.5.1 Active control

Control of the movement of vehicular or pedestrian traffic across a railway crossing by devices such as flashing signals, gates or barriers, or a combination of these, where the device is activated prior to and during the passage of a train through the crossing.

1.5.2 Downstream

For the direction of travel of traffic (rail or road), a location that is after a vehicle would pass through a level crossing.

1.5.3 Light rail vehicle/tram (light rail network/tramway)

Urban public transport systems comprising railed vehicles, which commonly but not necessarily travel on streets intermingling with road traffic (e.g. they can be grade separated, or even have completely segregated infrastructure). Light rail vehicles/trams may have exclusive or shared rights of way with road vehicles. They typically maintain separation from other traffic by line of sight.

1.5.4 May

Indicates the existence of an option.

1.5.5 Passive control

Control of the movement of vehicular or pedestrian traffic across a railway crossing by signs and devices, none of which are activated during the approach or passage of a train, and which rely on the road user including pedestrians detecting the approach or presence of a train by direct observation.