



CODE OF PRACTICE - VOLUME TWO - TRAIN SYSTEM [CP2] TRANSADELAIDE INFRASTRUCTURE SERVICES		
PART 4: OPERATIONAL SIGNAGE		DOC. NO. CP-TS-954
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TRACK AND CIVIL INFRASTRUCTURE

CODE OF PRACTICE

VOLUME TWO - TRAIN SYSTEM [CP2]

OPERATIONAL SIGNAGE



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1.0 PURPOSE AND SCOPE

1.1 PURPOSE

The purpose of this part is to set standards to ensure that:

- the design and placement, monitoring and maintenance of operational signage is standardised and fit for purpose;
- operational signage are located to enable drivers to readily interpret the signs and act on them safely.

1.2 PRINCIPLES

This part complies with the principles set out in the “Code of Practice for the Defined Interstate Rail Network”, volume 3, part 1, sub-section 2.3 and volume 4, part 2, section 11.

1.3 SCOPE

This part specifies general procedures for:

- the design/rating and construction of the operational signage shown in sub-section 2.3;
- the determination of adequate line of sight for operational signage; and
- the monitoring and maintenance of operational signage and line of sight.

This part does not include non-operational signage. For non-operational signage refer to CP-TS-965 (Access control and protection):

1.4 DEFINITION

operational sign – An operational sign is a permanent or temporary sign which provides information to, or requires action to be taken by, train crews. In general, operational signage consists of a white or coloured flat surface on which the information is shown in either symbol, number or letter form.

1.5 REFERENCES

1.5.1 Industry codes of practice

- Code of Practice for the Defined Interstate Rail Network, volume 3 (Operations and Safeworking), part 1 (Rules), section 2: Principles and Requirements; sub-section 2.3: Safeworking system – Authority safety management process.
- Code of Practice for the Defined Interstate Rail Network, volume 4 (Track, Civil and Electrical Infrastructure), part 2 (Infrastructure Principles), section 11: Railway signs

1.5.2 TransAdelaide corporate documents

TransAdelaide Common and General Operating Rules

1.5.3 TransAdelaide documents

- TransAdelaide Procedure**
CPRD/PRC/046: Records Management



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b) **CP2**

CP-TS-965: Part 15, Access control and protection

c) **Inspection forms**

Form NS-014: TransAdelaide operational signage inspection form

1.5.4 TransAdelaide drawings

332 A1 83 0039	Track signs - curve speed sign
332 A1 83 0415	Track signs - speed restriction signs
332 A2 82 1500	Track signs - kilometre posts - using 41kg (80lb.) rail
332 A2 88 1403	Track signs - gang whistle signs - portable
332 A3 84 1077	Track marker - fouling point - disc + pin
332 A3 85 0198	Track signs - whistle sign
332 A3 90 3385	Obstruction warning signs - perway
E71/772	"START OF CTC WORKING" sign
E71/773	"END OF CTC WORKING" sign
F1100	"YARD LIMIT" sign
xxx xxxx xx xxx	"CAUTION SLIPPERY WHEN WET" sign
xxx xxxx xx xxx	Red stop/disc signal
xxx xxxx xx xxx	"STOP AND PROCEED UNDER HAND SIGNAL" sign
xxx xxxx xx xxx	Adelaide platform speed sign
xxx xxxx xx xxx	Obstruction "STOP" sign
xxx xxxx xx xxx	Bridge location identification sign
TO BE REVIEWED	



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2.0 DESIGN AND RATING

2.1 GENERAL

2.1.1 This part applies to permanent and temporary infrastructure operational signage that provides information and directions for train crews and includes the following:

- a) permanent speed restrictions including curve and turnout speed restrictions;
- b) temporary speed restrictions including track, work site, warning and caution signs;
- c) protection of work sites and obstructions;
- d) warning signs including whistle signs and advance warning signs;
- e) change of operating systems or parameters, e.g. end/start of CTC working, station yard limits; and
- f) structure, equipment and location identification signs, including station name signs and kilometre signs.

2.1.2 The TransAdelaide Common and General Operating Rules specify operational signage and the operational signage shall be designed so as to be readily recognised by employees working to these rules.

2.2 DESIGN FACTORS

2.2.1 Trackside signs:

- a) shall be positioned to be clearly visible to the train crew of an approaching train during the day and at night;
- b) where practicable, shall be erected on the left hand side of the track;
- c) shall use retroreflective material;
- d) may be erected independently or be fixed to other appropriate infrastructure; and
- e) shall be placed in positions of low hazard.

2.2.2 Except for red and yellow obstruction signs, the reverse sides of trackside signs shall be neutral in appearance.

2.2.3 The meaning of trackside signs may be qualified by the attachment of qualification plates.

2.2.4 Qualification plates shall be appropriate for the area and application.

2.2.5 Trackside signs may be modified in shape to meet clearance limitations.

2.2.6 Trackside signs e.g “gang whistle signs” may have a border around their perimeter to improve their visibility.



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2.3 DESCRIPTION AND MEANINGS

The operational signage includes those listed as “Current operational signage” in Appendix 1. Trackside signs with the description and meaning of individual signs are as follows:

2.3.1 “START/END OF CTC WORKING” sign – drgs E71/772 and E71/773 respectively

An advice sign indicating the start or end of Centralised Traffic Control system working.

Meaning – Marks the entrance to or exit from C.T.C. working system. Authority to proceed shall be in accordance with C.T.C. working rules.

2.3.2 “YARD LIMIT” sign – drawing Number F1100

An advice sign indicating the limits of a yard erected at a variable distance from the outermost points. Meaning – Marks the entrance to the yard and the limit of movement within the yard.

2.3.3 Fouling disc – drawing number 332 A3 84 1077

An advice marker indicating the clearance point between converging tracks. Meaning – Marks the point where rolling stock will not foul other rolling stock on a converging line.

2.3.4 Red stop disc/signal – drawing number (new drg reqd)

A stop sign indicating where an approaching train is required to stop. Meaning – the train shall stop before reaching the sign.

2.3.5 “STOP AND PROCEED UNDER HAND SIGNAL” sign – drawing number (new drg reqd)

A stop sign indicating where an approaching train is required to stop. Meaning – the train shall stop before reaching the sign, and remain stationary until authorized to proceed.

2.3.6 Kilometre sign – drawing number 332 A2 82 1500

Advice signs located every kilometre on the left hand side of the track in the direction of increasing kilometres. Meaning – Indicates the distance from a set datum in Adelaide railway station.

2.3.7 Level crossing warning sign – drawing number 332 A3 85 0198

An advice sign requiring the train crew member to sound the warning device. Meaning – Sound the warning device.

2.3.8 Permanent speed sign – drawing number 332 A1 83 0039

An advice sign to indicate the maximum speed allowable. A single set of numerals indicates the maximum speed for all trains. More than one set of numerals may be displayed to distinguish the maximum speed applicable to passenger trains (upper) and freight trains (lower). Meaning – When approaching or passing a permanent speed sign, the track speed indicated remains in force until the next change of speed is indicated. Train crews are required to regulate the speed of their train so as not to exceed the speed indicated before passing the sign. Where an increase in speed is indicated, the speed is not to be increased until the whole train has passed the sign.

2.3.9 “CAUTION SLIPPERY WHEN WET” sign – drawing number (new drg reqd)

An advice sign indicating that sections of track ahead may be slippery when wet. Meaning – Drivers are to exercise care when proceeding over the track so affected to avoid slipping and ineffective braking.



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2.3.10 Adelaide platform speed sign – drawing number (new drg reqd)

An advice sign to indicate the maximum speed allowable for trains in Adelaide station platforms. Meaning – When approaching or passing the speed sign, train crews are required to regulate the speed of their train so as not to exceed the speed indicated before passing the sign.

2.3.11 Passenger station name sign – drawing number (new drg reqd)

An advice sign to indicate the name of a station. Meaning – Passengers and train crews will be able to identify the name of a station.

2.3.12 Bridge location identification sign – drawing number (new drg reqd)

An advice sign to indicate the location of a bridge. Meaning – When approaching or passing an underpass or overpass train crews will be able to identify their location if necessary to advise others.

2.3.13 Obstruction warning sign – drawing number 332 A3 90 3385

A caution sign indicating the distance ahead to an obstruction “STOP” sign. Meaning – Train crews are required to regulate the speed of their trains and be prepared to stop at the obstruction “STOP” sign if in place.

2.3.14 Obstruction “STOP” sign – drawing number (new drg reqd)

A stop sign indicating where an approaching train is required to stop. Meaning – the train shall stop before reaching the sign, and remain stationary until the “STOP” sign is removed and authority is received to proceed.

2.3.15 Slow warning sign – drawing number 332 A1 83 0415

A caution sign indicating the distance ahead to a slow marker sign. A single set of numerals indicates maximum speed for all trains. More than one set of numerals may be displayed to distinguish the maximum speed applicable to passenger trains (upper) and freight trains (lower). Meaning – Warning of approach and distance to a slow marker sign. Prepare to slow down and regulate the speed of the train to pass the slow marker sign not exceeding the speed indicated.

2.3.16 Slow warning sign for diverging track – drawing number 332 A1 83 0415

A caution sign indicating for a diverging track, the distance ahead to a slow marker sign. A single set of numerals indicates maximum speed for all trains and an arrow indicates the direction of the divergent track. More than one set of numerals may be displayed to distinguish the maximum speed applicable to passenger trains (upper) and freight trains (lower). Meaning – Warning of approach and distance to a slow marker sign on a diverging track. Prepare to slow down and regulate the speed of the train to pass the slow marker sign not exceeding the speed indicated.

2.3.17 Slow marker sign – drawing number 332 A1 83 0415

A caution sign indicating the start of a temporary speed restriction placed at the point of the restricted speed. A single set of numerals indicates maximum speed for all trains. More than one set of numerals may be displayed to distinguish the maximum speed applicable to passenger trains (upper) and freight trains (lower). Meaning – Train crews are required to



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comply with the speed indicated until the next slow marker sign, speed restriction cancellation sign or increase speed sign.

2.3.18 Speed restriction cancellation sign – drawing number 332 A1 83 0415

An advice sign to indicate the end of a temporary speed restriction to be placed 50m past the end of the restriction. Meaning – Normal speed may be resumed after the whole train has passed the speed restriction cancellation sign.

2.3.19 Increase speed sign – drawing number 332 A1 83 0415

A caution sign indicating within a temporary speed restriction the start of an increased temporary speed restriction placed at the point of increased restricted speed. A single set of numerals indicates maximum speed for all trains. More than one set of numerals may be displayed to distinguish the maximum speed applicable to passenger trains (upper) and freight trains (lower). Meaning – Train crews may increase train speed after the whole train has passed the increase speed sign but are required to comply with the speed indicated until the next slow marker sign, speed restriction cancellation sign or increase speed sign.

2.3.20 Gang whistle sign – drawing number 332 A2 88 1403

An advice sign 500m before a gang working on the track, requiring the train crew member to sound the warning device. Meaning – Sound the warning device.

2.4 TEMPORARY SPEED RESTRICTION SIGN ARRANGEMENTS

Operational and safeworking rules and other information about the actual signs in use shall be obtained directly from the TransAdelaide Common and General Operating Rules.

2.5 LINE OF SIGHT

The line of sight to operating signs should be such that no obstruction is permitted within the sight line when viewed from the driver's normal operating position.

2.6 SIGHTING DISTANCE REQUIREMENTS

The minimum sight distance provided should allow operating signs and fixed signals to be clearly visible at a distance equivalent to a travelling time of not less than 6 seconds at the maximum train speed for the line section.

The line of sight to operating signs and signals should be such that a clear uninterrupted view is offered for a minimum time of 4 seconds when viewed from the driver's normal operating position

2.7 REGISTER OF OPERATIONAL SIGNAGE

- A register providing information on all permanent operating signs shall be established and maintained.
- Temporary speed restrictions will be published on Train Notices.
- Information provided to the operators with regard to permanent and temporary signs shall be promulgated in accordance with the TransAdelaide Common and General Operating Rules.



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3.0 COMMISSIONING

3.1 OPERATIONS DEPARTMENT

The Operations Department shall be consulted on the introduction and placement of any proposed permanent sign before it is erected.



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4.0 MONITORING AND MAINTENANCE

4.1 INSPECTION, ASSESSMENT AND MAINTENANCE ACTIONS

Inspection, assessment and maintenance actions of all authorized permanent or temporary signs shall be in accordance with table 4.1. Walking and general inspections shall be carried out with reference to the register in clause 2.7(a) and the Train Notices in clause 2.7(b). Inspection results shall be recorded on form NS-014 as shown in Appendix 2, using the checklist shown in Appendix 3.

Table 4.1: Signage inspections, assessment and maintenance actions

Type of inspection or action	Specifications and conditions to observe
Scheduled inspections	
Walking inspections	a) Identify visually, and report, obvious 1) operational signage defects or indicators of a defect i.e. damaged, missing or unreadable signs; 2) any location where sight distance is deficient; or 3) any obvious infringements of the line of sight i.e. any location where the view by the train crew of the sign or signal may be obscured. b) Particular attention should be given to temporary signs. c) Intervals between walking inspections shall not exceed 31 days.
General and detailed inspections	a) To also include the tasks of the walking inspection. b) Confirm operational signage conform to the standard designs, are visible, conspicuous, and performing the function intended. c) Line of sight inspections should be carried on-rail to ensure signage complies with sub-sections 2.6 and 2.7. Kilometre signs to be checked and reported if not legible, pushed over or missing. d) Interval between inspections not to exceed three (3) years.
Unscheduled inspections	To be undertaken following the report of a damaged, fallen, obstructed, not visible or missing railway sign.
Assessment and method of assessment	a) Each railway sign shall be assessed for compliance with section 2.0 and section 4.2 b) Line of sight shall be assessed as originating from a train driver's normal operating position for the operational signage being observed.



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Maintenance actions and response	a) Where the signage or line of sight are assessed as non-compliant, appropriate action shall be taken to ensure the immediate safety of operations, e.g. report to Traffic Control for advising train crews of defective signage. b) Follow up action shall then be taken to ensure compliance with section 2.0. c) Where the line of sight is permanently obstructed (i.e. it is not possible to remove the obstruction) for the maximum operating speed, the following action shall be taken: 1) provide previous or advanced warning to drivers of trains; 2) relocate the operational signage; or 3) impose operating restrictions to compensate for the conditions.
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4.2 ASSESSMENT OF LINE OF SIGHT FOR RAIL VEHICLES

The minimum requirement for line of sight distances offering a good visual path is defined in the following Table 4.2, which allows for 6 seconds sighting time.

TABLE 4.2 Line of Sight Distance

Maximum Operating Speed (km/hr)	Distance (metres)
60	100
80	140
90	150
110	185
160	260

Locations where the line of sight is partially obscured such that the requirements of this Clause are not fulfilled should be rectified within 14 days.



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5.0 DOCUMENTATION

5.1 GENERAL AND DETAILED INSPECTION FORM

A TransAdelaide operational signage inspection form (Form NS-014) as shown in Appendix 2, shall be used for inspecting operational signage. Forms shall be:

- a) used for reporting defective signage; and
- d) when completed, shall be retained in accordance with CPRD/PRC/046 Records Management:

5.2 SCHEDULE OF OPERATIONAL SIGNAGE – (See sub-section 2.8)

A schedule of all permanent operational signage and their locations shall be maintained in accordance with CPRD/PRC/046 Records Management.

TO BE PREPARED



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A1.0 CURRENT OPERATIONAL SIGNAGE

Table A1.1: Current operational signage

Type of operational signage	Drawing no.
PERMANENT SIGNS	
"START OF CTC WORKING" sign	E71/772
'END OF CTC WORKING" sign	E71/773
"STOP" sign	*New plan requd*
"STOP AND PROCEED UNDER HAND SIGNAL" sign	*New plan requd*
Permanent speed sign	332 A1 83 0039
Level crossing warning sign	332 A3 85 0198
"CAUTION SLIPPERY WHEN WET" sign	*New plan requd*
"YARD LIMIT" sign	F1100
Kilometre sign	332 A2 82 1500
Fouling disc	332 A3 84 1077
Red stop disc/signal	*New plan requd*
Adelaide platform speed sign	*New plan requd*
Passenger station name sign	see PTB style guide
Bridge location identification signs	*New plan requd*
TEMPORARY SIGNS	
Obstruction warning sign	332 A3 90 3385
Obstruction "STOP" sign	*New plan requd*
Slow warning sign	332 A1 83 0415
Slow warning sign for diverging track	332 A1 83 0415
Slow marker sign	332 A1 83 0415
Increase speed/speed restriction cancellation sign	332 A1 83 0415
Gang whistle sign	332 A2 88 1403



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A2.0 FORM NS-014

Line: At: km/pole Up/Down/Single

Description of Sign:

Item	Checklist	Yes/No	Action/Comments
Sign Characteristics to Specification	Is lettering/colour correct?		
	Is the shape/size correct?		
	Is the sign reflective?		
Sign Installed to Specification	Is the sign support stable and upright?		
	Is sign facing correct direction?		
	Is the sign in the correct position?		
	Is sign height correct?		
Sign Visible and Conspicuous	Is the line of sight to specification?		
	Is the sign legible at required sight distance?		
	Is the sign present and undamaged?		
	Is the sign present in accordance with the register?		
	Is the sign unobstructed?		
Other problems or potential problems identified	Is the sign not impaired by sun glare?		
	Is the sign visible against background?		
	Is the sign visible by Day?		
	Is the sign visible by Night?		
	Are there any other problems?		

Inspected by: Signature: Date Inspected: / /



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A3.0 OPERATIONAL SIGNAGE SCHEDULED INSPECTION CHECKLIST

Year	Line to be inspected
200*	Belair and stabling yard– Gawler Central and stabling yard - Grange
200*	Noarlunga Centre and stabling yard –Tonsley – Outer Harbor
200*	Adelaide yard and Railcar depot - Tramline

* Indicates applicable year.

A3.1 SIGN INSTALLATION CHECKLIST

- a) Are sign characteristics to drawing or specification? For example:
correct sign (lettering/message/colour);
shape/size;
reflectorization;
sign support.
- b) Is the sign installed to drawing or specification? For example:
facing correct direction;
position along the track;
side of track (left, right, both);
distance from track;
height relative to track;
inclination.
- c) Is the sign visible and conspicuous? For example:
line of sight to specification;
sign legible at required sight distance;
damaged;
missing;
sign obstructed or potential for obstruction.
- d) Have other problems or potential problems been identified? For example:
sun glare;
background;
day/night visibility.
- e) Record if no further action is required