



CODE OF PRACTICE - VOLUME THREE - TRAM SYSTYEM [CP3] TRANSADELAIDE INFRASTRUCTURE SERVICES		
PART 4: OPERATIONAL SIGNAGE		DOC. NO. CP-TS-974
Issue: 1	Date: 22/10/07	Page: 1 of 12

TRACK AND CIVIL INFRASTRUCTURE

CODE OF PRACTICE

VOLUME THREE - TRAM SYSTEM [CP3]

OPERATIONAL SIGNAGE



CODE OF PRACTICE - VOLUME THREE - TRAM SYSTEM [CP3] TRANSADELAIDE INFRASTRUCTURE SERVICES		
PART 4: OPERATIONAL SIGNAGE		DOC. NO. CP-TS-974
Issue: 1	Date: 22/10/07	Page: 2 of 12

TABLE OF CONTENTS

	Page No.
1.0 PURPOSE AND SCOPE	3
1.1 Purpose.....	3
1.2 Principles	3
1.3 Scope	3
1.4 Definition	3
1.5 References	3
2.0 DESIGN AND RATING	5
2.1 General	5
2.2 Design factors	5
2.3 Description and meanings	5
2.4 Temporary speed restriction sign arrangements	7
2.5 Placement and usage	7
2.6 Line of sight	7
2.7 Sighting distance requirements	7
2.8 Register of operational signage	7
3.0 COMMISSIONING	8
3.1 Operations Department	8
4.0 MONITORING AND MAINTENANCE	9
4.1 Inspection, assessment and maintenance actions	9
5.0 DOCUMENTATION	10
5.1 General and detailed inspection form	10
5.2 Schedule of operational signage	10
A1.0 APPENDIX 1: FORM TS-014	11
A2.0 APPENDIX 2: OPERATIONAL SIGNAGE SCHEDULED INSPECTION CHECKLIST	12
A2.1 Sign installation checklist	12

**CODE OF PRACTICE - VOLUME THREE - TRAM SYSTEM [CP3]
TRANSADELAIDE INFRASTRUCTURE SERVICES**

PART 4: OPERATIONAL SIGNAGE		DOC. NO. CP-TS-974
Issue: 1	Date: 22/10/07	Page: 3 of 12

1.0 PURPOSE AND SCOPE**1.1 PURPOSE**

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

- a) the design and placement, monitoring and maintenance of tramline operational signage is standardised and fit for purpose;
- b) operational signage is located to enable tram 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:

- a) the design/rating and construction of the operational signage shown in sub-section 2.3;
- b) the determination of adequate line of sight for operational signage; and
- c) 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-985 (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, tram drivers. 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**

- a) 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.
- b) 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

Motorperson Training Program

1.5.3 TransAdelaide documents

- a) **Track and Structures Management System Procedure Manual**
QP-TS-1601: Control of Management System Records
- b) **CP3**
CP-TS-985: Part 15, Access control and protection
- c) **Inspection forms**
Form TS-014: TransAdelaide operational signage inspection form

**CODE OF PRACTICE - VOLUME THREE - TRAM SYSTEM [CP3]
TRANSADELAIDE INFRASTRUCTURE SERVICES**

PART 4: OPERATIONAL SIGNAGE		DOC. NO. CP-TS-974
Issue: 1	Date: 22/10/07	Page: 4 of 12

1.5.4 TransAdelaide drawings

xxx xx xx xxxx	speed restriction ahead warning sign
xxx xx xx xxxx	speed restriction sign
xxx xx xx xxxx	end speed restriction sign
xxx xx xx xxxx	“Sound horn” sign
332 A2 88 1403	“Gang whistle” sign
xxx xx xx xxxx	section insulator sign
xxx xx xx xxxx	“Hail car here” sign
xxx xx xx xxxx	“End of section” sign
xxx xx xx xxxx	“Compulsory stop” sign
xxx xx xx xxxx	fouling mark
xxx xx xx xxxx	red triangle danger sign
xxx xx xx xxxx	pole numbers
xxx xxxx xx xxx	Passenger tram stop name sign
xxx xxxx xx xxx	Bridge location identification sign
xxx xxxx xx xxx	Obstruction “STOP” sign

NEW DRAWINGS TO BE PREPARED OF ALL OF ABOVE

**CODE OF PRACTICE - VOLUME THREE - TRAM SYSTEM [CP3]
TRANSADELAIDE INFRASTRUCTURE SERVICES**

PART 4: OPERATIONAL SIGNAGE		DOC. NO. CP-TS-974
Issue: 1	Date: 22/10/07	Page: 5 of 12

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 tram drivers 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 “blow horn” signs and advance warning signs;
- e) change of operating systems or parameters; and
- f) structure, equipment and location identification signs, including tram stop name signs and pole number signs.

2.1.2 The Motorperson Training Programme specifies operational signage and the operational signage shall be designed so as to be readily recognized 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 tram driver of an approaching tram 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.

2.2.7 Support for signs shall be designed to withstand wind and be secure.

2.3 DESCRIPTION AND MEANINGS

The operational signage includes those listed in clause 1.5.4. Trackside signs with the description and meaning of individual signs are as follows:

**CODE OF PRACTICE - VOLUME THREE - TRAM SYSTEM [CP3]
TRANSADELAIDE INFRASTRUCTURE SERVICES**

PART 4: OPERATIONAL SIGNAGE		DOC. NO. CP-TS-974
Issue: 1	Date: 22/10/07	Page: 6 of 12

2.3.1 Speed restriction ahead warning sign – drawing number (new drg reqd)

A caution sign placed on the left side of the track five (5) pole lengths before the start of a speed restriction sign. *Meaning* – Warning of approach to a speed restriction sign. Tram drivers are to prepare to slow down and regulate the speed of the tram to approach the speed restriction sign in accordance with the Motorperson Training Program.

2.3.2 Speed restriction sign – drawing number (new drg reqd)

A caution sign placed on the left side of the track at the point where a speed restriction commences indicating the start of a speed restriction. Qualifications on the sign of a numeral, “N1” or “N2” indicate maximum speed for all trams. *Meaning* – Tram drivers are required to comply with the speed indicated, “notch 1” or “notch 2” in accordance with the Motorperson Training Program.

2.3.3 End speed restriction sign – drawing number (new drg reqd)

An advice sign erected on the left side of the track at the point where a speed restriction terminates indicating the end of a speed restriction. *Meaning* – Tram drivers may resume normal speed.

2.3.4 “Sound horn” sign or “gang whistle” sign – drg no. (new drg reqd) or 332 A2 88 1403

An advice sign erected on the left side of the track five (5) pole lengths before the actual working location of the gang. *Meaning* – An indication to tram drivers to sound the horn, reduce speed and proceed with caution and be prepared to stop when approaching the area where the gang is working in accordance with the Motorperson Training Program.

2.3.5 Section insulators sign – drawing number (new drg reqd)

An advice sign either suspended from the overhead and also attached to the pole adjacent to the insulator. *Meaning* – Tram drivers must ensure that power is cut off while the tram pantograph(s) pass(es) under the section insulators.

2.3.6 “Hail car here” sign – drawing number (new drg reqd)

An advice sign erected at every tram stop with the number of the tram stop shown. *Meaning* – The sign indicates to tram drivers where trams are to stop to pick up passengers. It also indicates to passengers from where to hail a tram.

2.3.7 “End of section” sign – drawing number (new drg reqd)

An advice sign erected at the end of each section. *Meaning* – Indicates to the tram driver that it is the end of the section.

2.3.8 “Compulsory stop” sign – drawing number (new drg reqd)

An advice sign erected at tram stops, which are compulsory stops. *Meaning* – Tram drivers must bring the tram to a halt and then proceed normally.

2.3.9 Fouling mark– drawing number (new drg reqd)

Two advice markers placed where there are traffic lights with a tram stop. *Meaning* – The first fouling mark (yellow with black lettering) indicates where the tram is to stop to allow passengers to be set down or picked up. The second fouling mark (black with yellow lettering) indicates to where the tram must move forward, to await the signal to cross the intersection.

**CODE OF PRACTICE - VOLUME THREE - TRAM SYSTEM [CP3]
TRANSADELAIDE INFRASTRUCTURE SERVICES**

PART 4: OPERATIONAL SIGNAGE		DOC. NO. CP-TS-974
Issue: 1	Date: 22/10/07	Page: 7 of 12

2.3.10 Red triangle danger sign – drawing number (new drg reqd)

(This sign is only used on non-street track) A stop sign placed on the left side of the track three (3) pole lengths before an affected section of track. Normally erected by a tram driver on observing a hazard. *Meaning* – Oncoming trams are to stop and then observe the instructions in the Motorperson Training Program.

2.3.11 Pole numbers – drawing number (new drg reqd)

An advice sign indicating the identifying number of overhead conductor support poles. *Meaning* – When approaching or passing a pole tram drivers will be able to identify their location if necessary to advise others.

2.3.12 Passenger tramstop name sign – drawing number (new drg reqd)

An advice sign to indicate the name of a tram stop. *Meaning* – Passengers and tram drivers will be able to identify the name of a tram stop.

2.3.13 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 tram drivers will be able to identify their location if necessary to advise others.

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

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

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 Motorperson Training Programme.

2.5 PLACEMENT AND USAGE

Operational signage shall be placed and used in accordance with the Tram Operations Motorperson Training Programme and in accordance with the line of sight requirements of sub-sections 2.4 and 2.5.

2.6 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 tram driver’s normal operating position.

2.7 SIGHTING DISTANCE REQUIREMENTS

The following apply:

- a) Sighting distance shall be sufficient for the tram driver to sight an approaching sign and interpret it, in time to take action to control the tram so as to minimize the likelihood of not complying with the sign.
- b) Sighting distance shall be determined as not less than the distance calculated to provide a reasonable approach viewing time for the tram driver.

2.8 REGISTER OF OPERATIONAL SIGNAGE

A register providing information on all permanent operating signs shall be established and maintained.



CODE OF PRACTICE - VOLUME THREE - TRAM SYSTEM [CP3] TRANSADELAIDE INFRASTRUCTURE SERVICES		
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PART 4: OPERATIONAL SIGNAGE		DOC. NO. CP-TS-974
Issue: 1	Date: 22/10/07	Page: 8 of 12

3.0 COMMISSIONING

3.1 Operations Department

Tram Operations, Glengowrie Depot, shall be consulted on the introduction and placement of any proposed permanent sign before it is erected.



**CODE OF PRACTICE - VOLUME THREE - TRAM SYSTEM [CP3]
TRANSADELAIDE INFRASTRUCTURE SERVICES**

PART 4: OPERATIONAL SIGNAGE		DOC. NO. CP-TS-974
Issue: 1	Date: 22/10/07	Page: 9 of 12

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 2.8. Inspection results shall be recorded on form NS-014 (see Appendix 1) using the checklist shown in Appendix 2.

Table 4.1: Signage inspections, assessment and maintenance actions

Type of inspection or action	Specific actions and conditions to observe
Scheduled inspections	
Walking inspections	a) Identify visually, and report, obvious <ol style="list-style-type: none"> 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 tram driver 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 signs 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. 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 tramline sign.
Assessment and method of assessment	a) Each tramline sign shall be assessed for compliance with section 2.0. b) Line of sight shall be assessed as originating from a tram driver's normal operating position for the operational sign being observed.
Maintenance actions and response	a) Where the sign 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 tram 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: <ol style="list-style-type: none"> 1) provide previous or advanced warning to drivers of trams; 2) relocate the operational signage; or 3) impose operating restrictions to compensate for the conditions.



CODE OF PRACTICE - VOLUME THREE - TRAM SYSTEM [CP3] TRANSADELAIDE INFRASTRUCTURE SERVICES		
PART 4: OPERATIONAL SIGNAGE		DOC. NO. CP-TS-974
Issue: 1	Date: 22/10/07	Page: 10 of 12

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
- b) 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 QP-IS-501 (Document and Data Control).



CODE OF PRACTICE - VOLUME THREE - TRAM SYSTEM [CP3] TRANSADELAIDE INFRASTRUCTURE SERVICES		
PART 4: OPERATIONAL SIGNAGE		DOC. NO. CP-TS-974
Issue: 1	Date: 22/10/07	Page: 11 of 12

A1.0 APPENDIX 1 – 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: / /

**CODE OF PRACTICE - VOLUME THREE - TRAM SYSTEM [CP3]
TRANSADELAIDE INFRASTRUCTURE SERVICES**

PART 4: OPERATIONAL SIGNAGE		DOC. NO. CP-TS-974
Issue: 1	Date: 22/10/07	Page: 12 of 12

A2.0 APPENDIX 2 - OPERATIONAL SIGNAGE SCHEDULED INSPECTION CHECKLIST

Year	Line to be inspected
200*	Tramline – Adelaide to Glenelg
200*	Tramline – South Terrace to City West

* Indicates applicable year.

A2.1 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