CHAPTER 13: LANE DIRECTION CONTROL SIGNALS

13.1 INTRODUCTION

1 Lane direction control signals are used to signalise reversal of traffic flow along a road lane to accommodate the tidal nature of traffic flow during different times of a day. The signals shall be used to *indicate the permitted direction of traffic movement along a lane of a road and to prohibit the entry of traffic into, and the movement of traffic along, that lane from the opposite direction*. In this way, right of way can be allocated alternately on a predetermined basis, to one of two possible directions of traffic movement in the lane, or lanes, so signalised.

2 Lane direction control signals shall ONLY be used to permit or prohibit traffic movements in situations where *at least one lane is subject to reversals* of the direction of traffic flow. If there is a need for such application, use can be made of VARIABLE MESSAGE SIGNS as described in Chapter 9 of Volume 1 of the Road Traffic Signs Manual.

3 The signal faces that may be used for lane direction control are the S16, S17, S18 and S19 signals shown in Figure 13.1. Permitted variants of the S16 and S17 signal faces are shown in Figure 13.2. The variants S(16)-17 and S16-(17) may be provided as variable signals where both the cross and arrow can be displayed on a single matrix.

4 According to the National Road Traffic Regulations, the STEADY GREEN DOWNWARD-POINTING ARROW SIGNAL S16 is used to ***"indicate to the driver of a vehicle that he or she may drive his or her vehicle in the lane over which the arrow is displayed"***.

5 The STEADY RED CROSS SIGNAL S17 is used to ***"indicate to the driver of a vehicle that he or she shall not drive his or her vehicle in the lane over which the cross is displayed and that the lane is open to vehicles travelling in the opposite direction"***.

6 The YELLOW LEFT AND RIGHT ARROW SIGNALS S18 and S19 are used to ***"indicate to the driver of a vehicle that the lane over which the arrow is displayed is closed ahead and that he or she shall leave the lane in the direction of the arrow when it is safe to do so"***.

13.2 INSTALLATION

1 LANE DIRECTION CONTROL SIGNALS shall comprise of two independently illuminated signal aspects, Types S16, and S17. The signals SHALL be mounted in PAIRS as shown in Figure 13.3, one facing in each direction, centrally over the traffic lane subject to reversal in direction of use.

2 PAIRS of the lane direction control signals S16 and S17 shall be placed at the beginning and end of each lane subject to reversed flow and at intermediate points along the lane that will enable a driver to see at least two light signals at any time, the distance apart not exceeding half the minimum sight distance for urban conditions given in Table 3.1 of Chapter 3 of this manual (Volume 3).

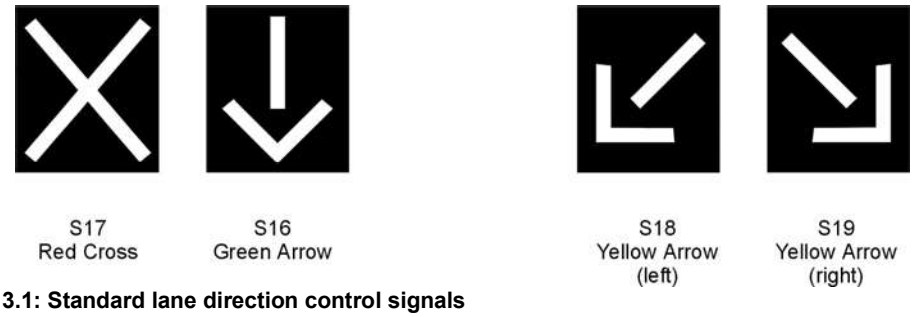

Figure 13.1: Standard lane direction control signals

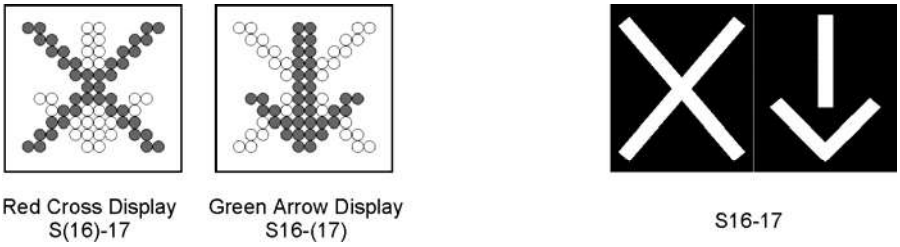

Figure 13.2: Permitted variants of lane direction control signals

3 It is recommended that fixed display lane direction control signals, or fixed "arrow" or "cross" signs, be placed over all OTHER lanes that are not subject to reversible traffic flow, to supplement the LANE DIRECTION CONTROL SIGNALS.

4 LANE DIRECTION CONTROL SIGNALS S18 or S19 may be placed in advance of the lane closure, over the centre of the lane to be closed. Signals S18 or S19 shall be operated on the basis that they are either illuminated or switched off. The signals shall be illuminated when they precede an illuminated S17 RED CROSS signal over the reversible flow lane. If it is necessary to provide a long merging distance, more than one S18 or S19 signal may be used, in sequence, over the approach lane. These signals do not have to be mounted in pairs.

5 The roadway signals S18 or S19 should be located in advance of the lane closure at a distance as given in Table 3.1 in Chapter 3 of Volume 1 of the Road Traffic Signs Manual. This distance should be increased in accordance with the difficulty which traffic may experience in merging with traffic in the adjacent lane.

6 The lane direction control signal faces are normally gantry mounted and the standards for height and clearance are the same as for other signals. The faces may NOT be mounted with the centre of the signal aspects at a height exceeding 6,2 m above the road. There shall also be a vertical clearance of not less than 5,2 m from the road to the lowest part of any light assembly or supporting structure.

7 Light units in South Africa shall conform to the requirements of South African standard specification SANS 1459: *Traffic lights* in regard to light output and colour value of light signals. Details of the light signals, including dimensions, are given in Chapter 10 of Volume 4 of the Road Traffic Signs Manual.

8 Appropriate lane markings, as described in Chapter 7 of Volume 1 of the Road Traffic Signs Manual may be used.

13.3 OPERATION

1 Reversal of the direction of traffic flow along a road lane, or lanes, can be considered where it is beneficial to make use of the tidal nature of traffic flow. Such traffic flow reversals, however, shall be used only where it can be certain that it will operate safely. The technique is not recommended for use on roads with a speed limit exceeding 80 km/h.

2 Careful attention should be given to capacity requirements and channelisation of traffic at each end of the lane(s) subjected to reversed traffic flows. Inadequate capacity to meet the increased directional flow will mitigate against the effectiveness of the action. Some drivers may get confused as to which lanes to use at the terminal points and extra control signals or other measures may be needed at these locations.

3 Traffic flow in any one direction shall be for continuous periods of not less than one hour. Changeover should preferably occur at the same time of each day of the week and when traffic volumes are not at, or near, the peak. It is recommended that there should be no more than two changeovers in one day, i.e. one period of reversed flow per day.

4 Prior to permitting vehicles to use a reversible direction lane, all the signals along each section shall show crosses in both directions to provide sufficient time to ensure that the traffic lane is free of moving or trapped vehicles.

5 Signals may be switched off when not required, provided that in such circumstances the direction of flow of traffic and the bounds of traffic lanes are obvious from other permanent road traffic signs.

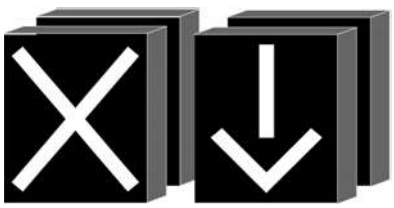

Figure 13.3: Back-to-back mounting of lane direction control signals