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SCOTTISH HOME DEPARTMENT
MINISTRY OF TRANSPORT

Traffic Safety Code for Road Works (on roads other than motorways)



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TRAFFIC SAFETY CODE FOR ROAD WORKS

The Scottish Home Department and the Ministry of Transport after consultation with representative bodies, have prepared the Code set out below to give advice and guidance to highway authorities, statutory undertakers, contractors and others concerned, as to certain measures necessary in the interests of traffic and public safety during road works or other temporary obstruction of the highway. It is considered that consistent practices should be applied throughout the country, except where local conditions make this impossible, and this Code has been prepared to provide a universal standard of good practice for the lighting and marking of these obstructions, as well as for temporary traffic control necessitated thereby.

This Code has no statutory force and, although framed as imperatives, the standards recommended do not in general constitute legal requirements. Attention is, however, drawn to section 8 of the Public Utilities Street Works Act, 1950, as amended by the Ninth Schedule to the Road Traffic Act, 1956.

THE CODE

Part I Lighting and guarding of obstructions

General

1. The lengths of all excavations and temporary obstructions must be kept to a minimum; this applies to intermittent obstructions as well as to continuous ones. Wherever practicable, excavation trenches must be filled in and the carriageway opened to traffic as work progresses.

Marking by day and night

2. Obstruction and excavations must be marked

- (1) by day, by one or more posts carrying red flags or boards with a red ground; and
- (2) by night, by two or more lamps continuously lit and showing a red light,

and all such posts or lamps should be placed so as to indicate to vehicle drivers and pedestrians from any direction the position and full extent of the obstruction.

3. Excavations must be fenced round with posts, rails, ropes or other devices to prevent road users, especially pedestrians and cyclists, from falling into them. A bank of earth or the like, not less than 2 feet in height, may be regarded as a fence for this purpose. The area so fenced should be kept to a minimum consistent with the safety of road users and workmen, and, having regard to the nature of the work being carried out, may be reduced when work is temporarily suspended. Where a footpath is substantially obstructed, the

fencing must provide a passage on the carriageway for pedestrians, protected from passing vehicles.

4. Excavations or obstructions more than 4 feet wide measured at right angles to any line of traffic must be marked with a horizontal pole or horizontal board about 6 inches wide, extending the full width of the obstruction and painted with red and white stripes between one and two feet wide.

5. At night the full width and length of the obstruction must be clearly indicated by lamps continuously lit and showing a red light. If any obstruction or excavation exceeds 4 feet in width measured at right angles to any line of traffic, or 12 feet in length measured parallel thereto, lamps showing the full width must be placed at intervals of not more than 4 feet, and lamps showing the full length must be placed at intervals of not more than 20 feet. In congested town areas, however, the latter interval should be reduced to 12 feet.

6. Where a driver has to change direction to avoid an obstruction an oblique line of lamps may be provided. Where the required change of direction is appreciable however, an illuminated or reflectorised sign or arrow should be provided. In the latter case signs of the type shown in diagrams 142 or 143 of The Traffic Signs Regulations, 1957 must be used.

7. It will often be an advantage to have red reflectors on barriers protecting obstructions, but such reflectors must be in addition to, not in substitution for, red warning lamps.

8. Care must be taken to ensure that any lights are not misleading to rail, water or air traffic. In any cases of doubt the railway, harbour, port, river or airfield authority should be consulted.

9. The term "night" in this Code is intended to cover a period not less than the official hours of darkness during which lights are required to be shewn on moving vehicles; i.e. from half-an-hour after sunset to half-an-hour before sunrise, and also any time when visibility is seriously reduced, for instance by fog.

Authorised Advance Warning and Warning Signs

10. Only advance warning and warning signs of a prescribed size, colour and type may be used. They are shown in diagrams Nos. 159 to 165 inclusive of The Traffic Signs Regulations, 1957, and they all have white letter on a signal red ground. For convenience in mounting they are of only two sizes, 3'6" x 2'6" (Large) or 2'0" x 1'4" (Small). The following legends are available:-

Advance Warning (Large)

Road Works Ahead
Traffic Signals Ahead
Traffic Control Ahead

Warning (Small)

Road Works
Keep Left
Keep Right
Pass Either Side
Pedestrians Look Left
Pedestrians Look Right

Warning (Large)
Single File Traffic
Temporary Road Surface
Wet Tar Please Drive Slowly
Loose Chippings Please Drive Slowly
Beware Ramp

Illumination of Signs

11. Advance warning signs and warning signs must be clearly visible to approaching drivers by night as well as by day. On roads where headlamps are normally used this can be achieved by the use of reflectors or reflecting material, but where headlamps are not normally used, the signs must be provided with their own lamps, screened from the direct view of approaching drivers. It will not normally be sufficient to rely on street lighting.

12. Attention is drawn to the provisions of Regulations 18 and 19 of The Traffic Signs Regulations, 1957, which deal with the illumination of prescribed signs by lighting or by the use of reflectors or reflecting material.

Advance Warning Signs

13. When an excavation or obstruction is not clearly visible for a distance of at least 25 yards from any direction when the site is on a road subject to the 30 m.p.h. speed limit, and at all other sites irrespective of visibility, an appropriate advance warning sign or signs must be placed on the nearside of the road. In one-way streets, on sharp left-hand bends, off-side of the road or on the central reservation. Wherever possible, advance warning signs must be placed on the kerb or verge, and not on the carriageway.

14. The signs must be at least 25 yards from the obstruction, but on roads not subject to the general speed limit of 30 m.p.h. this minimum distance should be increased, depending on the speed of the traffic using the road, e.g. to not less than 50 yards where the normal speed of most traffic is 40 m.p.h. and not less than 100 yards, where this speed is 60 m.p.h.

15. Where there is an entering or intersecting road between the obstruction and the advance warning sign, sign must also be placed on the side road not less than 10 yards from the junction.

16. The distances given in the two preceding paragraphs are to be regarded as minima. Greater distances of, say, half as much again will normally be appropriate.

Warning Signs at the obstruction

17. The signs must give a clear warning of the danger and should be so located that they are not masked by obstructions in the vicinity. Care must be taken that they are not easily blown or knocked over.

Moving of Signs

18. The presence of warning signs when they are not necessary only robs them of respect. Undertakers or contractors must ensure that advance warning and other warning signs relating to obstructions are moved as work progresses. Where work is not carried on over the weekend or at night and there is no obstruction on the highway (which includes any footpath) or other dangerous

condition such as a rough or loose surface, the warning signs must be removed or covered so that they are not visible to drivers. Under Direction 19 of The Traffic Signs General Direction, 1957, warning signs may not be retained after the completion of road works except with the approval of the Secretary of State or the Minister of Transport.

Modification of existing permanent traffic signs

19. Where a road obstruction or temporary one-way working resulting from it makes it impossible for a driver to comply with a permanent traffic sign (e.g. a KEEP LEFT sign), the sign should be covered, subject to consent by the highway authority and the police and after approval by them of any alternative measures which may be necessary. Where a pedestrian crossing becomes unusable, or where the stripes and studs are removed or obliterated, the beacons must be extinguished and covered.

20. Similarly the statutory undertaker or contractor must notify bus service operators of any bus stops which will become unusable during the course of the works to be undertaken.

Part II Temporary Traffic Control

21. Where the obstruction requires or is likely to require alternate one-way (shuttle) working of traffic, adequate notice must be given to the highway authority, who should if necessary notify or consult the police or arrange for the police to deal with the matter. Wherever possible at least seven days notice should be given. Note that paragraph 8(1) of the Seventh Schedule to the Public Utilities Street Works Act, 1950 requires that in the Metropolitan and City of London police districts, statutory undertakes shall give the police at least 14 days notice of works which would reduce the carriageway of a trunk or classified road to less than two-thirds of its width. In emergencies, or outside the office hours of the highway authority, the police should be informed direct of any proposal to use traffic control devices.

22. The statutory undertaker or contractor must adopt the method of control required by the highway authority or the police.

23. Where traffic control is undertaken by persons other than the police, the highway authority must be satisfied that the persons engaged in traffic control are competent to operate and maintain the apparatus efficiently, and statutory undertakers must ensure that such persons are always on duty throughout the period during which the highway authority deems traffic control to be necessary. Where automatic apparatus is used the person must also be competent to alter or regulate it in accordance with traffic requirements.

Form of control

24. Highway authorities or the police may approve control by one of the following three methods described below under headings (a), (b) and (c).

(a) Flagmen with red and green flags

25. This method is only suitable during daylight. At long obstructions or where the obstruction continues around a corner a flagman should be posted at each end, and where the flagmen cannot see each other a third attendant may be necessary at an intermediate point.

26. Flags used for traffic control must be at least 2 square feet in area to comply with the requirements of Regulation 26 of The Traffic Signs Regulations, 1957. They must be clean and well-coloured.

(b) Manually operated STOP-GO Signs

27. If used at night each sign must be adequately illuminated by its own source of lighting; the use of reflectors in lieu is not sufficient. Each sign must be located that it is in full view of approaching drivers.

28. At long obstructions or where the obstruction continues round a bend or corner, attendants with signs must be posted at each end, and where they cannot see each other a third attendant should be placed at an intermediate point.

29. The signs must comply with diagrams 219 and 220 of The Traffic Signs Regulations, 1957.

(c) Portable traffic control signals

30. These are only appropriate:-

- (i) at long obstructions, or
- (ii) at short obstructions during times when traffic is dense.

31. The signals may be either of the 3-light (red, amber and green) or 2-light (red and green) pattern. They must comply with the requirements detailed in Regulation 29 of The Traffic Signs Regulations, 1957, and should have a performance, and be maintained, to the standards set out in the Appendix to this Code.

32. Highway authorities are recommended to consent only to the use of apparatus of a type approved by the Scottish Home Department or the Ministry of Transport.

33. The signals must be located so that they are easily seen by approaching drivers. They should preferably be sited on the near or immediate left-hand side of the unrestricted section of carriageway so that a driver passes them on his left. At some sites it may be desirable to duplicate them on the offside. Regard should be paid to extraneous lighting, particularly nearby signs, including the red lamps used to delineate the obstruction, which may distract from the red signal indication, unless the signal is conspicuously bright by comparison.

34. To avoid unnecessary delay to traffic the control cycle time must be as short as possible consistent with passing traffic. Where the flow is fairly evenly balanced in each direction, traffic should be allowed to run in one direction only for so long as is necessary to clear the line of waiting vehicles. Where there is a heavy preponderance of traffic in one direction, it will normally be desirable to allow a much longer running time for the main stream.

35. Where the signals are automatically controlled, the control must never be set at values appropriate to peak or unbalanced traffic flow and left at these settings after the peak or unbalanced flow has passed.

36. At night on unlighted roads the base of the signal pedestal must be marked by a separate red warning lamp to allow for failure of a signal lamp.

37. Under Direction 40 of The Traffic Sign General Direction, 1957, signals may only be retained for a longer period than six months with the

approval of the Secretary of State or the Minister of Transport, and in any case must not be retained when the need for them has passed.

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April 1962

APPENDIX

Portable Traffic Control Light Signals

(a) *General*

1. The following paragraphs describe the more important features desirable in portable light signals for controlling traffic at roadworks. Compliance with these features will be required before approval is given by the Scottish Home Department or by the Ministry of Transport to the type of apparatus (see paragraph 32 of the Code). Notwithstanding the recommendations contained in the following paragraphs, equipment which was approved under the requirements of the Appendix in previous issues of this Code will be considered to be of an approved type until 31st December, 1967. The signals must comply with the requirements of the Traffic Signs Regulations and General Directions, 1957.

2. The optical system employed for each colour should be such, that when fitted with

- (a) a colourless lens without any lettering on the surface and identical in form and finish with the coloured lens to be used for the signal and
- (b) A visor as detailed below,

The distribution of light is as follows:

3. The intensity measured along the axis of the beam is not less than 350 candelas; the intensity measured at an angle of 10 degrees vertically below, or horizontally on either side of the axis of the beam, is not less than 200 candelas; the intensity measured at an angle of 25 degrees horizontally on either side of the axis of the beam is not less than 70 candelas. The polar curve should be smooth and free from secondary maxima.

4. The colour and transmittance of the signal glasses should comply with the requirements of British Standard 1376 – Class B1 for the red signals, Class A for the yellow (amber) signals, and Class B for the green signals. The inner surface of the glasses should be non-smooth so as to obtain a diffusing distribution of light. Each signal should have a uniform appearance to the driver, filling the whole area of the glass.

5. A visor should be fitted to each optical system and the top of the visor should project at least 8 inches from the signal face.

6. The timing at rated voltage should be within $\pm 7\frac{1}{2}$ per cent of the rated time and with voltage variations of 6 per cent above or below the rated voltage, the timings should not vary from the time at rated voltage by more than ± 10 per cent. The mechanism should continue to function (although the timings may vary beyond the above limits) with the supply voltage 15 per cent above or 20 per cent below the rated value.

7. The signal equipment should not cause interference with telegraphic, telephonic, radio or television communications beyond the limits laid down in British Standard 800. (Advice about the extent of interference given by the equipment and how it may be reduced, if necessary, may be obtained from the Engineer-in-Chief of the General Post Office).

8. The apparatus should be of good mechanical and electrical engineering standards and should be adequately weatherproofed.

(b) *Fixed Time Equipment*

9. The total cycle time should be adjustable from not more than 50 seconds to at least 300 seconds in not less than 12 steps. The green parts of the cycle time should be adjustable from not more than 20 seconds to at least 100 seconds, and the all-red parts from not more than 12 seconds for a 2-light signal, or 6 seconds for a 3-light one, to at least 60 seconds, with not less than 8 steps for each green period and each all-red period. The steps of adjustment should be approximately equal percentage. Amber signals should have a fixed duration of 3 seconds.

(c) *Vehicle Actuated Equipment*

10. *Conditions for Signal Changes.* – No change of signals shall take place unless initiated by the operation of a detector except where the installation is set to work on a fixed-time basis as described in paragraph 17.

In the absence of demands the signals shall rest at all-red and a demand by traffic on either phase shall, provided the pre-set all-red period (as described by paragraph 16) has expired, result in an immediate change to that phase; i.e. a red-amber signal where three-aspect signals are employed. If the all-red period has not expired the red-amber signal shall be delayed until the expiration of the pre-set all-red period. Where two-light signals are employed the green signal shall be delayed by a further 3 seconds.

11. *Amber Signals.* – Where three-light signals are used, the amber signal shown alone following the green signal shall be of 3 seconds duration and the red=amber signal preceding the green signal shall be of either 2 or 3 seconds duration.

12. *Minimum Running Period.* – The minimum running period for each phase shall be capable of being pre-set to a value of 12 seconds.

13. *Vehicle extensions.* – Subject to the limitation imposed by the maximum running period (paragraph 14), the green signal shall be capable of being extended beyond the minimum running period by the passage of a vehicle over the detector by a period of 5, 6 or 7 seconds from the time of passage of the vehicle over the detector. Separate adjustments shall be provided for each phase.

However, if there is no outstanding demand for the other phase, then the extension periods given shall be increased to 2½ times the values quoted above.

14. *Maximum Running Period.* – Provision shall be made so that a vehicle not having Right-of-way shall, on crossing a detector, limit the further running period of the other phase. This further period shall be capable of being pre-set separately for each phase to 15, 20, 25, 30, 35, 40, 45, 50, 66 or 60 seconds.

15. *Maximum Reversion.* – In the event of the green period being terminated by the operation of the maximum feature described in paragraph 14, arrangements shall be made for the Right-of-Way to return to the phase so interrupted as soon as the traffic on the other phase permits, consistent with the requirements of paragraph 12 and, in any case, not later than the end of the maximum running period.

16. *All-Red Period.* – The all-red period shall be capable of being pre-set to give 5, 10, 15, 20, 25, 30, 35, 40, 45 or 50 seconds. Separate adjustments shall be provided for the all-red period to follow each running phase.

17. *Fixed-time Operation.* – It shall be possible to operate the installation on a fixed-time basis by means of a suitable marked key or switch.

Under these conditions the full pre-set all-red period shall be retained. The maximum running period shall be reduced by between 15 per cent and 25 per cent of the pre-set value.

18. *Indication of facilities and settings.* – All switches, switch positions and settings shall be clearly marked to indicate their functions.

An instruction plate shall be fixed in a conspicuous position adjacent to the control panel. This shall give general guidance on the setting up of the installation, shall recommend that the detectors be sited at a distance of 60 feet from the signals and shall include a table indicating setting for the all-red period in relation to the speed of traffic and the distance between the signals as shown below:-

Settings for All-Red Period				
Distance Between Signals (Yards)	Speed of Traffic (M.P.H.)			
	10	15	20	*25
Up to 25	5	5	5	5
25 – 50	10	5	5	5
50 – 75	15	10	5	5
75 – 100	20	10	10	5
100 - 125	25	15	10	10
125 - 150	30	20	15	10
150 - 175	35	25	15	15
175 – 200	40	25	20	15
200 - 250	45	30	20	15

*Note. – The all-red settings shown in the 25 m.p.h. column are typical and should be used at normal installations on straight roads.

Where visibility of the controlled length of road is limited, or where an appreciable number of vehicles will proceed at speeds lower than 25 m.p.h. the all-red settings should be selected from the 10, 15, or 20 m.p.h. columns to suit site conditions.

(d) *Maintenance*

19. The signals and control equipment must be maintained in a satisfactory condition. The lenses, reflectors and lamp bulbs must be kept clean, and the reflectors renewed when they have deteriorated. A soft clean dry cloth is desirable for cleaning plated metal reflectors to avoid scratching them.

20. The correct voltage, wattage and type of lamp must be used, and all lamps should be renewed after approximately 1,000 hours burning because their light output will then have deteriorated, even though they may not have failed. One thousand hours burning life corresponds approximately to three months continuous use provided the red and green lamps, which burn for unequal periods, have been interchanged after six weeks.

21. With battery operated signals it is necessary to have a 14 cell (28 volt) battery for 24 volt lamps to allow for voltage drops in the cables. The battery should be charged at regular intervals and its electrolyte topped up; it is not satisfactory to wait until the signal lights show dim before changing a discharged battery.

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