



## Pedestrian Facilities at Signal-Controlled Junctions

This Leaflet is in four parts. This part includes Tables 1 and 2 referred to in parts 1 & 3 and the reference section

**TABLE 1**

Advantages and disadvantages of alternative orientation at staggered crossings

Stagger	Advantages	Disadvantages
<b>Left/right*</b>	<ul style="list-style-type: none"> <li>■ Consistent with stand-alone crossings.</li> <li>■ Encourages pedestrians to face oncoming vehicles.</li> <li>■ Pedestrians on exit of junction are nearer to the junction, improving intervisibility.</li> </ul>	<ul style="list-style-type: none"> <li>■ Moves stop line and queue further from junction.</li> <li>■ May increase intergreens and therefore lost time if crossing points, on all approaches, are not the same.</li> <li>■ If a stop line were needed for the crossing on exit it would be very close to junction.</li> </ul>
<b>Right/left*</b>	<ul style="list-style-type: none"> <li>■ Brings the stop line nearer to the junction.</li> <li>■ Moves the exit crossing away from the "side road" and allows drivers of turning vehicles longer to assess possible dangers.</li> <li>■ Allows possible stop line for exit crossing to be a reasonable distance from junction.</li> </ul>	<ul style="list-style-type: none"> <li>■ Not consistent with stand-alone crossings.</li> <li>■ Pedestrians not encouraged to face oncoming vehicles whilst walking between crossings.</li> <li>■ May cause problems with intervisibility between "side road" and pedestrians.</li> </ul>

\* See layout drawings in Part 2

**TABLE 2**

Period P	Farside Pedestrian Signal	Nearside Pedestrian Signal	Vehicle Signal	Farside Period (seconds)	Nearside Period (seconds)
1	Red Man	Red Man	Green	Dependant upon cycle time.	Dependant upon cycle time.
2	Red Man	Red Man	Amber	3	3
3	Red Man	Red Man	Red	Minimum to clear traffic in the junction.	Minimum to clear traffic in the junction.
4*	Green Man	Green Man	Red	6 - 12, depending upon carriageway width and pedestrian density.	4-9
5	Black-out (No Signal)	Red Man	Red	3-15**	1-5***
6	Red Man	Red Man	Red	1 - 3	0-30 (pedestrian extendable period)
7&8	Not applicable	Red Man	Red	-	See below
9	Red Man	Red Man	Red + Amber	2	2

\* Values shown are for the standard fixed period. The green man can be further extended, see "Pedestrian Crossing Display Sequence" in Part 3, in which case the final extension period will be dependent on vehicular demands.

\*\* Values shown are for the standard fixed period. The black-out can be extended in some cases, see TR 2210<sup>24</sup>. The walking speed for a pedestrian is taken as 1.2 metres/second. The time (in seconds) of periods 5 and 6 together should be equal to the width of the carriageway in metres divided by 1.2.

\*\*\* see below "Nearside Pedestrian Signals"

### NEARSIDE PEDESTRIAN SIGNALS

See sections on "Pedestrian Crossing Display Sequence" and "Nearside On-Crossing Detection" in Part 3

Since the introduction of Puffin stand-alone pedestrian crossings, the number of nearside pedestrian signals at signal-controlled junctions has been increasing. The below method of calculating timings has been tried at a number of junction installations and is recommended as advice.

P1 to P8 used in the following formula refer to the periods defined originally in LTN 2/95<sup>6</sup>, Tables 5 & 6. Note: In this method, Periods P7 and P8 have been incorporated in Period P6 and should both be set to 0 seconds.

See "Pedestrian Crossing Display Sequence" in Part 3 with reference to parallel facilities and UTC.

Some controllers may be configured to operate the pedestrian period in a consecutive mode, whilst others operate in a

concurrent mode. In the former, the variable extension (P6) starts at the end of the minimum extension period (P5) and in the latter, P6 starts at the same time as P5. Whichever mode is used, it is important to ensure that pedestrians always have sufficient time to cross the carriageway.

In the following formulae:

**L** is the width of the carriageway in metres;

**1.2** is the pedestrian walking speed (85% of pedestrians) in metres/sec;

**P<sub>c</sub>** represents the pedestrian "comfort factor". A suitable value for P<sub>c</sub> should be carefully selected to reflect local characteristics of the pedestrians using the crossing (young, elderly, proximity to school, etc) and the width of the crossing. From experience so far, 3 seconds is a reasonable base setting which can be fine tuned on site if necessary. Time-of-day adjustments can be made during configuration to cater for special local needs and **P<sub>5</sub>** represents a fixed minimum

extension period which follows immediately after the invitation to cross period (P4). The base setting for this is 3 seconds. A minimum value of 2 seconds has been successfully trialled at a number of sites.

### CONSECUTIVE MODE

The formula for calculating the nearside clearance period is as follows:

$$P6 = [(L/1.2 + Pc) - P5]$$

From the formula above, it should be observed that the pedestrian minimum and maximum timings would be as follows:

$P_{min} = P5$  (because P6 only follows if the on-crossing detector registers)

$P_{max} = P5+P6$  (this results in a time of  $L/1.2 + Pc$ )

### CONCURRENT MODE

The formula for calculating the nearside clearance period is as follows:

$$P6 = (L/1.2 + Pc)$$

Pedestrian minimum and maximum timings will be as follows:

$P_{min} = P5$  (because P6 only extends past P5 if the on-crossing detector registers)

$P_{max} = P6$

### REFERENCES

1	TD 50/04 The Geometric Layout of Signal-Controlled Junctions and Signalised Roundabouts, Design Manual for Roads and Bridges (DMRB), Vol. 6, Section 2. The Stationery Office (TSO).
2	Traffic Advisory Leaflet (TAL) 5/03, Walking Bibliography. Department for Transport (DfT).
3	TAL 4/98, Toucan Crossing Development. DfT.
4	TAL 3/03, Equestrian Crossings. DfT.
5	TA 84/01, The Code of Practice for Traffic Control and Information Systems, DMRB, Vol. 8, Section 1. TSO.
6	Local Transport Note (LTN) 2/95, The Design of Pedestrian Crossings. TSO.
7	TAL 1/01, Puffin Pedestrian Crossings. DfT.
8	TAL 1/02, The Installation of Puffin Crossings. DfT.
9	TAL 2/03, Signal-control at Junctions on High-speed Roads. DfT.
10	TA15/81, Pedestrian Facilities at Traffic Signal Installations, superseded. TSO.
11	TA16/81, General Principles of Control by Traffic Signals. TSO.
12	TR2206A Specification for Road Traffic Signals. Highways Agency (HA).
13	LTN 1/98, The Installation of Traffic Signals and Associated Equipment. TSO.
14	TAL5/91, Audible and Tactile Signals at Signal Controlled Junctions, superseded. DfT.
15	Chapter 5 of The Traffic Signs Manual, Road Markings 2003. TSO.
16	Traffic Signs Regulations and General Directions 2002. TSO.

## REFERENCES, CONTINUED

17	Guidance on the Use of Tactile Paving Surfaces. DfT.
18	British Standard 7818:1995, Pedestrian Restraint Systems in Metal. BSI.
19	TA 57/87 Roadside Features, DMRB, Vol. 6, Section 3. TSO.
20	Inclusive Mobility. DfT.
21	TR0155B Audible Unit for use at Pelican Crossings. HA.
22	TAL 4/91, Audible and Tactile Signal at Pelican Crossing. DfT
23	TR 0157B, Tactile Equipment. HA.
24	TR2210 Traffic Signal Controller. HA
25	How to use a Puffin Crossing. DfT.

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