



# **Pedestrian Countdown at Traffic Signal Junctions (PCaTS) - Road Trial**

## **Appendix D - Glossary of Terms**

## D.1 Introduction

The terms below are used throughout the report and technical appendices as defined here. The definitions are based upon Rule 21 of the Highway Code and Traffic Advisory Leaflet 5/05 (DfT, 2005).

Rule 21 of the Highway Code states that:

*"You should only start to cross the road when the green figure shows."*

*"If you have started to cross the road and the green figure goes out, you should still have time to reach the other side, but do not delay."*

*"When the red figure shows, do not cross."*

Traffic Advisory Leaflet 5/05 (DfT, 2005) states that:

*"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"*

<b>Period</b>	<b>Farside Pedestrian Signal</b>	<b>Nearside Pedestrian Signal</b>	<b>Vehicle Signal</b>	<b>Farside Period (secs)</b>
5	Black-out (No Signal)	Red Man	Red	3-15
6	Red Man	Red Man	Red	1 – 3




## D.2 Terms

### Standard Crossing

The eight sites in the survey were all located on one arm of a signal junction. As such the vehicle traffic signals did not have the Amber flashing phase, nor did the far-side pedestrian traffic signal have a flashing Green Man phase.

The terminology "Standard Crossing" and "Pedestrian crossing in the Before survey" are equivalent and are interchanged in this report.




The pedestrian signal phases on the Standard Crossings were as below.

<p><b>Green Man</b></p> <p>The Green Man is: <b>An invitation to cross.</b> (<i>Rule 21 Highway Code, Part 1</i>)</p>	
<p><b>Blackout</b></p> <p>This period is not mentioned specifically in the Highway Code for current signals because it is an absence of a signal, i.e. neither the Green, nor the Red, Man is displayed. However, it is possible to derive from the specified definition of Green Man that Blackout means:</p> <p><b>Do not start to cross</b> (<i>Rule 21 Highway Code, Part 1</i>)  <b>If crossing, complete walking to the other side of the road without delay</b> (<i>Rule 21 Highway Code, Part 2</i>)</p>	
<p><b>Red Man</b></p> <p>The Red Man means:</p> <p><b>Do not start to cross</b> (<i>Rule 21 Highway Code, Part 3</i>)  <b>If on the crossing (having started to cross with a Green Man showing), complete walking to the other side of road bearing in mind a change of priority is imminent</b> (<i>Traffic Advisory Leaflet 5/05, Part 1</i>)</p>	

## PCaTS Crossing

The terminology "PCaTS Crossing" and "Pedestrian crossing in the After 1 survey" are equivalent and are interchanged in this report.

The pedestrian signal phases on the PCaTS Crossing were the same as the Standard Crossing, with the exception that the PCaTS phase replaced the Blackout phase, as shown below.

<p><b>Green Man</b></p> <p>The Green Man is: <b>An invitation to cross.</b> (<i>Rule 21 Highway Code, Part 1</i>)</p>	
<p><b>Countdown</b></p> <p>The Countdown is additional information for pedestrians. It starts at the end of the Green Man and counts down the number of seconds remaining until the start of the Red Man. i.e. <b>it counts down to the end of the Blackout period.</b></p>	
<p><b>Red Man</b></p> <p>The Red Man means:</p> <p><b>Do not start to cross</b> (<i>Rule 21 Highway Code, Part 3</i>)  <b>If on the crossing (having started to cross with a Green Man showing), complete walking to the other side of road bearing in mind a change of priority is imminent</b> (<i>Traffic Advisory Leaflet 5/05, Part 1</i>)</p>	

## Clearance period

In this report we have used the term clearance period to mean either the Blackout period or the Countdown period, to allow a comparison between the two, i.e. this is the time allowed for pedestrians to complete crossing the road.

## Available crossing time

The "available crossing time" is defined in this report as: the sum of the Green Man time and the Blackout time in the Before survey; and the sum of the Green Man time and the Countdown time in the After 1 survey.

## 'Before' survey

A survey of pedestrian behaviour and perception carried out prior to the installation of PCaTS at the trial sites.

### **'After 1' survey**

A survey of pedestrian behaviour and perception carried out (generally) between one and two weeks after PCaTS came into operation at the trial sites.

'After1' Surveys provide a snapshot of initial indicative results of pedestrians' first reactions to PCaTS.

### **'After 2' survey**

A survey of pedestrian behaviour and perception carried out approximately three months after PCaTS came into operation at the trial sites.

'After 2' Surveys provide information on how pedestrians use PCaTS following a settling in period.

### **Crossing elsewhere**

A pedestrian is deemed to be crossing elsewhere if:

- When they start to cross, they are not on the crossing (i.e. not between the two white broken lines of the crossing)
- They are in the field of view of the furthest camera from the junction and start crossing either side of the crossing (up or downstream), so can be "in the junction".

### **ASL (Advanced Stop Line)**

Advanced Stop Lines are a second stop line at some junctions, allowing priority for bicycles.

### **PCU (Passenger Car Unit)**

Classified traffic flows can be converted into an overall estimate of the road space used. This is calculated by multiplying the count of each class by standard values (below). This gives the flow in PCUs (Passenger Car Units).

<b>Vehicle Type</b>	Cycle	Motorcycle	Car/ LGV	HGV	Bus/ Coach
<b>PCU value</b>	0.3	0.75	1	2	3

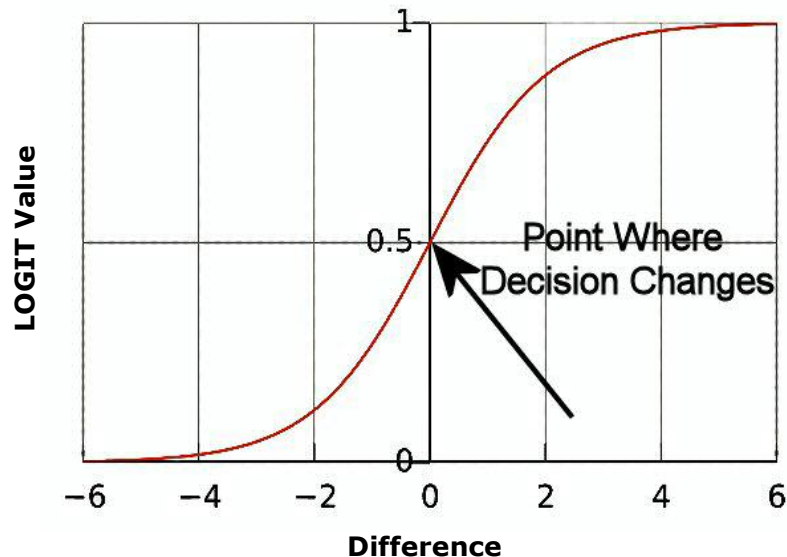
### **LOGIT Model**

LOGIT is a specialised form of non-linear regression, also referred to as logistic regression. It is used for predicting the probability of an event's occurrence by fitting data to a logistic curve. This generalised linear model is used for binomial regression; i.e. the response variable is dichotomous, or has one of two states (e.g. success or failure). It uses one or more predictor variables that can be numerical or categorical. An example might be to predict the probability that a person has a heart attack based upon the person's age, gender and body mass index.

LOGIT is used in both medical and social sciences. Also, within the field of transport it is used to predict modal change within Stated Preference. LOGIT uses the logistic function:

$$f(z) = \frac{e^z}{e^z + 1} = \frac{1}{1 + e^{-z}}$$

An example of which is shown in Figure D-1.



**Figure D-1 - Example of a LOGIT curve**

The logistic function can take any input (independent variable), and the output is confined to values between 0 and 1. The variable  $z$  is a function of the independent variables, and  $f(z)$  represents the probability of a particular outcome.

### Video data samples

Different samples of pedestrian data were extracted from the videos. Where appropriate, square brackets are used on the vertical axis of graphs to show which sample was used.

- **"Full Sample"** – overall flow information on all pedestrians using the crossing in the 12 sessions of 15 minutes throughout the day
- **"Detailed Sample"** – more detailed information on pedestrians using the crossing (eg crossing time, gender etc), with up to 20 observations randomly picked in each of the 36 5-minute periods, i.e. 07:00-07:05, 07:05-07:10, 07:10-07:15, ... 08:00-08:05, ... 18:10-18:15
- **"Vehicle Sample"** – information from the upstream camera, which looked predominantly at the vehicles, but also had data on any pedestrians Crossing elsewhere (i.e. not crossing the road by not using the crossing)

See Section 2.4.6 for further information.

### All Red traffic stage

Traffic signal stage where the vehicle traffic signals are red on all arms of the junction.

## **All Red phase**

After the end of the Blackout phase when the pedestrian signal is Red Man and the vehicle traffic signal is also red.

## **Pedestrian call**

When a pedestrian presses the button to activate the crossing.

## **Significant**

A result is called statistically significant if it is unlikely to have occurred by chance. The terminology "significant" or "statistically significant" has been used in this report when statistical tests have been undertaken. Statistical tests used in this report include the following:

- **Two Proportion Z-Test:** determines whether the difference between two proportions is significant
- **T Test:** determines whether the difference between two averages (assuming Normally distributed) is significant