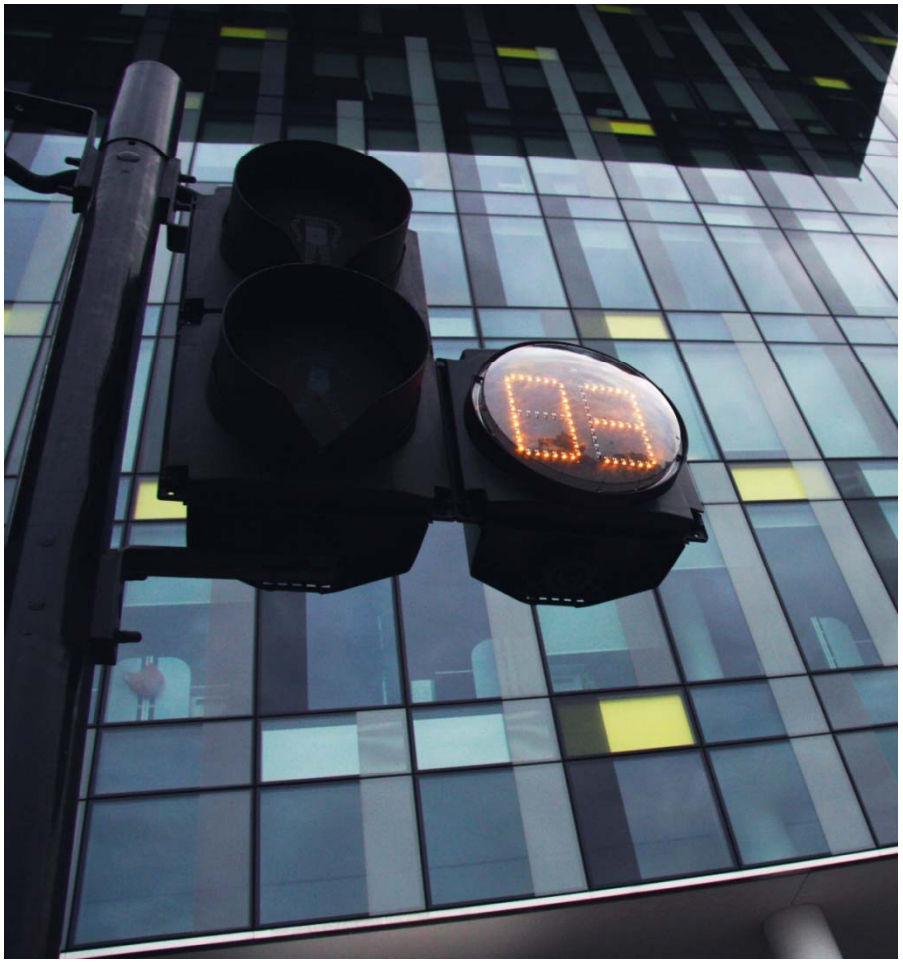
Pedestrian Countdown at Traffic Signals

Research Findings and Progress Update

6th July 2011

Overview

- Introduction
- Background
- Research Methodology
- Results
- Next Steps



Introduction

Transport Research Laboratory (TRL) research results demonstrate:

- PCaTS has had a positive response from the public
- PCaTS has reduced pedestrian uncertainty and more informed crossing choices are being made
- With the PCaTS package there are benefits to traffic

Status:

- TRL research report is available on the TfL Website
- OJEU notice issued for procurement of PCaTS units for further deployment
- Work ongoing with HA and DfT to secure approval for wider roll-out

Background

Function

- Pedestrian Countdown replaces the blackout period to show how long remains to clear a crossing following the green man invitation to cross

Need

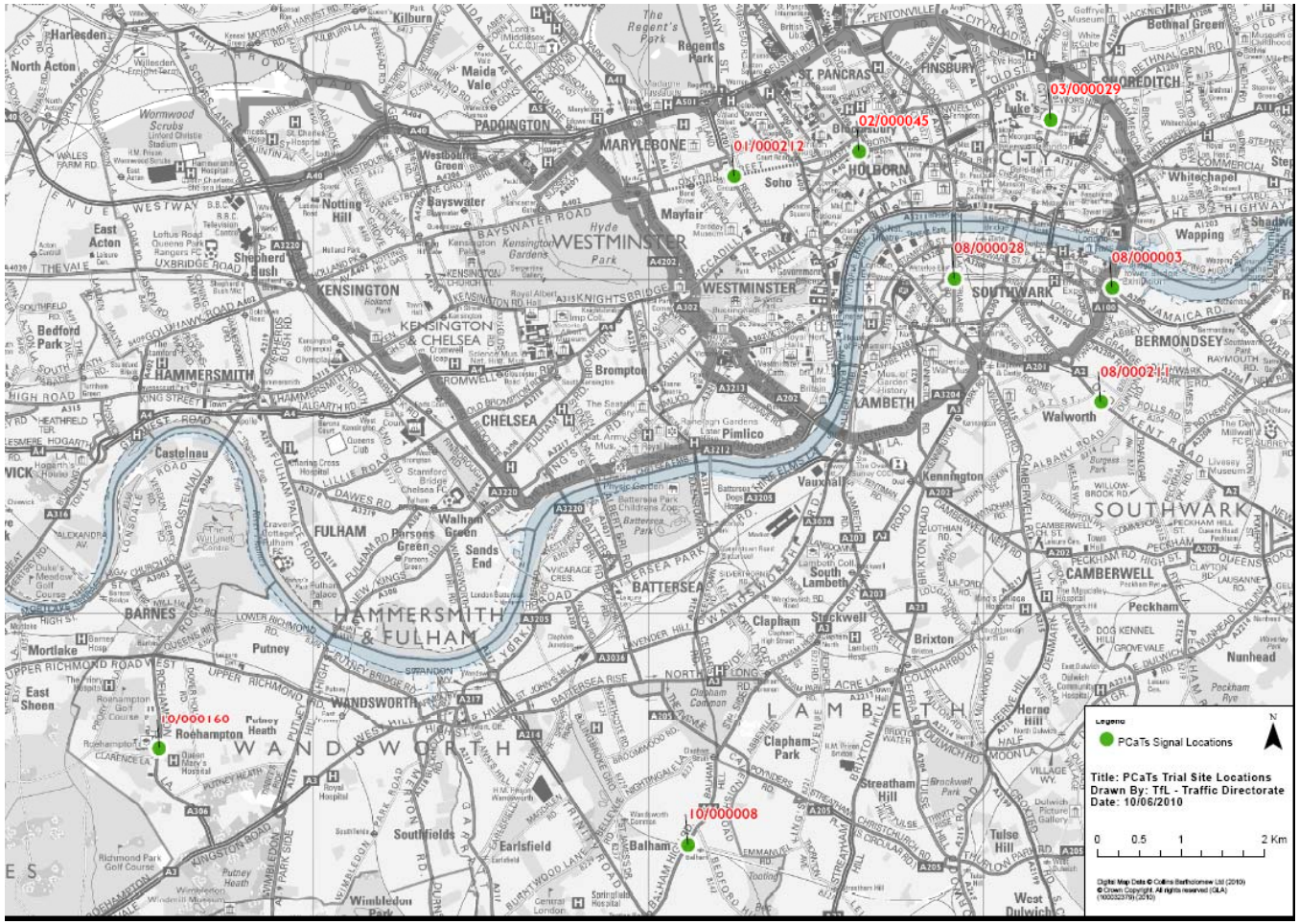
- Current signaling systems provide sufficient time for pedestrians to cross the road safely
- However this is not well understood: there is confusion and uncertainty as to the purpose of the green man and black-out period
- Countdown tells pedestrians how long they have left to cross the road when the green man goes out – reducing uncertainty

Background

PCaTS Package

- The trial sites included the installation of a Countdown timer alongside changes to the signal timings at the junctions. This is referred to as the “PCaTS package” of measures, which included:
- Aligning the Green Man (invitation to cross) to DfT guidance of providing a standard 6 second invitation to cross
- Provision of a digital countdown display to indicate how long pedestrians have left to cross the road.

Sites


03/000029
02/000045
01/000212
08/000028
08/000003
08/000211
10/000160
10/000008
PCaTs Signal Locations
Title: PCaTs Trial Site Locations
Drawn By: TfL - Traffic Directorate
Date: 10/06/2010
0 0.5 1 2 Km

Research Methodology

TRL Conducted:

- Perception Surveys
- Behavior studies

Timings

- Before Survey conducted at each location
- After 1 Survey conducted for ‘snapshot’ at all sites
- After 2 Survey conducted after bedding-in period

Specific Surveys

- Mobility impaired
- Young people

Results – Pedestrian Perceptions

- The clear majority of pedestrians liked countdown:
  - 83% of the main sample
  - 94% of the mobility impaired pedestrians
  - 79% of the young pedestrians
- Fewer pedestrians reported feeling rushed with PCaTS (despite reduction in the green man invitation to cross)
  - The greatest change was at the Balham site: 45% of pedestrians felt rushed before installation of PCaTS, this fell to 7% in the after survey
  - The percentage of pedestrians feeling they had sufficient time to cross increased from 75% (on average) in the before surveys to 88% (on average) once PCaTS was installed.

Results – Pedestrian Crossing Behaviour

- The majority of pedestrians crossed as soon as possible after arriving at the junction, in both the before and after situations:
  - 54% crossed within 5 seconds of arrival
  - 70% crossed within 15 seconds of arrival
  - Over 85% had crossed within 30 seconds of arrival

- Crossing decisions
  - Generally more pedestrians started to cross at the start of the countdown than in the blackout.
  - Fewer pedestrians started to cross towards the end of the countdown than during the last seconds of the blackout
  - At the point where priority returned to vehicles there was no change in the number of pedestrians remaining on the crossing in the after situation

Results – Vehicle observations

- Traffic Benefits
  - A reduction in first vehicle delay of up to 8 seconds
  - Increase in green time available to traffic
  - An average reduction in vehicle delay of 8%

	Extra Green Time to Traffic (seconds per hour)
01/212 (Oxford Street)	61.4
02/045 (Kingsway)	112.5
03/029 (Finsbury)	270.5
08/028 (Blackfriars)	126.8
10/008 (Balham)	75.0
08/003 (Tower Br)	77.3
08/211 (Old Kent Rd)	76.2
10/160 (Roehampton)	40.9

- Starting to move
  - Some evidence of vehicles starting to move earlier (up to 0.7 seconds), particularly cyclists and motorcyclists
  - Consideration will be given to shrouding the countdown at sites as appropriate to reduce the tendency for other road users to react to the display

Results – Conflicts

Conflicts measured in 5 categories:

- Level 1: Precautionary - stopping to allow the other road user to pass
- Level 2: Controlled – minor deviation from initial route, or controlled braking
- Level 3: Near Miss – rapid deceleration, lane change or stopping
- Level 4: Very Near Miss – emergency braking or violent swerve
- Level 5: Collision – actual contact between road users (none observed during trial).

Findings

- No level 5 conflicts (collisions) were observed during the trials
- No changes were observed in level 3&4 conflicts (they remained very low)
- Decrease in level 2 conflicts at highest pedestrian flow sites (Oxford St & Kingsway)
- Increase in level 1 (precautionary) conflicts on average across all sites
- Decrease in conflicts overall at Oxford Street

Conclusion

This trial has demonstrated that the PCaTS package can deliver benefits to both traffic and pedestrians:

- PCaTS has had a positive response from the public
- PCaTS has reduced pedestrian uncertainty and more informed crossing choices are being made
- With the “PCaTS package” there are significant benefits to traffic
- The “PCaTS package” has been introduced without negative impact to safety

Next Steps

Approvals:

- Formal request made to DfT for pan-London approval to deploy PCaTS
- Specification has been developed in conjunction with HA and currently undergoing UK consultation, prior to European consultation

- Implementation
  - OJEU notice issued to engage suppliers and commence the procurement process for PCaTS units
  - Circa 200 junctions have been identified where PCaTS could be deployed, these are being reviewed to establish the benefit at each location

Questions?