



**London
Streets**

Reviewing signal timings to smooth traffic flow (*without detriment to pedestrians*)

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Directorate of Traffic Operations, TfL**

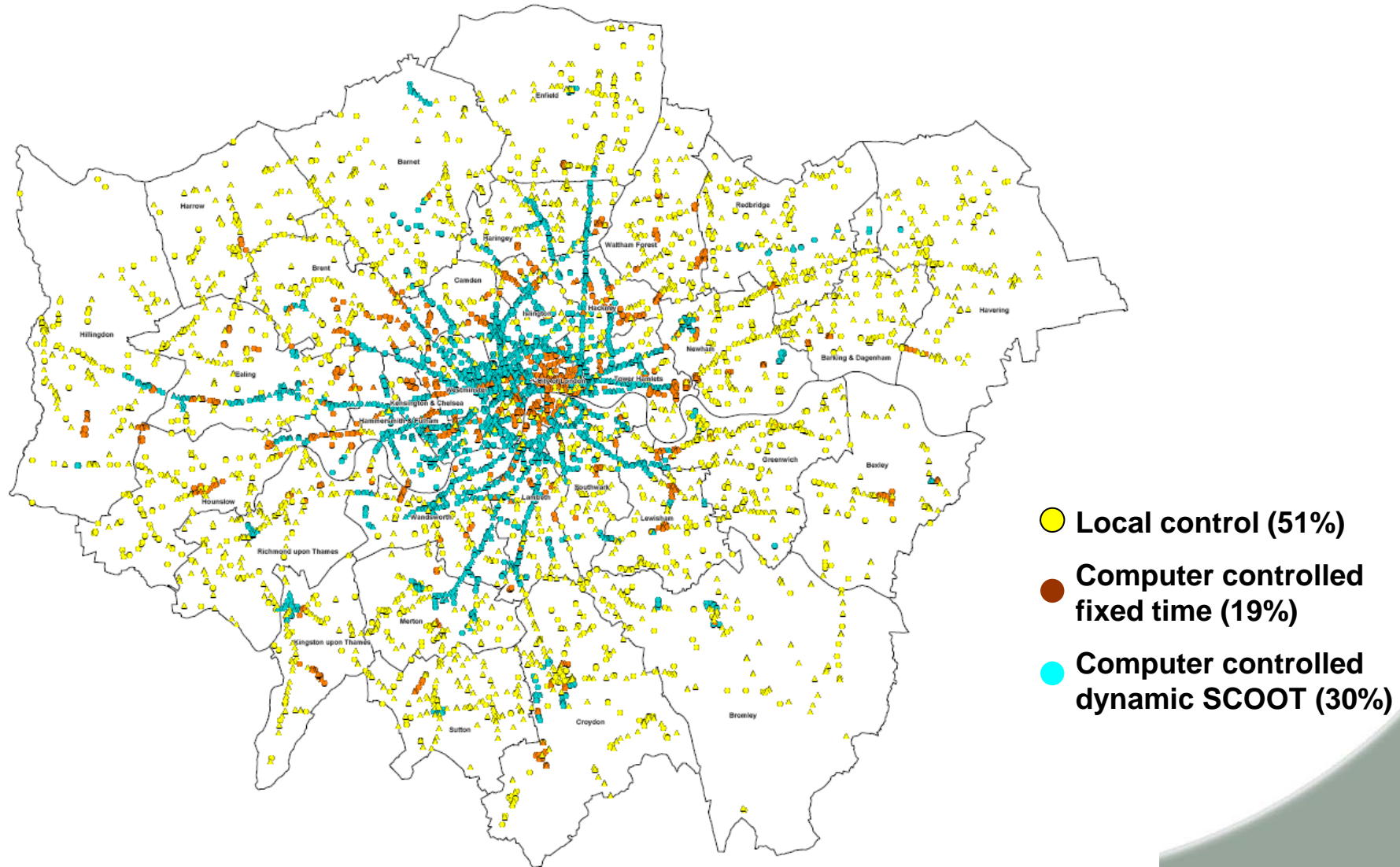
16 December 2009

Traffic Operations in London

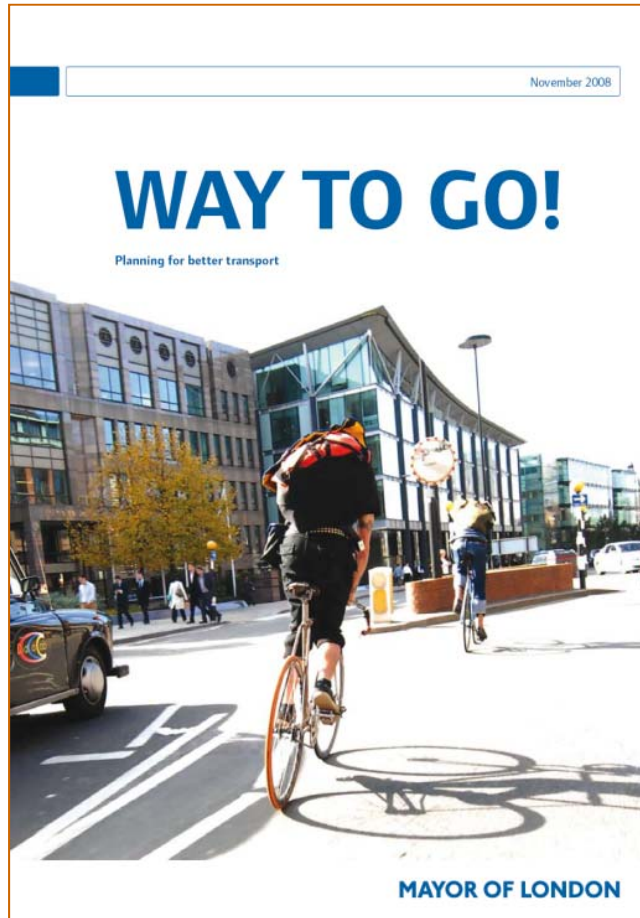
- London's Traffic Signal Authority
- 6,000 sets of signals (50% computer controlled)
- London Traffic Control Centre – real time intervention, 24/7
- 1200 CCTV
- 135 variable message signs



Traffic signal coverage



The new strategic direction



“Traffic lights seem to linger for an unconscionable time in red – sometimes all four at once”

Pg. 9, Way to go

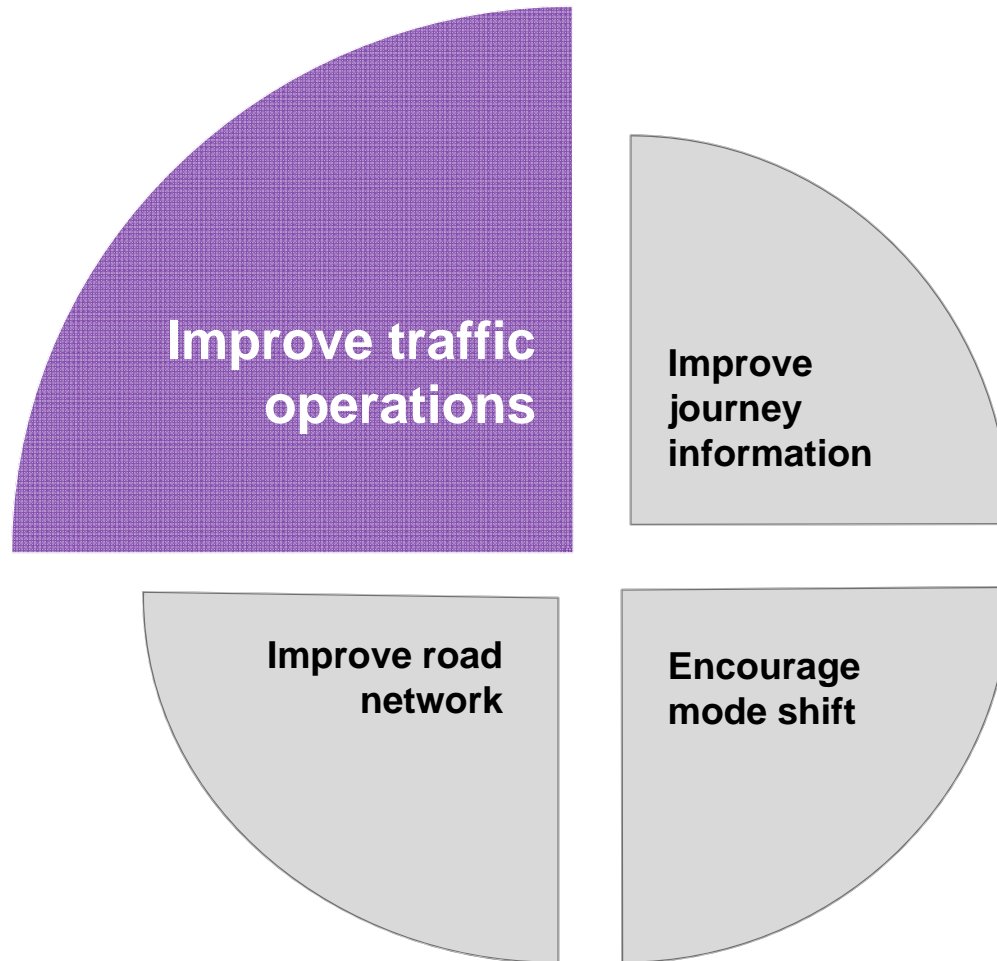
“We are now in the process of reviewing all of London’s 6,000 traffic lights...and where it is possible to make a difference without prejudicing the rights of pedestrians, we will do so. We are reviewing 1,000 lights per year...”

Pg. 20, Way to go



Smoothing Traffic Flow

(Improve the efficiency of road network operations)



Traffic Signal Timing Reviews

- Year 2000 = timings reviewed once every 27 years
- Year 2009 = UTC signals and other critical sites reviewed once every 3 years
- Timing Review :
 - responds to local feedback
 - balances local demands
 - accounts for local land use changes
 - tackles persistent congestion



Timing Review – Road Traffic Goals



- Network stability and resilience
- Target degree of “saturation”
- Practical limits on signal cycle time



Timing Review – Pedestrian Goals



- Pedestrian ‘degree of saturation’ (over crowding)
- Duration of the invitation to cross (green man)
- Signal Cycle time



Traffic Performance

Degree of Saturation	Measure	Score
0-79%	All queued traffic discharges during green time	Green
80-89%	All queued traffic generally discharges during the green time with occasional short lived residual queues	Amber
90%+	Traffic queues do not clear during the green time with frequent residual queues sometimes leading to extensive queuing	Red



Pedestrian Performance

Density	Measure	Score
Under Saturated	All pedestrians waiting to cross easily clear the kerb during the green man period	Green
At saturation	All pedestrians waiting to cross just clear the kerb during the green man period and no pedestrian overcrowding	Amber
Over saturated	Pedestrians overcrowding footways preventing pedestrians passing by and /or overflowing into the carriageway	Red



SFM
LTIS
SWVK
LDIS
UTC
FRHT
BUS_R
KIOSK
AD
ST
TH
MS
SET
MS
ABOUT

SFM - 01/547452/

Site No 01/547452/

Type TV

Desc CCTV

Status Live

Location OXFORD SREET BY REGENT STREET W1N


Status Flags JC SRN

Bus Routes 189 176 159 139 137 113 98 94 73 25 23 15 13 12 10 8 7 6 3 N98 N73 N55 N36 N3 55 N7 88 N8 N207 N18 N159 N15 N137 N13 N10 C2 453 390

Fault Text [Faults](#)

Mon 06 Jul 15:00

547452

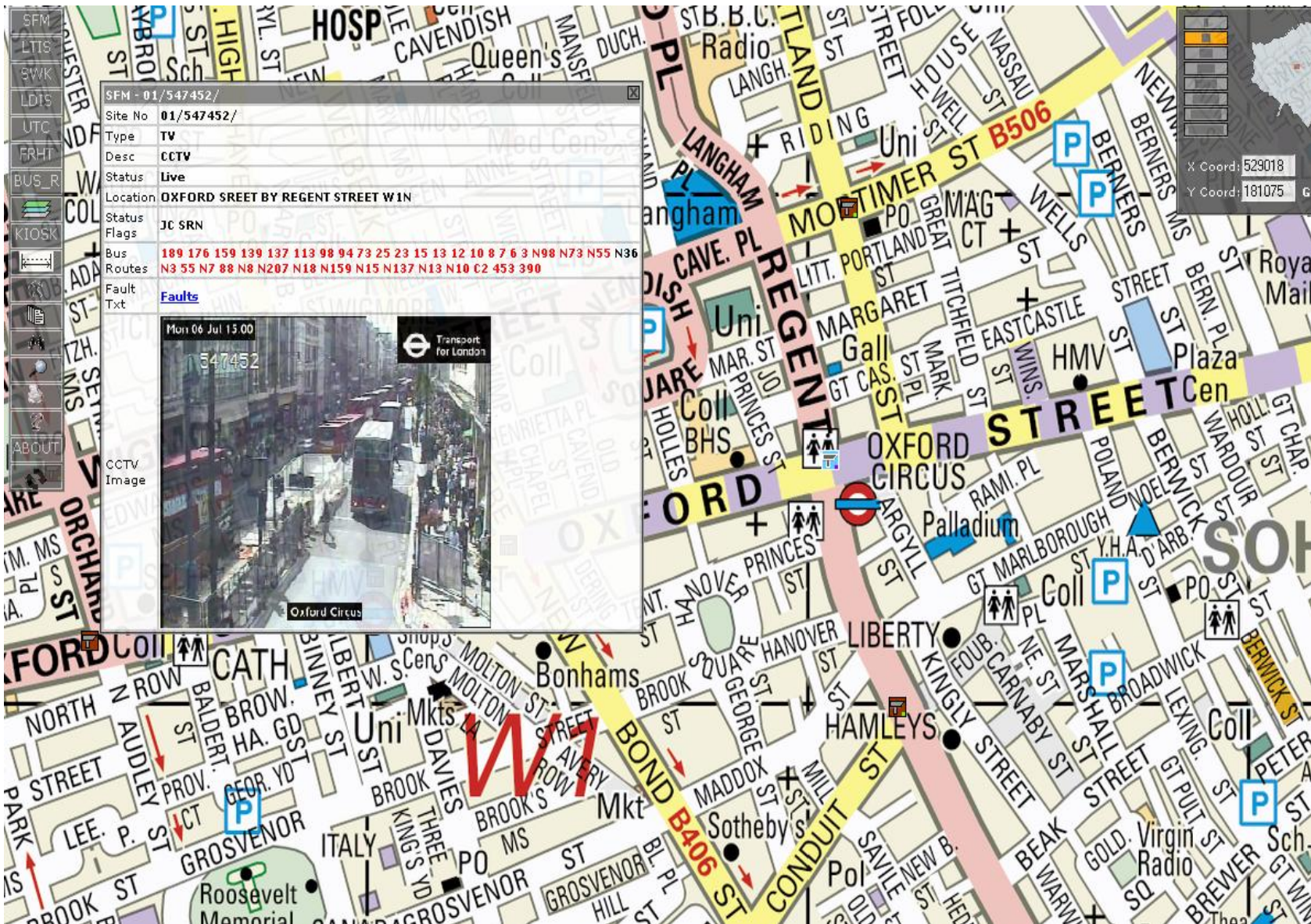


CCTV Image

Transport for London

X Coord: 529018

Y Coord: 181075

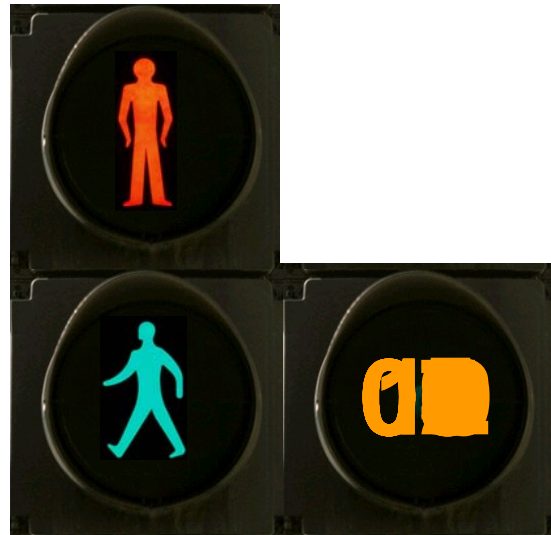


2009/10 timing review programme

- **1,000 timing reviews, including;**
 - **Trafalgar Square**
 - **Hyde Park Corner**
 - **Marble Arch**
 - **Hangar Lane gyratory**
 - **Kingston Town Centre**
 - **Vauxhall Cross**
 - **Savoy Circus and Gypsy Corner (A40)**
 - **A30 south west access to Heathrow**
 - **A1000 Barnet**
 - **South London tram network**



Pedestrian Countdown at Traffic Signals – feasibility study



Pedestrian Countdown at Traffic Signals – Off Street Trials



Pedestrian Behaviour at Traffic Signals

research results

- Published at <http://londonroadsafety.tfl.gov.uk/>
- Nine signal sites in London (all-red junctions) where Green man reduced (9 / 10sec to 6sec) and time re-allocated to traffic green
- Pedestrians observed (video analysis), on-street interviews, accompanied walks with impaired road users
- **Conclusions**
 - Safety neutral, even with increasing non-compliance
 - 2/3 confused about what blackout means
 - More impaired pedestrians noticed the change (felt more rushed, unsafe)
 - General population did not notice the change
 - Pedestrian speeds were unaffected
 - Improved traffic throughput



Future development in traffic signals

- **Funded**
 - new SCOOT at 1000 traffic signals sites
 - Feasibility study into Pedestrian Countdown at signals
 - iBus, GPS tracking of buses, bus performance and priority at signals
- **Early development stage**
 - Improved traffic management tools for rapid detection and response to disruption
 - Improved operational modelling of pedestrians and cyclists
 - Pedestrian detection
 - Situational Awareness – leading to a predictive capability



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