Transport for London

Keeping London Moving with Enterprise GIS

Glynn Barton
Director of Network Management
Transport for London

EVERY JOURNEY MATTERS

TfL has one of the worlds largest and most integrated transport authorities....

Each day there are almost
21 million
road network trips

The TfL road network is
580km

While only **3.9%** of London's overall network.

it carries **31%** of London's road traffic

We licence
25,000
taxi drivers and
100,000
private hire drivers each year

London's buses carry
6,500,000
people a day

Around
36,000
passengers depart from Victoria Coach Station each day

equivalent to
a third
of the world's population every year

80%
of all trips in London take place on the road network

London's roads, streets and squares represent
80%
of the Capital's public spaces

There are around
29,000
journeys each day on our River services

Cycling accounts for more than
645,000
trips a day (or 668 thousand journey stages)

This is equivalent to
16% of trips made by bus
or
21% of trips on the Underground

1 million
Dial-a-Ride trips per annum

124 million
DLR customer journeys per annum

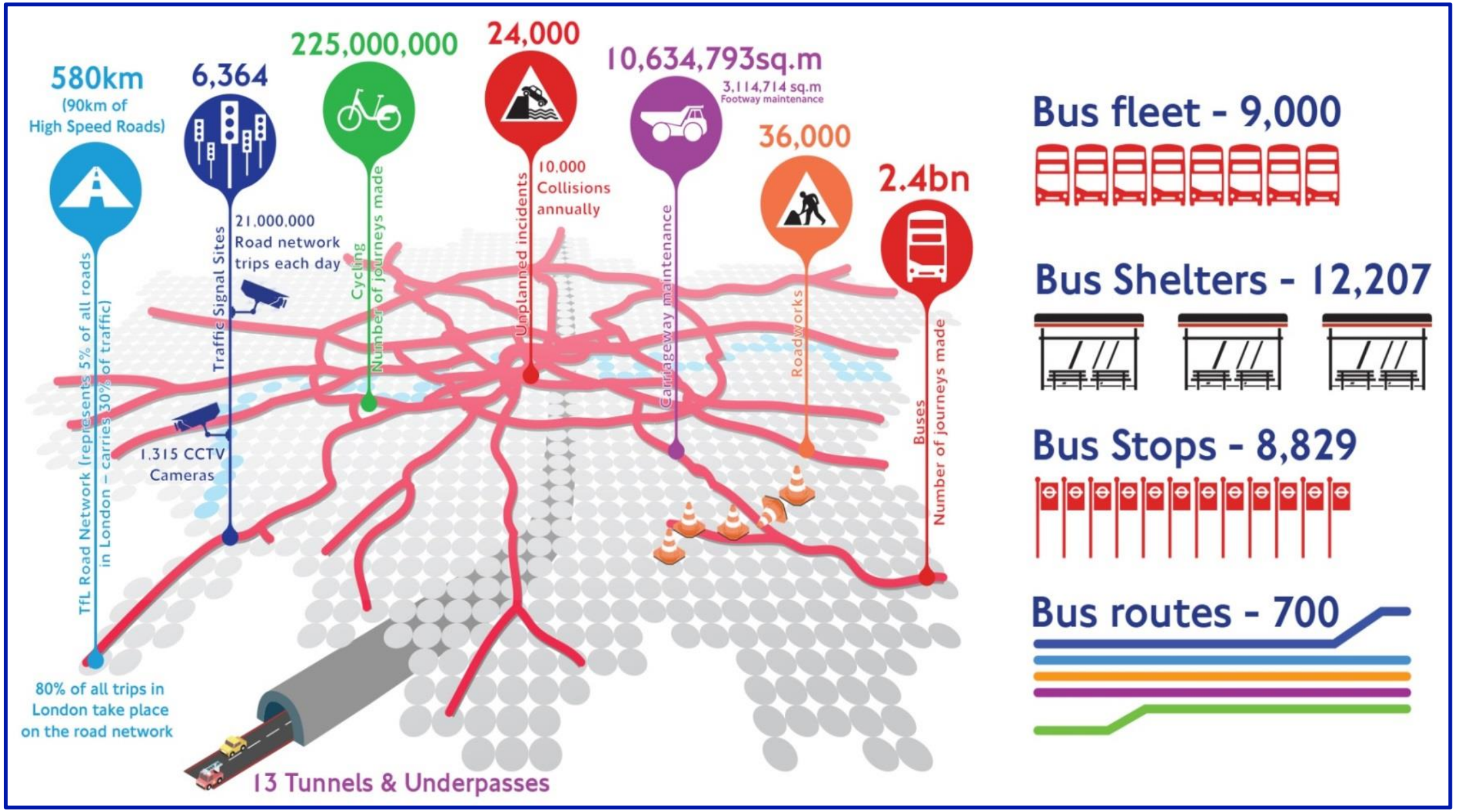
Over
90%
of all the freight in London is carried out on the road network

There are
203 million
customer journeys on the Overground each year

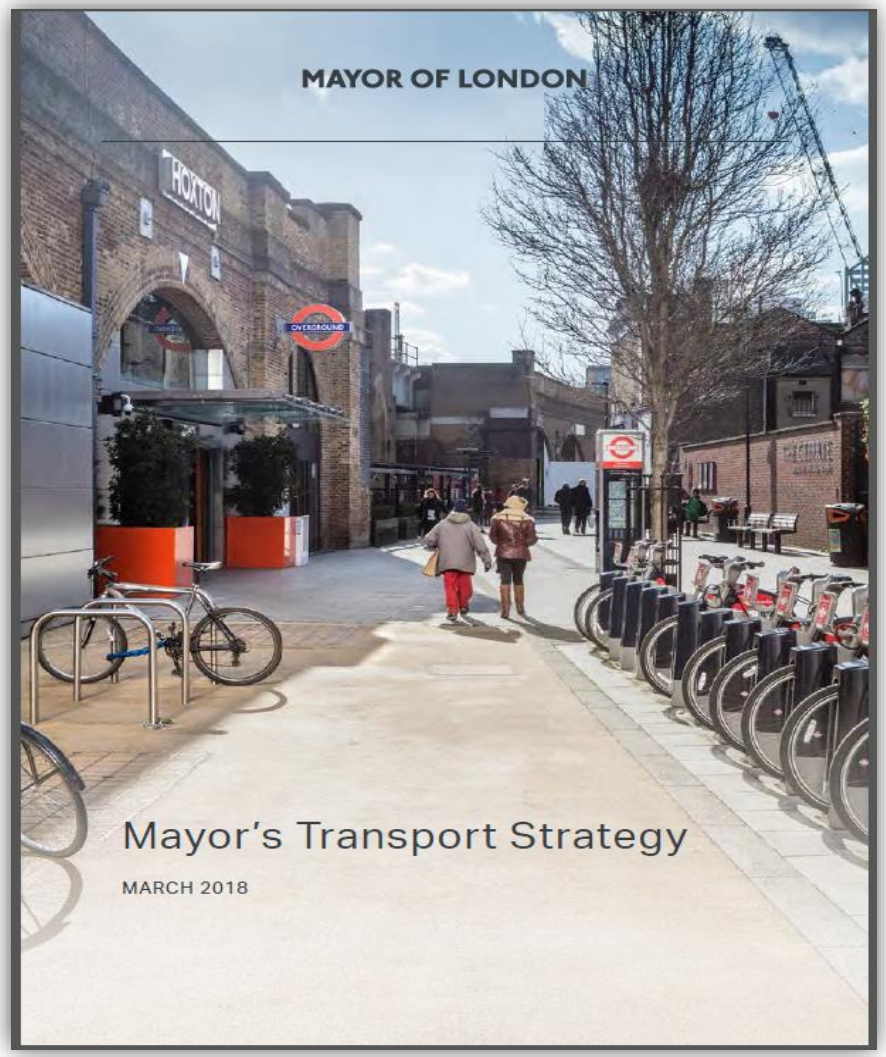
that's
15.6m
per period

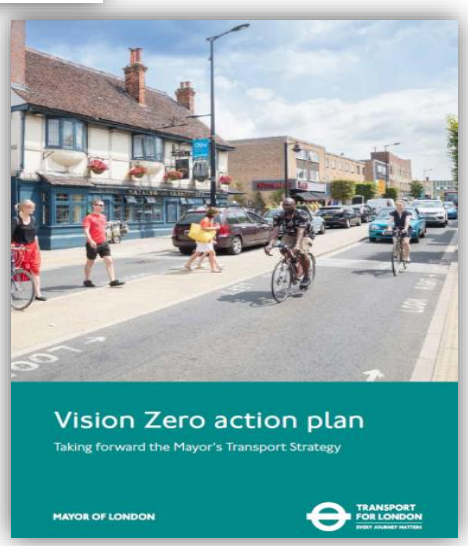
There were
1.5 million
journeys last year on the Emirates Air Line

4,200
per day


580km
(90km of
High Speed Roads)
6,364
225,000,000
24,000
10,634,793sq.m
3,114,714 sq.m
Footway maintenance
36,000
2.4bn
TfL Road Network (represents 5% of all roads
in London – carries 30% of traffic)
Traffic Signal Sites
21,000,000
Road network
trips each day
Cycling
Number of journeys made
Unplanned incidents
10,000
Collisions
annually
Carriageway maintenance
Roadworks
Buses
Number of journeys made
1,315 CCTV
Cameras
80% of all trips in
London take place
on the road network
13 Tunnels & Underpasses
Bus fleet - 9,000
Bus Shelters - 12,207
Bus Stops - 8,829
Bus routes - 700

Delivering the Mayor's vision for London





Delivering Healthy Streets for all of London and embedding this into our day to day network operations

Network Management

NM Control Centre

Asset Operations

Coordination and Permitting

Works Master Planning

Network Performance

EVERY JOURNEY MATTERS

Managing the network 24hrs a day, 365 days a year for our customers

So far this year we have responded to:

- 6,675 planned and 11,606 unplanned incidents on our road network
- Stopped and diverted 3,821 over height HGVs from the Blackwall Tunnel northbound
- Managed three in tunnel vehicle fires

NMCC

Incident Response

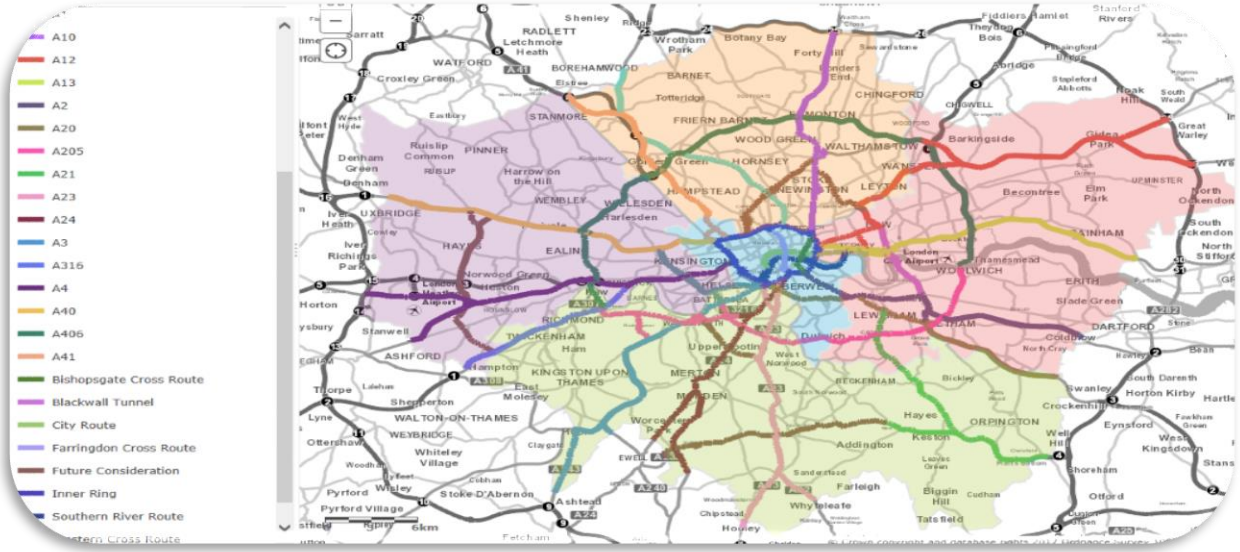
Blackwall Tunnel Fire

Best from the East

Large scale events

Our responsibility is to ensure London's roads work for all people and technology plays a vital role in this.....

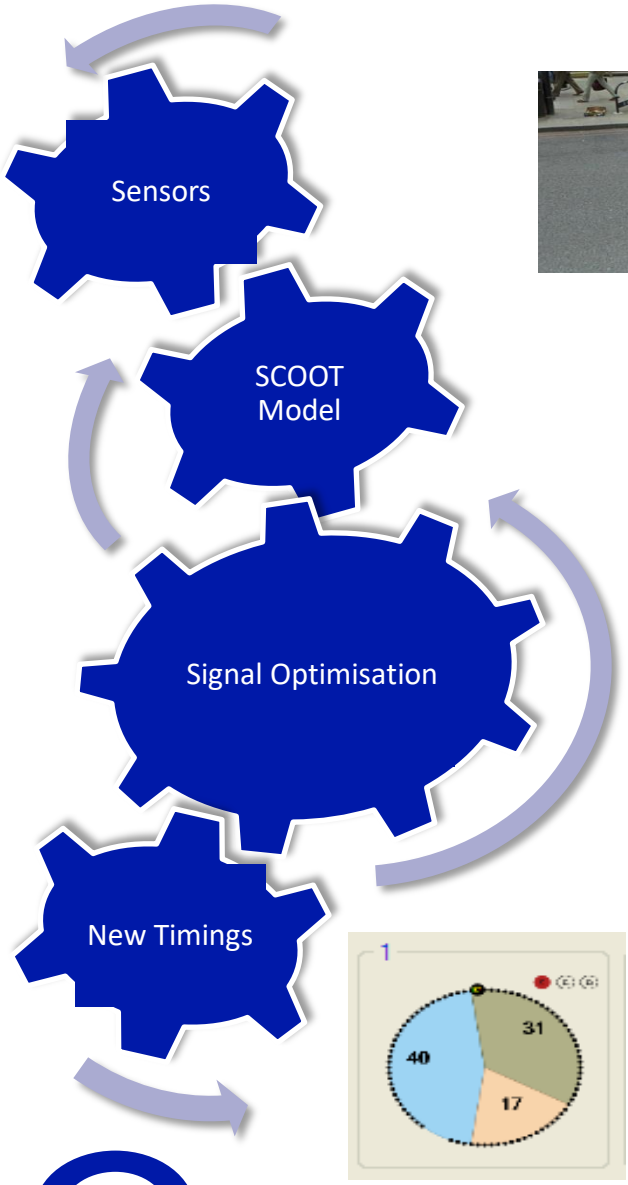
Traffic Signals

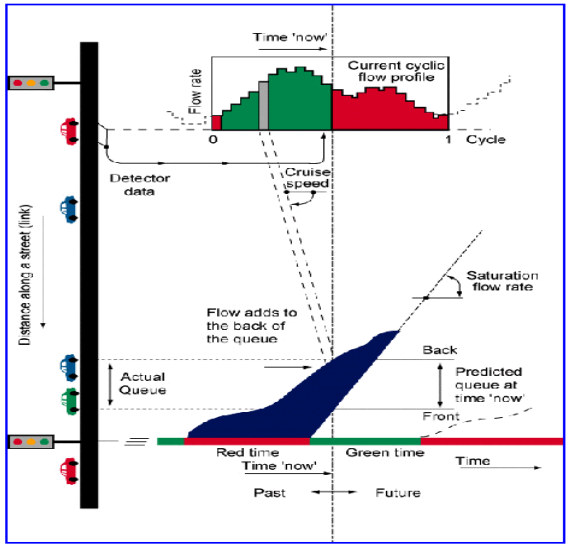


- Expertise in UTC and SCOOT operating systems
- Use expertise in data analysis, traffic modelling and efficient junction design
- Comprehensive operational knowledge of our roads and boroughs to inform high quality scheme design
- Target improvements for Healthy Streets, improving Bus Speeds, the environment for walking and cycling
- Work in real time operations to support the Control Centre

SCOOT: How does it work?

Split Cycle Offset Optimisation Technique

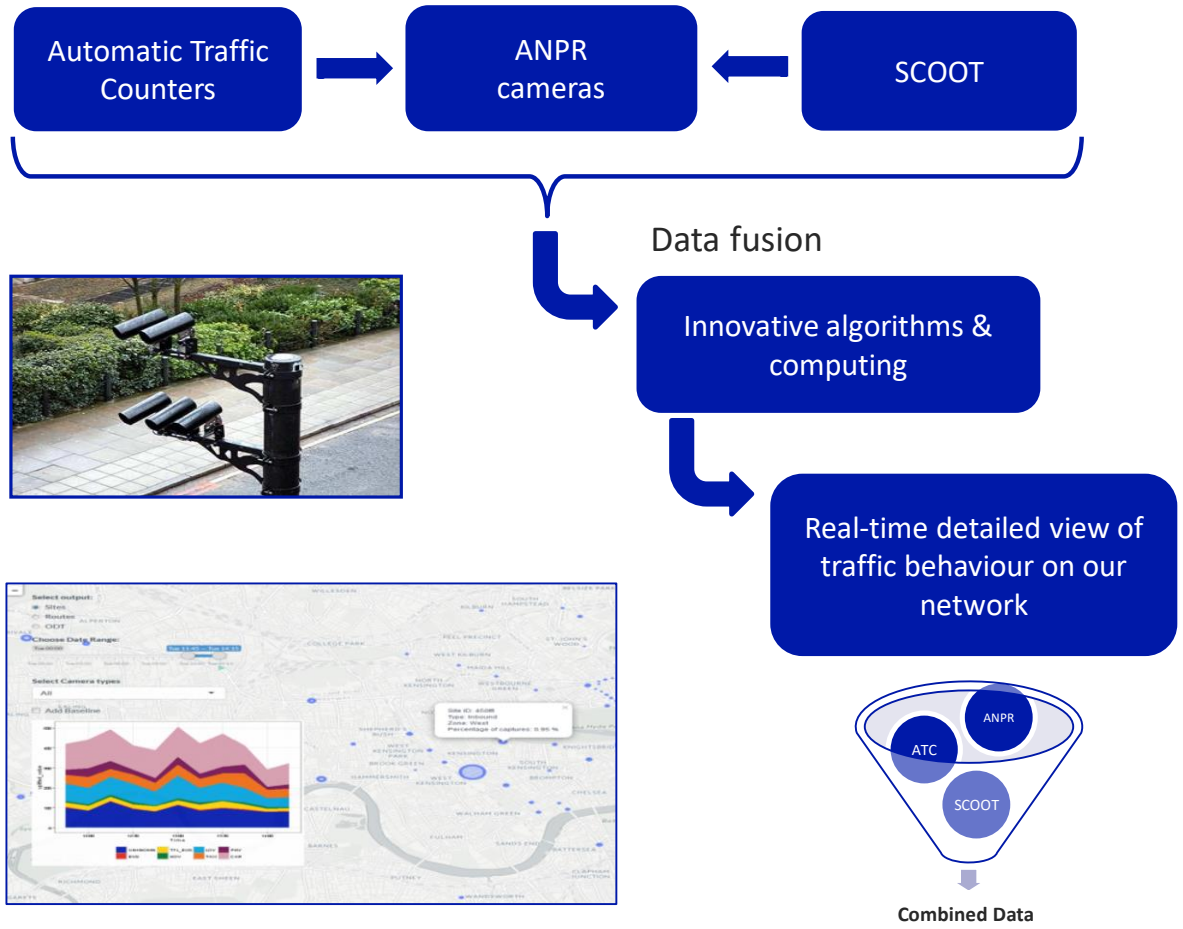




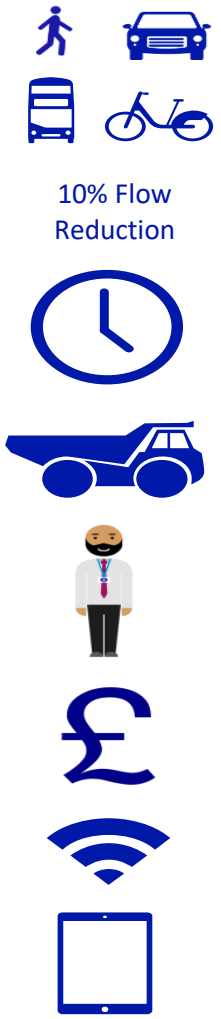
- Data gathered from sensors in the road network
- Junction modelled second by second within SCOOT
- Buses and their location in the queue are also modelled
- Traffic signal timings optimised to make best use of available capacity and coordination with neighbours
- New timings sent to junction controller in real time

RODAT

(Real-time Origin & Destination Analysis Tool)

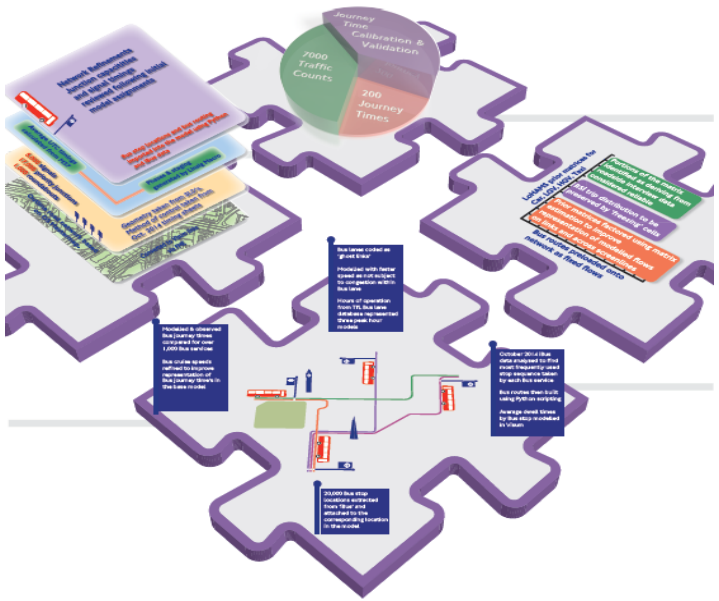


- Using our existing technology on street
- 288 ANPR cameras at locations across all major routes towards central London
- Flow monitoring data
- Capturing over 3 million vehicle registrations daily and monitoring over 20k origin destination pairs every 15 minutes

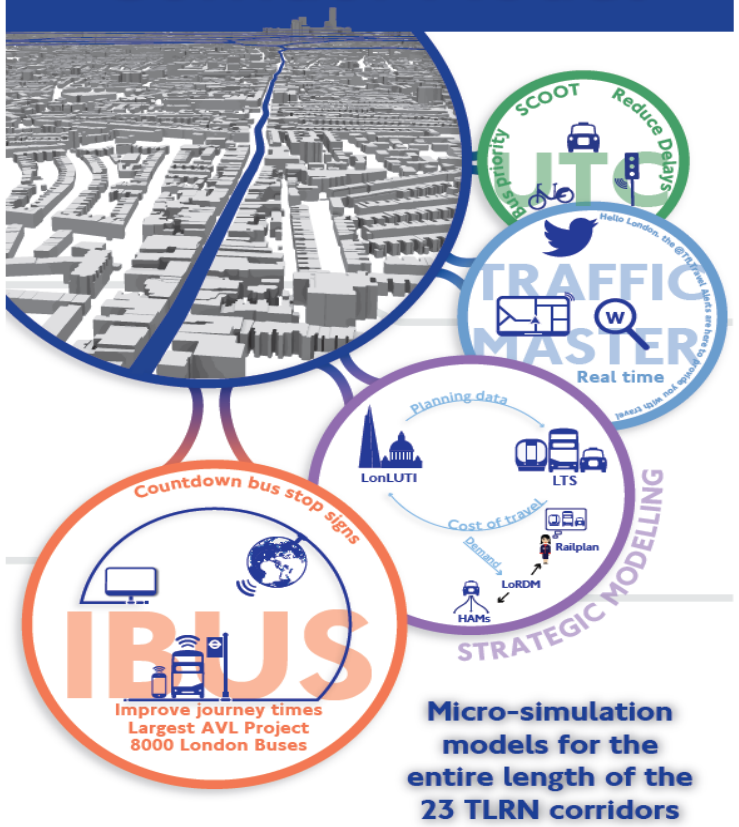


Modelling and Visualisation

ONE Model



Corridor Model



Micro-simulation models for the entire length of the 23 TLRN corridors

3D Capabilities

Situational Awareness

'is the ability to identify, process, and comprehend information about how to survive in an emergency situation. More simply, it's knowing what is going on around you.'

BeSurvival.com © 2018

Geographic Information Systems (GIS) technology seen as an enabler...

Issues

- Data was fragmented, duplicated, out of date and poor quality
- Lack of governance
- Expertise restricted to a small group of specialist teams
- Software was inaccessible (licences on dongles and managed by individual teams)
- Resilience (disaster recovery) required improvement
- Lack of scalability for future growth
- Silo-ed approach inefficient and not cost effective.

TfL required an enterprise-class geographic information system (GIS) infrastructure to service all mapping and spatial data to the business.

Our GIS Journey

Capability used by a few specialists teams

2008

2012

Games Playbook was deployed for traffic management during the Olympics

GIS as a Service Launched at TfL

Sept. 2014

Surface Playbook Launched to 80 internal users

Oct . 2014

2015

Traffic Information Management System (TIMS) & CCTV operator interface consume GISaaS

External Playbook Launched to London Boroughs

Dec . 2016

2017

Londonworks Upgraded Roadworks Reporter Tool Launched

2018

GLA Infrastructure Mapping Application connected to GISaaS Proof of Concept work on Waze / Big Data (telematics)

Future Technology Projects (SITS)

2019+

GIS As A Service

Playbook

CCTV Operator Interface

Traffic Information Management System (TIMS)

LondonWorks

Single Source of Truth

GLA Infrastructure Map Application (IMA)

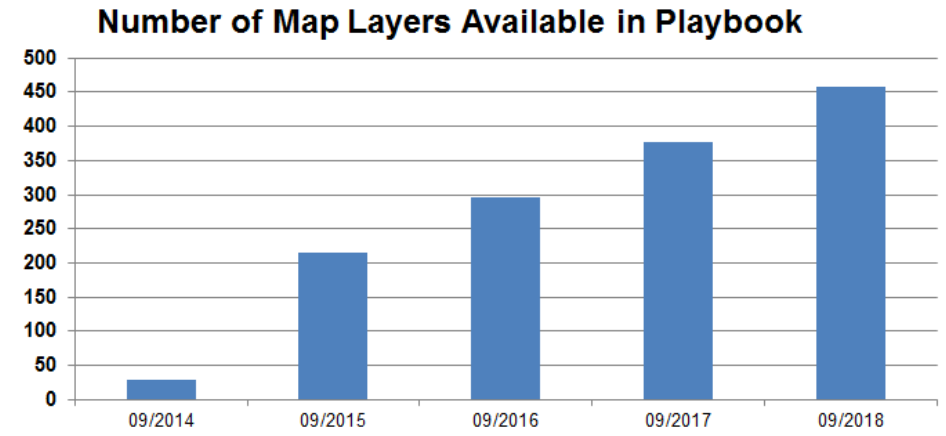
RODAT

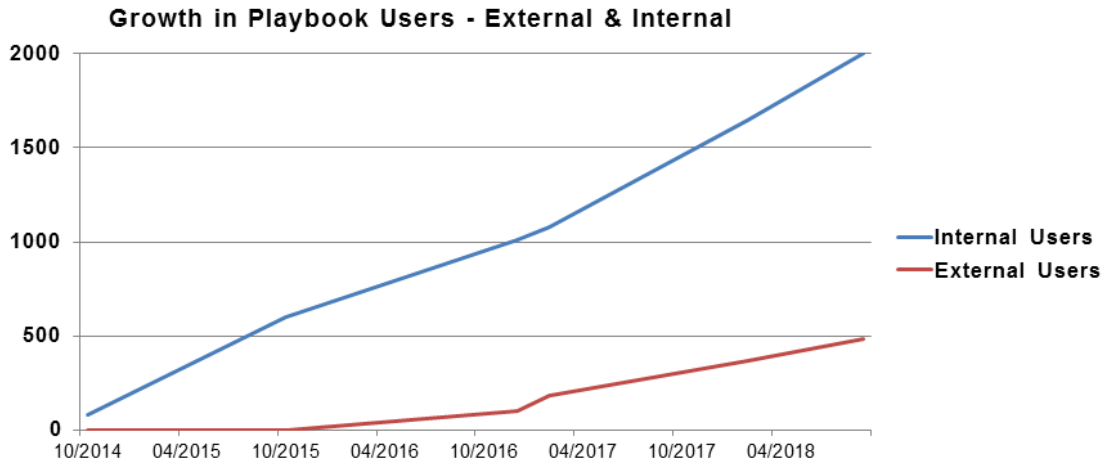
Desktop GIS Users

Future Technology Projects

Playbook

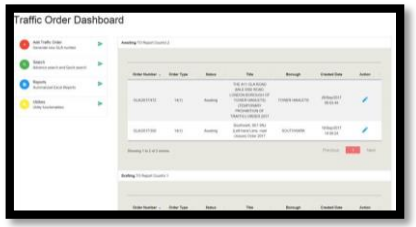
A tool for Communication, Coordination and Collaboration

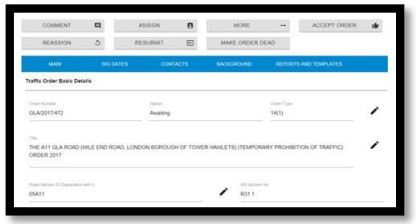


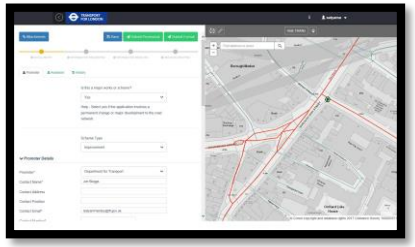


Roadworks Management

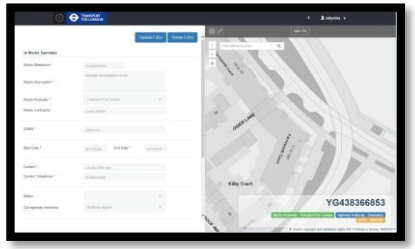
Traffic Orders

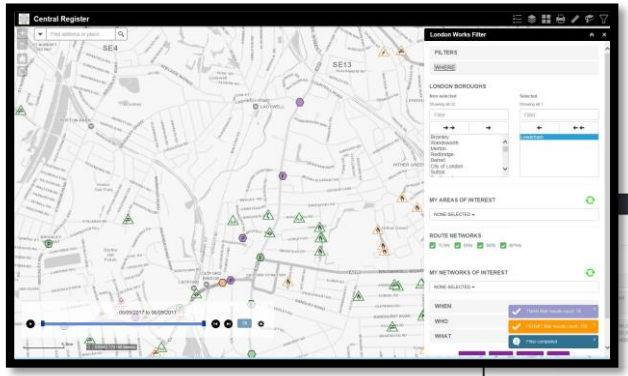




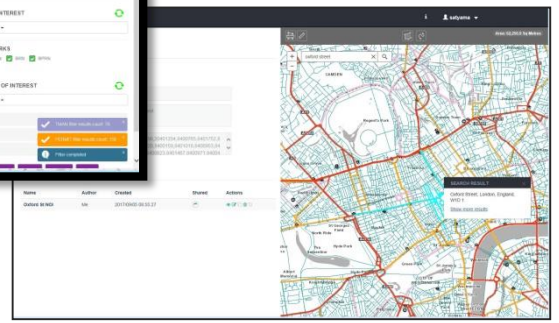


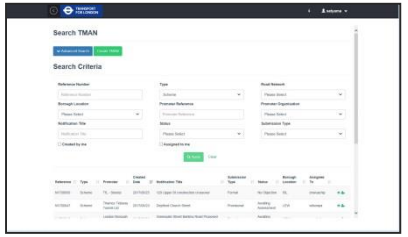
Forward Plans





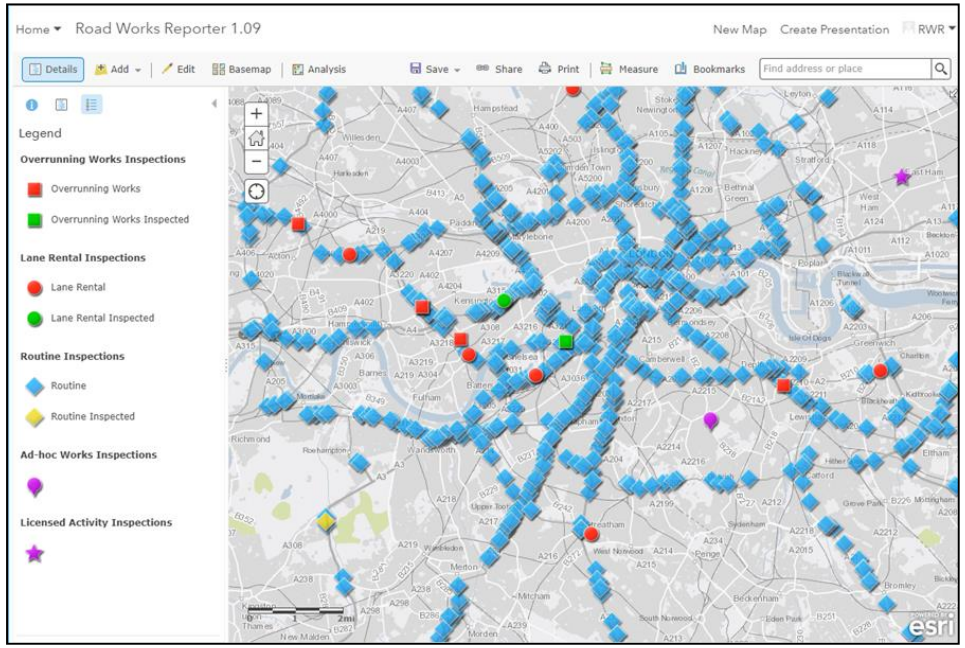
Central Register of Works

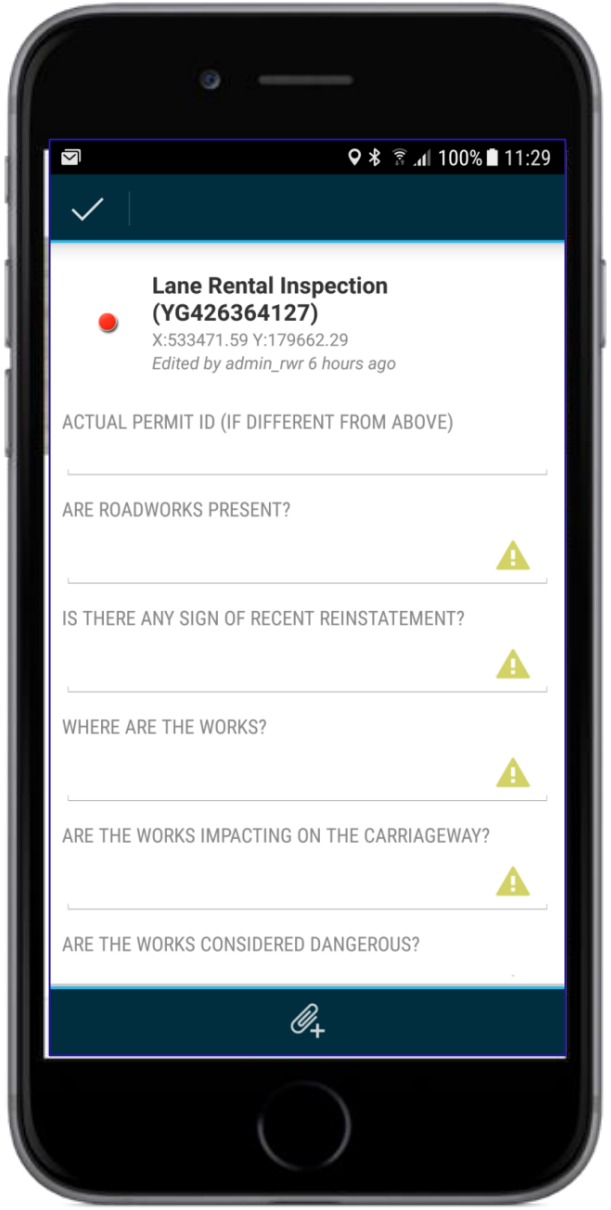




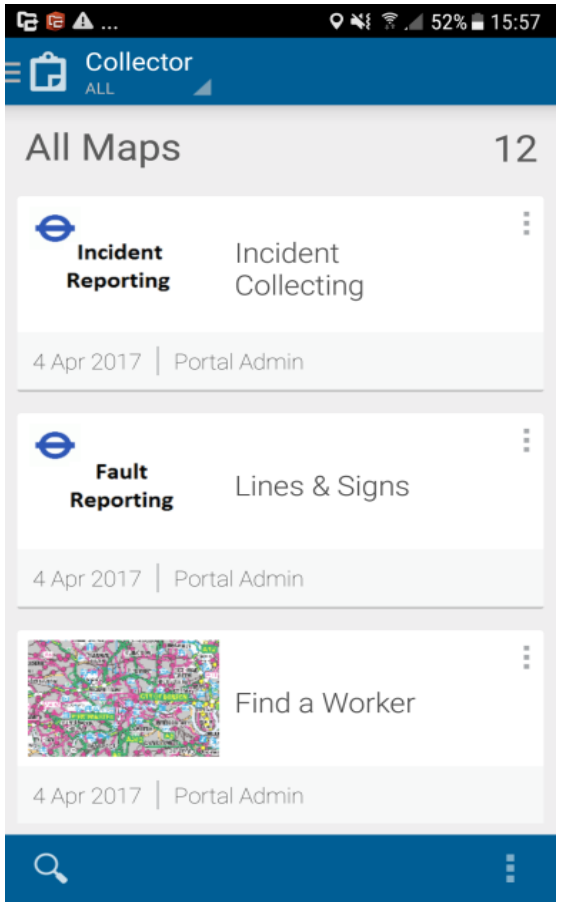
Traffic Management Permits

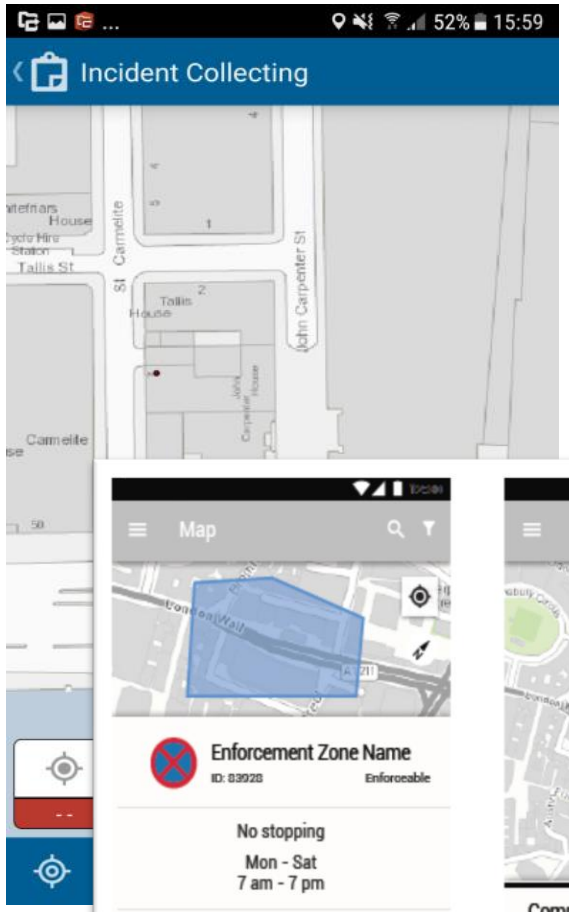
Roadworks Inspections

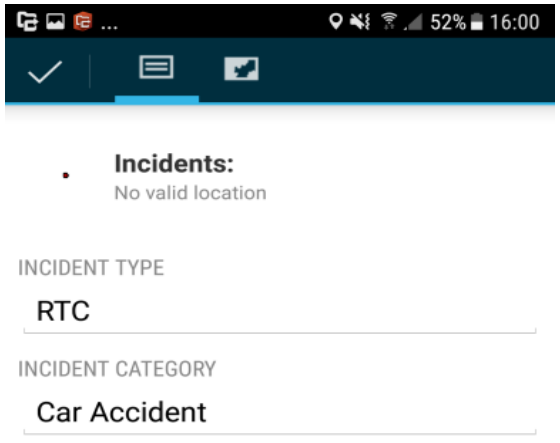


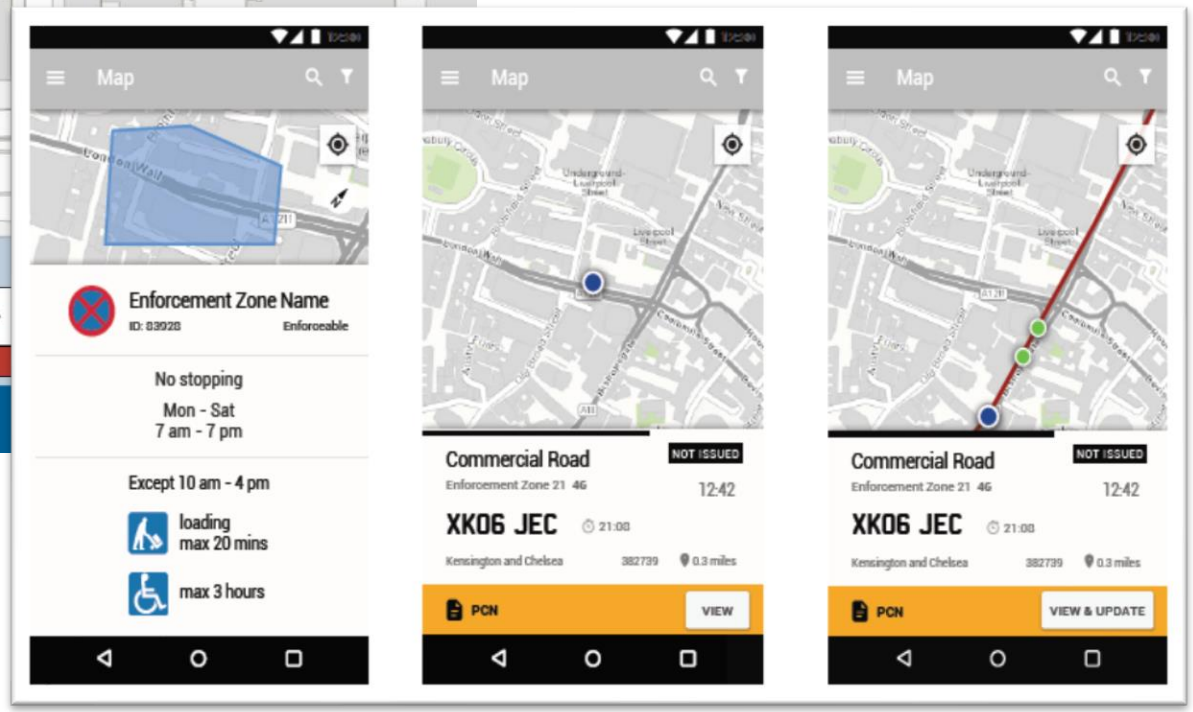


Incident Collection and Enforcement

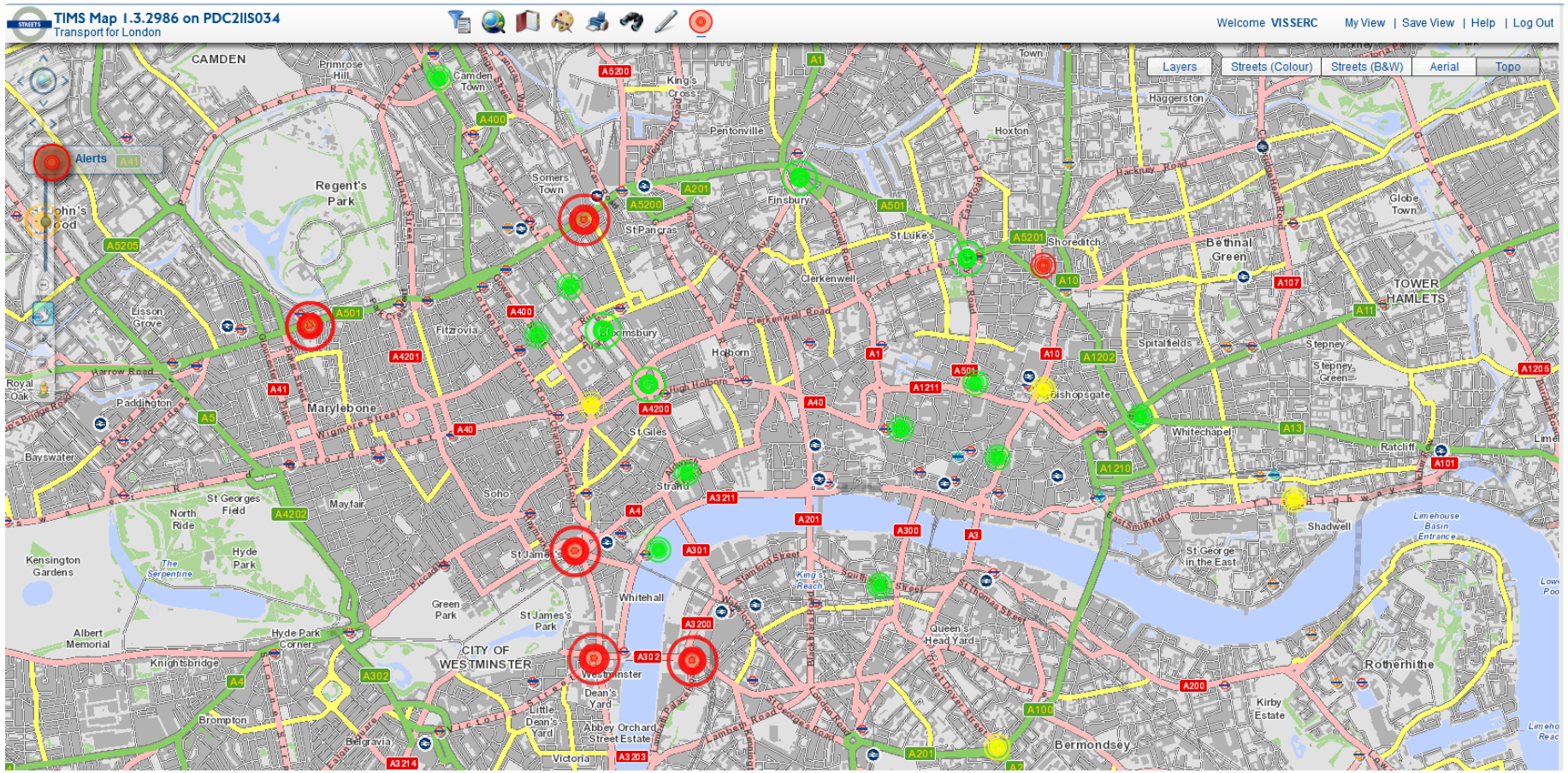






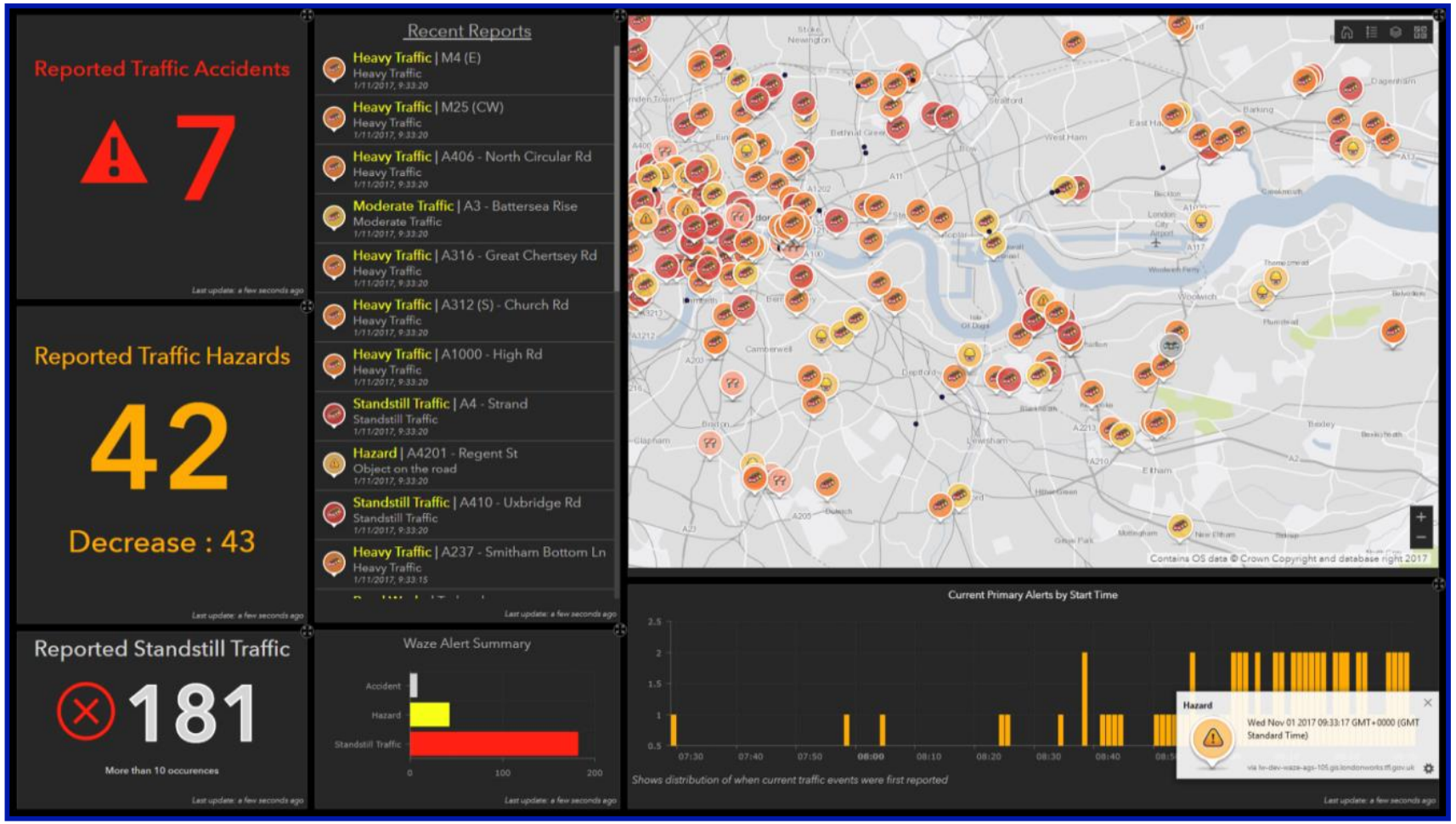


Incident Management
Traffic Information Management System

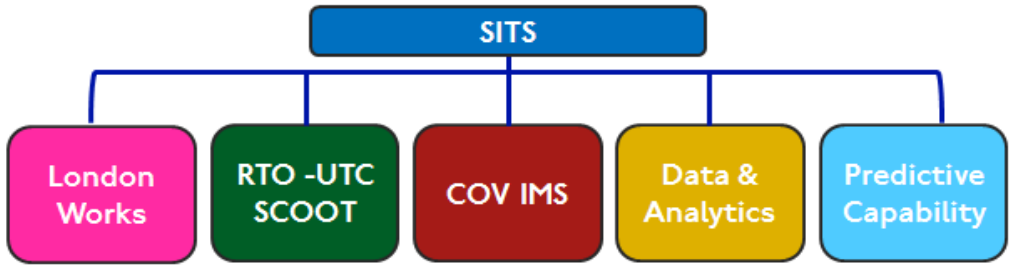


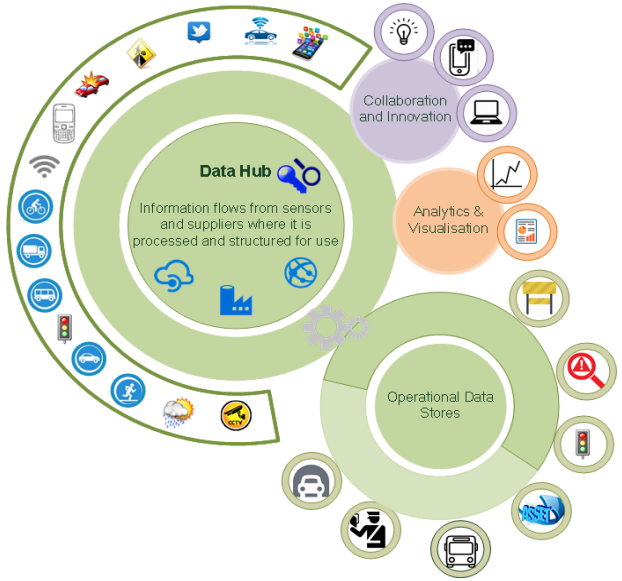
Real-time operational dashboard showing all incidents and abnormal congestion.
Fed by UTC Data (Faults/14,500 SCOOT sensors), 1200 CCTV (IRID), ATC's

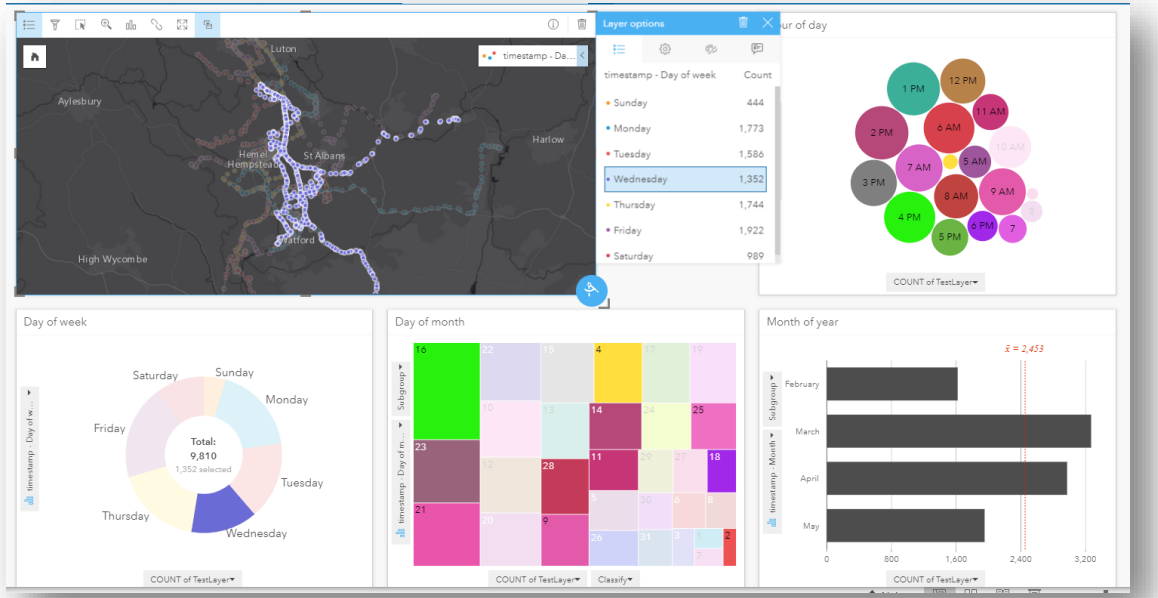
Real Time Operations
Incident Detection



Future Technology Landscape







Contact

Glynn Barton Director of Network Management
Transport for London
Palestra House,
197 Blackfriars Road
London SE1 8NJ