

LONDON TRANSPORT MODELLING

REVIEW OF 2009



INTRODUCTION

Colin Buchanan's Transport Modelling team had another successful year completing and delivering a wide range of projects for clients across UK and abroad. Some of the highlights follow.

Multi-modal modelling

We started the year quite well and were commissioned in February 2009 by Stoke City Council to develop a **multi-modal model of North Staffordshire** using the Cube Voyager modelling package. The model structure consisted of three main components, namely, a highway assignment model, a public transport model and finally a demand model.

A comprehensive programme of surveys was undertaken during spring 2009 including Origin-Destination surveys of all vehicles and bus passengers, household interview and stated preference surveys. The model will be used in the preparation of two major scheme business cases for the DfT. One of the schemes being promoted is a quality bus corridor running from the University at Keele to Kids Grove via a number of town centres including Newcastle-under-Lyme, Stoke and Hanley. The second scheme is a new road running between Hanley and Bentilee. As well as the two major schemes, the model will be used to assess a number of developments and smaller highway schemes. The project is being managed by **David Siddle** in Edinburgh working very closely with **David Battershill** and **Faiz Nassiri** in London.

Following on from the wider study of **Thurrock's infrastructure prioritisation and implementation programme** in 2008, we were commissioned in April 2009 to continue to support Thurrock in their LDF assessment and also to represent them at the examination in public (EiP) for the Lakeside single issue review document submitted by EERA relating to expansion of Lakeside in Thurrock. As part of this work, a new 3-stage demand model tool was developed in Visual Basic called STEEM (strategic trip end estimation model) to estimate the trip generation/attraction, distribution and modal split for the base and future year scenarios. A team from CB planning, transport planning/modelling and development **Hugh Roberts**, **Rose McArthur**, **David Paddon** and **Faiz Nassiri** represented Thurrock at the EiP.

CB London modellers also helped **Adrian Cole** and his team on the **Lewisham Borough Wide Transport Study** to produce an integrated multi-modal strategy to inform the preparation of the Council's core strategy for 2010-2025. To achieve this, **Mary Hoyes** with help from **Nashwan Samoail** built an area wide model of the borough using the existing Thames Gateway Bridge (TGX) SATURN model and together with the use of Railplan for PT, assessed the combined impacts of the highway and PT networks in the borough with various proposed developments.

Highway assignment modelling

In April 2009, the modelling team won a job in the **Isle of Wight** to build a high level SATURN traffic model of the island for the purpose of establishing future traffic flows over the next 30 years. Working closely with the council's appointed technical and economic advisors for the **highway maintenance PFI Project**, the model will be developed to allow the bidders to develop detailed work schedules and maintenance programmes during bidding and also to help the council in the assessment of any planned improvements and planning control. The model has already been used in support of the Business Case for the proposed PFI project. As part of this study, origin-destination surveys were carried out at the three main ferry terminals. The key team members were **Nashwan Samoail** (PM), **Faiz Nassiri** (PD) and **Mohammad Farahi**.

Another key project delivered in 2009 provided the **CELLO** (central London) board with an **impact assessment of planned schemes on the road network in central London** over the next five years. Colin Buchanan developed a series future year SATURN models from the CRISTAL-H refresh model. We produced an extensive set of SATURN results and a comprehensive analysis of each scenario to inform the CELLO board about how the planned network developments will affect central London at borough and sector level. This included converting SATURN results into a GIS database for detailed graphical analysis and producing a set of performance indicators.

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The model has been used to assess the impact of many other schemes and policies including a test to assess the impact on emissions of increased usage of electric vehicles in London. The project was managed by **Nashwan Samoail** with help from **Mohammad Farahi** and **Mary Hoyes**.

In addition to these successful projects, our team provided assistance to Transport for London in the development of the **ONE** (Operational Network Evaluation) Central London VISUM model. In addition to providing ongoing support and advice, one of the main activities has been the **development of demand matrices based on trip ends** developed from Office of National Statistics (ONS) and trip rates produced by LTS model. As part of this work, the trip distribution functions were enhanced and calibrated to local trip pattern observations using the enclosure and screenline surveys carried out for development of Central London highways assignment model. The core advisory team included **Ashish Chandra** as project manager, **Faiz Nassiri** as project director and **David Siddle**.

Other modelling projects

The CB Modelling team worked together with the CB Economics and CB Traffic Engineering teams to **analyse the economic impact of traffic signals in London**, which was commissioned by Greater London Authority Economics. This study followed on from our initial exploratory study which used a theoretical VISSIM model to test whether there is a theoretical tipping point in terms of the level of traffic at which it is beneficial in economic terms to switch off the traffic signals.

The study has demonstrated that on the basis of the junctions modelled there are significant benefits to road users arising from having traffic signals in London. If benefits to pedestrians were added and account taken of the higher junction capacity that signals can provide this figure would be higher. The study also shows that there are benefits of removing traffic signals in certain locations and at certain times, provided that safety would not be compromised. The key team members were **John Siraut** as project director, **Ashish Chandra** as project manager and **Keith Firth**.

In June 2009, **Ashish Chandra** through his contacts within **Sandwell Metropolitan Borough Council** won a job to develop an integrated modelling framework to test numerous highway designs, demand management measures and produce a **Business Case** submission for West Bromwich. The project involved development of an integrated modelling suite which used VISUM for strategic modelling, VISSIM micro-simulation and economic appraisal using TUBA. The VISUM model interacts with the VISSIM model which also included a detailed pedestrian network. Among those who helped Ashish were **Siamak Khorgami**, **David Battershill** and **Kranthi Komanapally**.

The team also updated the BusModel software for Dublin Bus. BusModel is an operational model, developed in-house by CB, that uses bus patronage data (classified by person/ticket type and time period) and a representation of the network to calculate the number of bus passengers, revenues and benefits. In this update, the patronage was modified to 2008 levels, taking into account changes in census data between 2002 and 2006. The network was also updated to reflect the current bus provision and the model was validated against observed bus passengers. This project was managed by **Ashish Chandra** and undertaken by **Richard Steinberger**.

And....

CB's Transport Modelling team in London has been developing an interest in **Ultimate Frisbee**. This has been led by **Mary Hoyes** who is coach and a team player of the London based team called Crown Jewels (currently in fifth position in the national women's league). Interest in this sport has spread across the office and the team, together with the CB's Traffic Engineering team, have played on a number of occasions in Hyde Park during summer 2009.

KEY WORK AREAS:

- Multi-modal modelling
- Highway assignment modelling
- Demand modelling
- Micro-simulation

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