Transport Studies Group
Department of Civil and Building Engineering
Loughborough University

Annual Report
2007
Dr David Gillingwater examined a PhD on Air Traffic Management for Imperial College London in May and was then invited to participate in an EU SOCRATES-ERASMUS staff exchange with TU-Dresden’s Institut fur Luftfahrt in the following month. He was also invited to participate in research strategy meetings with TU-Delft in the Netherlands and EUROCONTROL in Brussels and contributed to a special supplement of the August issue of What Car? on climate change.

Dr Stephen Ison became Professor of Transport Policy in May. He also took over from Professor Tony May as Chair of the Special Interest Group Urban Transport Policy (SIG-10) of the World Conference on Transport Research. In November, Professor Ison chaired a session of the Regional Studies Association on Sustainable Transport in London. He is a member of the Academic Expert Framework for the Commission for Integrated Transport and a member of the Airport Terminals and Ground Access, Technical Activities Council Committee, Aviation Group, Transportation Research Board.

Dr David Pittfield gave an invited panel presentation at the 48th Annual Transportation Research Forum, Boston University in March and an invited paper at EUROCONTROL in Brussels, Belgium in September.

Dr Mohammed Quddus was invited to contribute an article on ‘Map matching algorithms for ITS applications’ in the Encyclopedia of Geoinformatics. He was also invited to act as a guest editor of a special issue of the Journal of Intelligent Transportation Systems on ‘Intelligent Vehicle Navigation’. Dr Quddus was elected an Executive Committee member of Universities’ Transport Studies Group (UTSG), and has established a new research link with Bangladesh University of Engineering and Technology (BUET) via a research grant funded by the British Council.

Dr Tim Ryley hosted two seminars in June – one in the University and one at the Aviation Division of Department for Transport in London – as part of his Propensity to Fly EPSRC project.

Dr Marcus Enoch undertook a teaching exchange with Dr Maria Attard of the University of Malta during the early spring and was promoted to Senior Lecturer in Transport Studies in May.

BY DR. MARCUS ENOCH

INTRODUCTION

The year 2007 was largely one of continued success within Loughborough University’s Transport Studies Group. The MSc in Sustainable Transport and Travel Planning – developed in collaboration with Transport for London – was launched as a full time programme in October and Dr Stephen Ison was awarded a chair in Transport Policy. Altogether, the Group published 18 academic journal papers and work commenced on six new research grants.

STAFF CHANGES

Dr Elisabete Arsenio, Senior Research Fellow in the Department for Transportation within the Laboratório Nacional de Engenharia Civil (LNEC), Lisbon was appointed a Visiting Fellow at Loughborough University in 2007, while researcher Jason Zhang left the Group in January to start work as a consultant with Jacobs.

STAFF NEWS

Professor Abigail Bristow was appointed to the Board of the Low Carbon Vehicle Partnership and has joined the transport steering group of the RSA Board. She is a member of the Commission for Integrated Transport’s Academic Framework. Professor Bristow gave an invited key note paper on measures to reduce CO2 emissions from transport at TDeS’07 “Transport for a Sustainable Development”, Lisbon, June 2007. Professor Bristow was an invited participant at the Conference on Transport Research. In November, Professor Ison chaired a session of the Regional Studies Association on Sustainable Transport in London. He is a member of the Academic Expert Framework for the Commission for Integrated Transport and a member of the Airport Terminals and Ground Access, Technical Activities Council Committee, Aviation Group, Transportation Research Board.

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VISITORS

There were a number of visiting lecturers hosted by the Group in 2007. These included: Dr Maria Attard, University of Malta, Professor Stephen Potter and Dr James Warren of the Open University, Tania Roca, BAA Heathrow Airport; Dr Anne Graham and Dr Nigel Dennis, University of Westminster; Professor Graham Braithwaite, Simon Hegatty and Simon Place, Cranfield University; Nigel Foot, Aston University, Graham Greaves, Aviation Consultant, Councillor Nick Wallis, formerly the transport portfolio holder of Darlington Borough Council; Norman James, STAR Consultancy, and Robert Watson, RWA Rail, Loughborough.

PHD’S AWARDED

Derek Wong gained his PhD entitled “The Frequency, Consequences and the Risk Assessment of accidents on or near Airports” in March and Paul Grimley was awarded his PhD entitled “Indicators of sustainable development in civil aviation” in June.

RESEARCH STUDENTS

Other than those awarded degrees, the research students registered for PhDs in 2007 were:

Andrew Appleyard: “Normalisation of accident data on or near Airports and their Location”;

Mohammed Bitemal: “The A380 and Implications for airport design”;

Bruno Desart: “Strategic Airport Capacity Dynamics”;

Joe Kendal: “The potential for Road User Charging in a UK National Park Context”;

STUDENT NEWS

Eight students graduated on the BSc Air Transport Management course in July 2007, while seven graduated from the BSc Transport Management and Planning course. William Murchison won the Chartered Institute for Logistics and Transport Prize as the best student on the undergraduate programmes. The second cohort of students graduated from the MSc Transport Policy and Business Management programme in December, while the first students from the Transport for London-sponsored MSc in Sustainable Transport and Travel Planning completed the first year of their programme. Participation in the EU SOcrates/Erasmus programme continued with the Transport Studies Department at the Universite de Savoie in France, the Aviation Department at Zilina University in Slovakia and the Institute of Aviation at the Technical University Dresden in Germany. Altogether three students visited from overseas, and one member of staff travelled abroad.

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Bruno Desart: “Strategic Airport Capacity Dynamics”;

Joe Kendal: “The potential for Road User Charging in a UK National Park Context”;

TECHNICAL UNIVERSITY OF LONDON
Rebecca Laws: “The role of Demand Responsive Transport in supporting social, economic and environmental policy goals”;

Ross MacGregor: “ Tradable Permits and the Aviation Industry”;

Elias Maragakis: “Wind Farms, Obstacle Assessment and Airport Planning”;

Mohammed Abdullah Al Mamun: “Travel Demand Management for Sustainable Urban Transport”;

Robert Mayer: “The change in air travellers’ behaviour due to increasing environmental awareness and sustainable transport policy and its impact on airline business models”;

Stuart Meek: “Park-and-Ride: Past, present and future”;

Onyemaechi Meregini: “Performance Evaluation for Ports in Developing Countries”;

David Morris: “Car free development in the UK: From the margins to the mainstream”;


George Raymond: “Developing a sustainable transport system for Milton Keynes”;

Mike Snelgrove: “An exploration of the potential of customer loyalty to distort airport choice behaviour”;

Chao Wang: “The Association Between Road Safety and Congestion”;

Robert Watson: “Rail Capacity Utilisation: Models and Methods”;

Lian Zhang: “The potential role of Transportation Management Associations in the UK context”.

**RESEARCH PROJECTS**

**AIR TRANSPORT**

**Propensity to Fly**
EPSRC from November 2006 to April 2009
Grant holders: Dr Tim Ryley.

The overall goal of the research is to assess the propensity, or likelihood, of individuals to fly. It concerns the development of stated choice models to assess this, as well as how it varies across different segments of the population. Data for these modelling and segmentation tasks will largely come from a questionnaire survey of individual flying preferences. Data will be collected from over 1,000 residents of the East Midlands region, in which East Midlands airport is located. Questions in the survey will concern socio-economic information, access to airports, flight history and attitudes towards air travel. In
addition, a series of stated preference questions will be included, in which respondents will make hypothetical choices of whether to fly or not for specified leisure trips using low-cost airlines. The project will deliver a stated choice modelling capability and a greater understanding of air travel market segments. Such findings will be of benefit to aviation policy-makers, as they consider air travel demand forecasting and future airport capacity. Airlines and regional airports will also be beneficiaries, particularly those interested in the demand for air travel in the East Midlands region. Contact Tim Ryley (Tel: +44 (0)1509 223422; Email: t.j.ryley@lboro.ac.uk).

INDICATOR: International and National Developments In Collaborations relating to Air Travel and Operational Research
EPSRC from October 2007 to June 2008
Grant holder: Dr Tim Ryley.

The INDICATOR (International and National Developments In Collaborations relating to Air Travel and Operational Research) project was awarded in response to the EPSRC ‘Collaborating for success through people’ call. This proposal has been tailored to meet the strategic needs of the single academic researcher, Dr Tim Ryley, to build and develop his research team. The people-based activities outlined in the INDICATOR proposal are for nine months, from October 2007 until June 2008. The activities complement ongoing EPSRC Propensity to Fly project research; the collaborations developed in INDICATOR will be relevant to the modelling and analysis of the Propensity to Fly survey data. The UK research team (Dr Tim Ryley & Dr Lisa Davison), based at Loughborough University, will collaborate with a highly-renowned US research team that has strong links with a major industrial player (Boeing); they will also develop UK collaborations in air travel and operational research. The US research team is across multiple universities and organisations: Professor Frank Koppelman (Northwestern University, Illinois), Dr Laurie Garrow (Georgia Institute of Technology), Dr Greg Coldren (Coldren Choice Illinois), Dr Laurie Garrow (Georgia Institute of Technology), Dr Greg Coldren (Coldren Choice Illinois) and Roger Parker (Boeing).

Public engagement on aviation taxes
Sustainable Development Commission, March 2007
Grant holders: Dr Tim Ryley, Prof. Abigail Bristow

The overall objective of the ‘Public engagement on aviation taxes’ study was to deepen understanding of the arguments around the acceptability of current and potential future aviation taxes. The project, based on four focus groups in Loughborough, was conducted during March 2007. There was confusion amongst focus group participants on the current aviation tax system, Air Passenger Duty. In terms of where additional aviation tax revenues should be spent, there was greatest support for the long-term measures of improving UK surface transport and aircraft technology. Participants were tentatively supportive of the European Union Emission Trading Scheme (EU ETS) and felt that the UK should lead by example for climate change solutions such as the EU ETS. However, participants would like to see companies within the EU ETS striving for maximum carbon reductions. The focus groups felt there was a need to educate and inform the public about climate change and the environmental impacts of transport. A range of methods were put forward to inform passengers; an interesting idea was to develop a league table of airlines that would incorporate carbon emissions as well as flight costs for a particular journey.

Airport Overrun and Undershoot Analysis for Runway Safety Areas

This research project arose from some previous EPSRC funded work and has led to the development of two aircraft accident databases which are available for use by interested parties. The first covers overruns in native English-speaking countries from 1980 to 1998. The second up-dates this landing overrun information for the USA from 1982-2002 (199 cases) distinguishing take-off overruns (52) and adds data on landing undershoots (122), and take-off and crashes (67). Accidents that involved veer-offs and third parties are included in these categories. Detailed data is included from the accident reports as well as meteorological conditions. Contact David Pitfield (Tel: +44 (0)1509 223416; Email: d.e.pitfield@lboro.ac.uk).

Air Freight Growth
Sustainable Development Commission from February 2007 to March 2007
Grant holder: Professor Stephen Ison.

This project provided a literature review on Air Freight Growth for the Sustainable Development Commission. Contact Stephen Ison (Tel: +44 (0)1509 222605; Email: s.g.ison@lboro.ac.uk).

MOBILITY MANAGEMENT

OPTIMUM2
European Commission from January 2004 to June 2008
Grant holder: Dr Marcus Enoch

Collaborators: Province of North Holland (NL); Province of South Holland (NL); Essex County Council (UK); Lancashire County Council (UK); City of Edinburgh Council (UK); Royal Devon & Exeter Hospital (UK); Province of Gelderland (NL); Senter Novem (NL); London Borough of Southwark (UK);

OPTIMUM2, a European Commission Interreg IIIB project is developing an effective approach for using Mobility Management measures to tackle
the accessibility and mobility problems caused by congestion in urban areas. Led by the Province of North Holland, the key objective of the London Borough of Southwark element of the project (in conjunction with the University of Westminster and consultant SEA Renue), is to encourage the take up of effective mobility management measures among local traffic generators (e.g. businesses, hospitals etc) to reduce the (sole) use of cars in the Borough. This is being accomplished by establishing two Local Travel Plan Groups (LTPGs); developing a planning financial obligation tool; developing and testing a range of innovative mobility management tools; developing and analysing possible methods of incorporating the LTPG regime into the local political, transport and planning framework; and determining the barriers to implementing LTPGs and methods of overcoming these. During 2007 the Loughborough team advised both Southwark Council and Transport for London in how to develop Local Travel Plan Groups in London. The Loughborough University team is also involved in the so-called DIME team, which is responsible for monitoring and evaluating the OPTIMUM 2 project as a whole. For OPTIMUM 2, the contact is Marcus Enoch (Tel: +44 (0)1509 223408; Email: m.p.enoch@lboro.ac.uk).

Developing a Blueprint for Travel Plans in the UK Department for Transport (via National Business Travel Network) from July 2007 to March 2008 Grant holders: Dr Marcus Enoch and Professor Stephen Ison.

This study comprises of two parts. The first consisted of a literature review and in-depth interviews with ten key travel plan experts to determine the current state of play regarding travel plans in the UK. The second meanwhile is concerned with formulating possible policy proposals for Government to consider. For further information, the contact is Dr Marcus Enoch (Tel: +44 (0)1509 223408; Email: m.p.enoch@lboro.ac.uk).

ENVIRONMENT AND SUSTAINABILITY

Personal Carbon Trading: using stated preference to investigate behavioural response.
Royal Society of the Arts Carbonlimited from December 2007 to July 2008. Dr Alberto Zanni; Grant holder: Professor Abigail Bristow Collaborator: University of Leeds

This study involves innovative application of stated choice methods to explore, firstly, how the acceptability of a personal carbon trading scheme might vary with respect to its design attributes and secondly, the acceptability of a personal carbon trading scheme relative to other policy instruments with the same aim such as a carbon tax. The work also seeks to identify the likely behavioural response to a personal carbon trading scheme that covers domestic energy and transport. The initial implementation of the stated preference exercises will be at a Citizens Forum event organised by the RSACarbonlimited in Cardiff in January 2008. Further surveys are planned for May 2008. Contact Professor Abigail Bristow (Tel: +44(0)1509 223781; Email: a.l.bristow@lboro.ac.uk).

The determinants of Bus Patronage in England: The role of softer factors in influencing patronage and modal shift,
Department for Transport: May 2007 to April 2009. Grant holder: Professor Abigail Bristow Collaborators: FaberMaunsell, University of Leeds and Star Independent Consultants

Loughborough is part of a consortium led by FaberMaunsell and including the Institute for Transport Studies, University of Leeds and STAR Independent Consultants. The main research task at Loughborough was a comprehensive literature review covering two key areas. Firstly, studies that have sought to place a monetary value on softer factors. Secondly, studies that identified impacts on patronage and / or modal shift as a result of soft interventions. Contact Professor Abigail Bristow (Tel: +44(0)1509 223781; Email: a.l.bristow@lboro.ac.uk).

Strategic Advisor on Climate Change Commission for Integrated Transport, August 2006 to September 2007. Grant holder Professor Abigail Bristow

Professor Bristow provided strategic advice on climate change issues to the Commission for Integrated Transport working group on climate change. This included an assessment of the cost effectiveness of a range of measures to reduce CO2 emissions in transport and other sectors. Contact Professor Abigail Bristow (Tel: +44(0)1509 223781; Email: a.l.bristow@lboro.ac.uk).

Noise Futures Network EPSRC, June 2006 to May 2009 Grant holder: Professor Abigail Bristow Collaborator: University of Sheffield

Noise is usually defined as "unwanted sound". Environmental noise, including sounds from road/rail/air traffic, industries, construction, public work, and the neighbourhood, creates disturbance and distress. In the European Union around 32% of the population is exposed to road traffic noise and 10% to rail traffic noise above the World Health Organisation (WHO) standards, whilst 10% are highly annoyed by air traffic noise. The latest study in the UK by the Building Research Establishment shows that approximately 54% of the population is exposed to day time noise levels above the WHO standard for daytime noise. Although individual sources of noise such as cars and planes have become quieter, this has been offset by rising traffic levels. Policy is aimed at measuring noise levels and controlling or reducing noise levels in order to meet targets and limits for exposure. What isn't addressed is the issue of the sounds we want to hear. What makes sounds attractive or unattractive? Can we find out? Then can we develop ways of measuring "sound quality" rather than noise? Ultimately can we design desirable soundscapes in the same way that we design buildings, lighting or landscape effects in urban areas? This network aims to bring together academics from a wide range of different disciplines, experts from industry and policy makers to explore these questions. Bringing people together should spark different ways of looking at problems and collaborative research ideas. The ultimate aim being to make the world sound better! The network website provides details of network meetings and other activities and membership application see http://noisefutures.org/. Contact Professor Abigail Bristow (Tel: +44(0)1509 223781; Email: a.l.bristow@lboro.ac.uk).

Achieving low carbon city transport systems that are also robust to climate change Tyndall Centre for Climate Change Research July 2006 to April 2008. Dr Alberto Zanni; Grant holder Professor Abigail Bristow Collaborator: University of Leeds

This research activity forms part of the Tyndall Centre for Climate Change Research’s Cities Programme. The aim of this project is to develop an emissions accounting tool which will permit the estimation of carbon emissions from transport activity in London and potentially other cities and regions. The project will assess current and future emissions up to 2050, taking account of projected changes in vehicle use, economic development, demography and land-use. Emissions will be estimated for both a business as usual scenario and simulating the carbon reduction effects of a range of potential policy measures. Emissions from both freight and personal transport will be considered. Research at Leeds is focused on passenger transport and at Loughborough on freight transport. Research at Loughborough has focused on establishing trends in freight vehicle kilometres and emissions in London and projections of trends. Review of the literature on measures that might reduce emissions revealed a limited amount of evidence. A Delphi survey will be undertaken in 2008 to enhance the evidence base and allow policy based projections of freight emissions in London to be undertaken. Contact Professor Abigail Bristow (Tel: +44(0)1509 223781; Email: a.l.bristow@lboro.ac.uk).

Metrics, Models and Toolkits for Whole Life Sustainable Urban Development EPSRC from May 2005 to April 2009 Grant Holders: Professor Abigail Bristow, Professor Andrew Price, Professor Simon Austin Collaborators: University of Dundee, Glasgow Caledonian University, St Andrews University, The Building Research Establishment, The Construction Industry Research and Information Association, Faithful and Gould, WS Atkins, Levet-Therviel Sustainability Consultants.

The overall vision of the programme is to develop a comprehensive and transparent framework that encourages key decision-makers to systematically assess the sustainability of urban developments and policies.
taking account of scale, life cycle, location, context and all stakeholder values. Professor Bristow is contributing to Work Package P2 which will investigate the barriers and incentives to sustainability assessment and the adoption of assessment tools. Approaches to overcoming barriers to the adoption of sustainability assessment tools will be examined.

Contact Professor Abigail Bristow (Tel: +44(0)1509 223781; Email: a.l.bristow@lboro.ac.uk).

PUBLICATIONS 2007


Holdsworth N., Enoch M.P. and Ison S.G. (2007) Examining the Political and Practical Reality of Bus-based Real Time Passenger Information, Transportation Planning and Technology, 30(2) and 3, April, 183-204.


