Institute for Transport Studies - University of Leeds

By Professor Mark Wardman

INTRODUCTION

Set out below are the key research activities and achievements of the Institute for Transport Studies (ITS) for 2006. These represent a significant body of high quality and diverse research covering the key areas of traffic network modelling, transport safety, economics and behavioural modelling, transport policy, and transport and the environment. The year has been notable for the appointment of a significant number of staff to enhance our research capabilities in several key areas as well as high levels of investment in our research facilities. For further details, please contact Mark Wardman on 0113 343 5349
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RESEARCH FACILITIES

ITS currently maintains two major research facilities, namely the University of Leeds Driving Simulator and the Instrumented City (iC) Facility.
Since 1994, driving simulators have been used by researchers at ITS to undertake high quality research into driver behaviour and transport safety. The newly developed, £1m University of Leeds Driving Simulator (UoLDS), operational since September 2006, allows such research to be performed in accurately controlled and repeatable laboratory conditions.

UoLDS is one of most advanced worldwide in a research environment and incorporates an eight degree of freedom motion system. Only five driving simulators exist worldwide with equivalent or superior motion characteristics. Lateral accelerations are simulated by sliding the whole vehicle cab and dome configuration along a railed gantry. Similarly, the whole gantry slides along tracks to create longitudinal acceleration cues. The 10m long rails and tracks allow 5m of effective travel in each direction. In addition, sustained cues are provided by a standard 2.5t payload, electrically driven hexapod. The motion-base enhances the fidelity of the simulator by proving realistic inertial forces to the driver during braking and cornering. It also provides lifelike high frequency heave, allowing the simulation of road roughness and bumps.

Unlike many other simulators, especially in the UK, UoLDS continues to develop using in-house expertise. In a research environment, where a wide range of studies are frequently undertaken, maintaining the ability to tailor virtual scenarios and experimental data collection to the exact requirements of a particular investigation is tremendously valuable. For more information contact Hamish Jamson
(email:A.H.Jamson@its.leeds.ac.uk).

The instrumented City, iC, Facility, is a multi-purpose, transport and environmental-related database and equipment facility. Today the iC offers an extensive range of traffic, vehicle emission, meteorological, noise and air pollution monitoring equipment/ data collection/ software/ analysis services and staff expertise. The current driving force behind the iC is the urgent need to improve scientific understanding of all aspects of transport related pollution.

Since its inception in 1992, data from the iC facility has been (or is being) used in 20 different Universities in over 250 research projects. The most significant developments for the iC, are two major infrastructure investments. A £4m EPSRC: JIF award in 2000 enabled the LANTERN (Leeds health Air Pollution, Noise, Traffic and Emissions Research Network) novel integrated research programme by to be launched. A complete refurbishment and enhancement of the research laboratories in ITS, Energy Resources Research Institute, Mineral and Mining, the School of Chemistry and the Molecular Epidemiology Unit in the School of Medicine has taken place with considerable investment in new technologies. iC equipment now includes a wide range of sophisticated traffic monitoring systems (CCTV, ANPR, speed and count detectors etc), several instrumented vehicles, novel in-vehicle and roadside 'drive-by' (remote sensing) emission instrumentation, portable and semi-permanent air quality monitors (CO, NOX, VOCs and particles), noise monitors and specialist software. LANTERN is now actively engaged in many collaborative research projects funded by the EPSRC; NERC, DfT, Home Office, DoH and Local Authorities. In 2005 a £1m Higher Education Funding Council for England (HEFCE) Science Research Investment Fund (SRIF) has further enhanced these facilities. This has enabled the semi-permanent instrumentation of two metropolitan sites (one junction and one nearby section of road) to provide synchronous data on traffic flows, route journey times, vehicle emissions, dispersive air-flows, noise and air pollution. Research engaged at this exciting experimental site is intended to make a significant contribution to current scientific understanding of the (physical and chemical) processes affecting the complex relationship between junction geometry, meteorology, driving patterns, traffic management and resultant local environmental impacts, i.e., noise and air pollution, pedestrian exposure, etc. For further information regarding the use of the iC Facilities contact the Instrumented City Manager, Dr James Tate (email: j.e.tate@its.leeds.ac.uk).

SOFTWARE

Following the retirement from the University of Dirck Van Vliet in August 2001, the continuing development of the SATURN simulation and assignment model is now a 3-way partnership between ITS, Dirck Van Vliet and Atkins Highways and Transportation (who are responsible for marketing). SATURN Version 10.6 was released in March 2006. The contact for SATURN is Dirck Van Vliet (email: dirck_van_vliet@yahoo.co.uk).

Also produced by the Institute and distributed by Atkins Highways and Transportation is the DRACULA microsimulation package. DRACULA shares a common network format with SATURN, allowing easy transfer of data between the two packages. DRACULA represents complete transport trip mechanisms, from a choice of where and when to travel, to the choice of mode and the simulation of the entire journey by motorised means at a microscopic (individual vehicle) level. DRACULA Version 2.4 will be released in spring 2007. The contact for DRACULA is Ronghui Liu (Tel: +44 (0)113 343 5338; email: trarl@leeds.ac.uk).

STAFF CHANGES

New academic and research appointments:

Mike Maher joined as part time Research Professor in Mathematical Analysis of Transport Systems, Dr Joyce Dargay as part time Reader in Travel Demand Analysis and Stephen Clark as part time Senior Research Fellow in Statistical Analysis of Transport Markets. Two Institute Research Fellowships were awarded: Dr Dong Ngoduy from Delft University of Technology whose research interests are focused on the macroscopic modelling of traffic flow and Dr Nicolás Ibáñez from the University of Seville whose specialism is transport economics. Other research appointments are Mary Kimble, Phil Wickham and Helen Watters as Research Officers and Rico Merkert and Christian Kramer as new Marie Curie Research Fellows.
Gerard Whelan departed to join MVA Consultancy, and Agachai Sumalee has also left ITS.

Support staff changes

Following Lisa Burke's departure last year, Gordon Aickin was appointed as a new Research Administrative Assistant post. ITS has also set up a joint research office with the School of Geography and as a result, Angela Jackman was appointed to a joint appointment as Research Administrative Assistant. Other support staff appointments: Adrian May as a new part time Research Support Assistant, David Lewis as ITS receptionist, Frances Race replaces Poppy Salmon as Departmental Support Secretary and Stephen Drechsler as a new Technical Assistant.

STAFF NEWS

Professor Margaret Bell was appointed as a member of the Air Quality and Health Interest Group, and joined the World Road Association (PIARC). She is a member of the ITS(UK) Business Meeting, meeting quarterly with the Chairs of the other Interest Groups and giving presentations annually, and she also organised the ITS (UK) International Conference, London.

Professor Peter Bonsall is a member of the Telecommunications and Travel Behaviour Committee of the TRB, and joined the EPSRC Peer Review College. He continued his co-editorship of Transport Policy, remained on the Steering Committee of the World Conference on Transport Research Society and also the Scientific Committee for World Conference on Transport Research to be held in Berkeley, 2007. He was made a Councillor for the Centre for Transport Studies at the Dalien University of Technology, China; an Advisor (via Atkins Consultancy) to Greater Manchester PTE on construction of a database to assist in targeting future public Transport Marketing effort; and an Advisor to Leeds City Region Congestion Partnership on their preparation of a bid to the Transport Innovation Fund. He gave a specially invited presentation to the US Transportation Research Board, Washington, was invited to present at the Transport Modelling- Looking to the future conference held by Landor in Birmingham, and also gave a presentation to the Leeds Common Purpose Meeting, a development scheme for leaders in industry, commerce and the public sector. He also organised the National Competition on Transport Planning Skills event in Leeds based on the PLUTO software.

Professor Oliver Carsten continued as Director of ITS. In November, he was an invited speaker at the Third National Transport Conference held in Khon Kaen, Thailand, and was an invited commentator at the LAVIA seminar in Versailles. He served as an external assessor for Delft University of Technology and Monash University. He continued as chair of the Road User Behaviour Working Party of the Parliamentary Advisory Council for Transport Safety (PACTS) and as an expert advisor to ETSC.

Professor Andrew Daly gave a series of short courses for the Planning and Transport, Research and Computation (PTRC) group.

Professor Gerard de Jong was made Director of the Association for European Transport, and Research Leader at RAND Europe. He gave invited lectures at TRB 2006 (freight demand model for Sweden and Norway), the Department for Transport (on freight models outside the UK) and Transforum (on indicators for transport policy).

Professor Peter Mackie continued as an 'academic friend' of Sir Rod Eddington and his team, whose report, The Eddington Transport Study was published by TSO in December 2006.

Professor Mike Maher was made a Fellow of the Transport Research Foundation. He was an invited speaker at the 2nd International Symposium of Road Safety, held in Hong Kong in August 2006; and gave a Transport Research Fellowship lecture at the Mayfair Conference Centre in July 2006. He continues as a member of the EPSRC Engineering college, and became a Fellow of the Institute of Mathematics

Professor Anthony May gave a presentation on sustainable urban transport strategies to the World Resources Institute at the World Bank; continued to contribute to the European Conference of Ministers of Transport working group on sustainable urban transport; prepared an overview of the barriers to achieving sustainability in transport for the ECMT ministerial meeting in Dublin; completed his terms of office on the GoSkills stakeholder board contributing to the development of skills in transport planning and his chairing of the Transport Planning Society's transport planning skills committee; and gave a keynote paper at a conference on integrated urban transport policies in Madrid. He also won The 2006 Environment prize from the Japan Society of Civil Engineers, an Achievement Award from the International Association for Traffic Safety and Sciences and The Best Book Award from the Japan Association of Human and Environmental Symbiosis for his 2005 book 'Urban transport and the environment: an international perspective' co-authored with H Nakamura and Y Hayashi.

Professor Chris Nash gave papers at: the European Conference of Ministers of Transport seminar on rail passenger franchising in Paris in January; the conference on public-private partnerships in Delhi and the TransFin conference on transport finance in Nice in June; and the conference on new approaches to public sector management in Oslo in September. He served as a member of the Scientific Committee, author and session chair at the 4th International Conference on Railroad industry Structure, Competition and Investment in Madrid and at the Networks for Mobility International Symposium in Stuttgart in October. He also gave evidence to the Transport select Committee on rail passenger franchising.

Professor Mark Wardman has continued as Director of Research. He served on the advisory panels of the Dutch value of time study and the Department for Transport's aircraft noise valuation study and has continued his extensive advisory role with the UK rail industry.

Professor Dave Watling was Overall Chair of Organising and Scientific Committee of DTA2006, an organiser of the 11th Meeting of European Operational Research Society Working Group on Transportation, Bari, and chaired a session at ISMP 2006: 19th International Symposium on Mathematical Programming, Rio de Janeiro.

Dr. Richard Batley was appointed as a member of the executive committee of the Centre for Decision Research at ITS, and was invited to present an expert seminar on valuing reliability to the Department for Transport.

John Carr was a member of the organizing committee of the UITP Information Technology Conference, Bologna, Italy held in February 2006. Dr. David Carslaw gave an invited speech at the Norwegian Forum on Urban Air Quality in Olso, May 2006; chaired a session at the 15th International Conference 'Transport and Air Pollution' organised by INRETS in June; gave an invited EU level workshop on the impact of direct emissions of nitrogen dioxide from road vehicles on nitrogen dioxide concentrations in Brussels; and was an invited expert at a 'Citizens Jury' organised by DEFRA, where evidence of air pollution and transport was provided. He continues to be a member of the Air Quality Expert Group (AQEG).

Dr. Joyce Dargay gave some invited seminars at the University of Surrey on the pseudo-panel modelling of car-use and continues as a Visiting Fellow at the Transport Studies department at Oxford University. She was invited to give an expert workshop on Household Behaviour and Environmental Policy to the OECD and a workshop on modelling fuel demand in the transportation sector to OPEC.

Dr. Paul Firmin became a member of the Highways Agency Active Traffic Management Expert Panel.

Dr. Anthony Fowkes made presentations at Department for Transport HQ as part of their "Workshop for freight modelling research" and "Options Values Workshop".

Dr. Paul Goodman continued his contributions to EU 6th Framework Project IMAGINE, on implementation issues surrounding the European Noise Directive (END) on assessment and monitoring of environmental noise

Hamish Jamson reviewed abstracts for the upcoming 4th International Driving Symposium on Human Factors in Driver Assessment, Training, and Vehicle Design to be held on July 9-12, 2007, Washington, USA.

Ronghui Liu gave an invited talk at the Management School, Beijing University of Aeronautics & Astronautics, and an invited

presentation at the Highways Agency TAME Conference, February 2006. She is a member of the TRB Traffic Flow Simulation Sub-Committee, organised the International Symposium of Transport Simulation 2006 at Lausanne and the Agents in Traffic and Transportation (ATT2006), Hakodate, Japan, and chaired a conference at the International Symposium of Transport Simulation (ISTS06) in Lausanne, Switzerland. She also gave advice to the US Federal Highway Administrator (FHWA) on traffic flow and simulation modelling, and on their NGSIM research programme.

Dr. Gregory Marsden chaired a conference at the 30th UK Transport Conference and Exhibition, and won the TRB Charley V. Wootan Award for Best Paper in the Area of Transportation Policy and Organization Award for 'Selecting indicators for strategic performance management' with Charlotte Kelly.

Dr. Natasha Merat continued her role as a member of the Railway Safety section of the Parliamentary Advisory Council for Transport Safety (PACTS). She also chaired the Transportation session of the Human Factors and Ergonomics Conference (Europe Chapter), and was invited to talk at a workshop organized by SPARC (Strategic Promotion of Ageing Research Capacity) on Transport and Older People.

Frank Montgomery is the instigator and owner of the UTSG email list on transport research, with 850 members worldwide.

Dr Anil Namdeo became a grant reviewer for NERC and gave a KT workshop on TEMMS (Traffic Emission Modelling and Mapping Software) at the University of Leeds in which participants from local authorities and consultancy firms attended.

Dr. Karl Ropkins gave an invited lecture at the Universidad de Castilla-la Mancha, Ciudad Real, Spain.

Dr. Samatha Jamson became the Chairperson for the Working Group on Motorcycling of the European Transport Safety Council (ETSC) and is on the editorial board of the new Advances in Transportation Studies journal.

Dr. Simon Shepherd presented at DfT and TIF Authority Workshops and became a referee of the Journal of Mathematical Modelling and Algorithms.

Dr. Andrew Smith was an invited speaker to the Best Practice Benchmarking Workshop for the Office of Rail Regulation (March 2006) to discuss developing the framework of efficiency analysis and benchmarking for Network Rail, and to "Rail and Competition Policy: The Future of Franchising and Open Access" Conference, arranged by Waterfront Conference Company, July 2006.

Dr. Miles Tight became a member of the EPSRC Peer review college, was made Deputy Research Programme leader for the Cities Research Theme of the Tyndall Centre for Climate Change Research and was a guest editor for the June 2006 edition of Transport Policy. He gave invited presentations on Sustainable Transportation at a British Council organised Café Scientifique in Madrid (as part of Madrid's Science week) in November and also at a British Council organised Café Scientifique in Brussels in February. Alongside Helen Watters he was commissioned by CfIT to write a report on 'Designing and emissions trading scheme suitable for surface transport'.

VISITORS

Completing their visitations this year were Dr Shoichro Nakayama from Kanazawa University, Japan; Dr Takamasa Iryo from Kobe University, Japan; Mr Prapatpong Upala from Chulalongkorn University, Thailand; and Dr Satoru Kobayakawa from Nihon University, Japan.

Visitors in 2006 were Professor Sergio Jara-Diaz from the Universidad de Chile, Chile; Dr. Tomer Toledo from Technion - Israel Institute of Technology, Haifa, Israel; and Dr Lorenzo Mussone from Politecnico di Milano, Italy.

PHD'S AWARDED

Four PhD's were awarded in 2006. They were: George Franklin, "Developments in Long Distance Commuting to London"; Sam Hoque, "The role of improved quality bus services for developing countries: A case study for urban bus services for Dhaka City"; A. Glass, "Modelling competition in the British passenger rail industry"; and Chandra Balijepalli, "Stochastic Process Models for Dynamic Traffic Assignment".

RESEARCH STUDENTS

Other than those awarded degrees in 2006, the research students registered and their research topics were: Muhammad Adnan, 'Traffic Network Modelling within Activity Based Paradigm'; Robert Bain, 'A quantitative credit scoring framework for highway concessions'; Hazel Baslington, 'Education for behavioural change: School travel plans, pupils' health, attitudes and care dependency culture'; Ofelia Betancor, 'Pricing externalities in air transport markets: a case study of Madrid Barjas Airport'; Sarah Cain, 'Examining the Health Impact of Exposure to Traffic Related Pollutants'; Na Chen, 'Modelling demand for rail transport with dynamic econometric approaches'; Anna Clark, 'Optimal Congestion Pricing Schemes Including Heterogeneous Users and Time of Day Variability'; Kaushali Dave, 'Applying multicriteria equations and fuzzy logic in choice modelling'; Pelle Envall, 'Managing car free households accessibility: A GIS tool for integrated transport and land use planning'; Agha Faisal Habib, 'Traveller Choice of Information Sources'; Xu Hao, 'Using new technology to improve public transport service quality'; Yaron Hollander, 'The cost of bus travel time variability'; James Jackson, 'Quantifying the Social Value of Rural Railways'; Kaveh Jahanshahi, 'A comparative study of the influence of urban form on travel patterns in developing cities'; Hamish Jamson, 'Evaluation of driving simulator safety'; Sanjay Jamuar, 'Economic evaluation of metro rail investment in developing countries'; Sabariah Jemali, 'Urban passenger transport, sustainable policies and strategies'; Rob Johnston, 'Adaptive Capacity of UK Land Transport to Mitigate Climate Change'; Charlotte Kelly, 'An investigation into the effects of moving house on people's mobility levels'; Christian Kramer, 'Sustainable Mobility and Transport Policy – Bridging the Gap'; Fumio Kurosaki, 'An analysis of the important factors behind railway reform'; James Laird, 'Modelling the economic impact of transport projects in sparse networks and peripheral regions'; Hui (Lucy) Lu, 'The effect of stated preference design on bias in responses'; Hedi Maurer, 'Efficient pricing for freight transport'; Helen Muir, 'The influence of area and person deprivation on pedestrian casualties'; John Nellthorp, 'Transport investment, pricing and use of resources'; Quoc Hien Nguyen, 'Derivation and use of variable pcu values for traffic network models'; Guido Paglione, 'Supply chain theory and city logistics'; Favvas Qadir, 'Modelling of Route and Departure Time Choice Processes for School Trips'; Nasir Rana, 'Modelling telework as an instrument of demand management strategy'; Pattarathep Sillaparcharn, 'National transport modelling: General approach and application to Thailand'; Manoj Singh, 'Restructuring and regulation in the Rail sector'; Anna Stapleton, 'Reducing rural car use'; Giovanni Tabacco, 'Modelling competition in the bus industry'; Nigel Tapley, 'Discrete choice modelling and the use of stated preference techniques to collect data'; Fitsum Teklu, 'Modelling an integrated urban public transport system including Informal Operators'; Sotirios Thanos, 'Aircraft externalities'; Nikolaos Thomopolous, 'Large transport infrastructure projects in Europe. New ways towards regional cohesion or divergent routes'; Minh Tran Huu, 'Design of traffic management strategies for public transport priority in developing cities'; Helen Watters, 'Tradable carbon permits: their potential to reduce CO2 from the transport sector'.

SAFETY

Improved driver comprehension at Roadworks
Highways Agency from January 2007 to December 2007
Hamish Jamson, Tony Horrobin, Kathryn Chorlton
Grant holder: Dr Samantha Jamson
Collaborating partners: WSP Group PLC

Since the publication of the Traffic Signs Manual Chapter 8 in 1991, the rate of injury accidents to road users within major roadworks on Motorways has reduced to approximately the same level as the rest of the network. However the numbers are still of concern to the HA (five deaths in 2005). HA's customer satisfaction surveys consistently

show that the quality and consistency of signing of roadworks is an important issue to drivers. This is related to the number of signs and how they are placed. There have been several investigations in this area but limited changes have been made to how roadworks are signed e.g. advanced speed limit signing. This project will identify a list of issues and motorway roadwork scenarios, in collaboration with sign manufacturers and roadwork operators. Current and idealistic testing scenarios will be developed and modelled with the University of Leeds Driving Simulator. This will be preceded by tachistoscope trials which will identify those signing options which have the most potential in terms of driver comprehension and legibility. The driving simulator trials will focus on 2 or 3 core scenarios (e.g. lane narrowing or contraflows) which drivers will be asked to negotiate with varying amounts of information. We are aiming to provide the HA with guidance on the appropriate level of signing, to minimise clutter and driver confusion.

Interaction between speed choice and road environment

DfT from February 2006 to August 2007

Collaborating partners: Vehicle Safety Research Centre, Loughborough University

Dr Samantha Jamson, Dr Frank Lai, Hamish Jamson, Tony Horrobin Grant holder: Prof. Oliver Carsten

This project aims to identify the most effective speed reducing measures for a selection of urban and rural environments. This will be achieved by furthering our understanding as to how drivers choose their speed (consciously or not) and what sensory cues we might use to alter this. A literature review has identified potential approaches to increase drivers' perceived risk and hence achieve speed reduction. Potential treatments will then be designed, for both rural and urban environments. Expert assessment will be carried out to identify candidate treatments, which are most likely to be effective and persistent, to be tested in the University of Leeds Driving Simulator. The most successful treatments identified in the review will be assessed for both their effectiveness and persistence. Approximately 20–25 treatments across both rural and urban environments will be tested including urban and rural arterials and low standard rural lanes. The best performing two or three treatments for each problem from the simulator trials will, for the persistence study, be located at three or four locations in a long-duration experimental drive. Information on speed choice over the repeating sections will permit the identification of treatments that are durable.

Attitudes to New Technologies

DfT from January 2006 to December 2007

Collaborating partners: ACCENT

Dr Samantha Jamson, Kathryn Chorlton, Dr. Natasha Merat Grant holder: Prof. Oliver Carsten

This project used an extensive programme of qualitative research to explore public acceptability of new and emerging technologies. These technologies, such as Automatic Number Plate Recognition and Electronic Vehicle Identification can potentially improve road safety and security; however these benefits can be offset by lack of trust and understanding by the general public. The project aimed to support policy makers by undertaking focus groups using relevant deliberative material, sourced from the press and interest groups. Analyses will be undertaken to establish how the deliberative materials influence public perceptions to aid the understanding of public resistance to and acceptance of emerging transport-related technologies.

Variable Message Signals - The Effectiveness of Safety Campaign

Highways Agency from Dec 2005 to Oct 2006

Tony Horrobin, Frank Lai, Kathryn Chorlton
Grant Holder: Dr. Hamish Jamson

Variable Message Signs (VMS) are now a common sight on motorways in the U.K. Their flexibility can be utilised to supply drivers with up-to-date information regarding road and travel conditions. A common use of VMS by the U.K. Government's Highways Agency (HA) is to display a Tactical Incident Message (TIM), a specific message warning of a particular impending hazard. HA also use VMS to give more general advice on good driving habits by utilising Safety Campaign Messages. VMS active with a Safety Campaign Message may include messages such as "Watch Your Speed" (WYS) or "Keep Your Distance" (KYD).

Eighty drivers took part in the driving simulator study, which primarily investigated the effectiveness of two specific Safety Campaign Messages and how their use affected driver behaviour towards a more critical Tactical Incident Message (TIM). Safety Messages did have the potential to marginally improve driver behaviour, but these limited effects were associated with the initial presentations of the messages, whilst they still retained some novelty value to drivers. However, the presentation of the Safety Campaign messages did appear to have a positive impact on driver "alertness" - the eye-tracking data showed that drivers continued to fixate on VMS carrying repeated safety messages, even though their presentation did not particularly influence their driving performance. This level of alertness allowed drivers who had witnessed a smattering of active VMS earlier in their journey to respond more quickly to a Tactical Incident Message (TIM) than those who had not witnessed any VMS active with Safety Campaign Messages.

Adaptive Integrated Driver-vehicle InterfacE (AIDE)

EU Sixth Framework from 2004 to 2008

Volvo Technology Corporation (coordinator); European Commission Joint Research Centre; Netherlands Organisation for Applied Scientific Research (TNO); Institute of Communications and Computer Systems, Greece (ICCS); and 23 other partners

Dr Samantha Jamson, Dr Natasha Merat, Dr Frank Lai, Hamish Jamson Grant Holder: Prof. Oliver Carsten

The general objective of the AIDE Integrated Project is to generate the knowledge and develop methodologies and human-machine interface technologies required for safe and efficient integration of ADAS, IVIS and nomad devices into the driving environment. Specifically, the IP is designing, developing and validating a generic Adaptive Integrated Driver-vehicle InterfacE (AIDE) that employs innovative concepts and technologies in order to: (1) maximise the efficiency, and hence the safety benefits, of advanced driver assistance systems, (2) minimise the level of workload and distraction imposed by in-vehicle information systems and nomad devices and (3) enable the potential benefits of new in-vehicle technologies and nomad devices in terms of mobility and comfort, without compromising safety. The AIDE concept will be implemented, demonstrated and validated in three different test vehicles: a city car, a luxury car and a heavy truck. ITS is involved in two sub-projects of AIDE: SP1, Behavioural Effects and Driver-Vehicle-Environment Modelling; and SP2, Evaluation and Assessment Methodology.

Intelligent Speed Adaptation

DfT from January 2001 to December 2006

Collaborating partners: MIRA Ltd, Peter Jesty Consulting

Dr Frank Lai, Kathryn Chorlton, Dr Samantha Jamson, Hamish Jamson, Sarah Gawthorpe, Grant holder: Prof. Oliver Carsten

This project was the follow-on to External Vehicle Speed Control, funded by DETR between 1997 and 2001. The main tasks of the project have been to investigate user behaviour with ISA by means of set of field trials, to study overtaking behaviour with ISA in a driving simulator, to prepare an ISA design for motorcycles and large trucks and to build a demonstrator of each, to prepare a system architecture for a mass production configuration of ISA, to have an input into relevant standards activities at an international level, to carry out a process of technology watch throughout the project duration, and to further investigate the costs and benefits of ISA. Each of the four field trials lasted for six months, of which two months are without ISA and four months are with ISA. All four field trials with the twenty equipped cars have been completed, the motorcycle has been demonstrated on a test track and the ISA truck has been used in real-world service.

NETWORK MODELLING

State-of-the-art in Dynamic Traffic Assignment: An International Symposium

EPSRC from March 2006 to August 2006

Chandra Balijepalli, Dr. Richard Connors, Dr. Agachai Sumalee Grant Holder: Prof. Dave Watling

This grant was awarded to organise an international symposium on Dynamic Traffic

Assignment (DTA), a field of concerted international research attention that previously had had no dedicated forum devoted to it. This topic was felt to be particularly timely, given the current interest in policies with a fundamentally dynamic element, such as real-time driver information or time-dependent congestion charging. The event had the objectives to evaluate progress with this formidable problem of modelling network dynamics, and to identify the gaps and major challenges for future research efforts. The symposium was successfully held during 21-23 June 2006, with some 66 researchers attending from major research groups active in this field across North America, Europe and Asia, as well as a prominent UK contingent reflecting the level of EPSRC-funded activity in this area. The key outcomes include: establishing a coherent community of DTA researchers by gathering the major active research groups; dissemination of the state-of-the-art through 36 high quality research papers; high quality debate in a single stream, stimulated by a mix of papers, posters and panel discussions; plans to publish the research findings through a book or special issue; and the agreement to continue the symposia on a biennial basis.

A Theoretical Approach to Deriving Practical Road Pricing Cordons with Investment in Capacity
EPSRC from September 2005 to August 2008
PhD Studentship: Anna Clark, Researchers: Dr Agachai Sumalee, Andrew Koh, Project Manager: Dr Simon Shepherd, Grant Holders: Prof. Anthony May, Prof. David Watling.

The project follows on from our previous EPSRC project into cordon design. The principal aim of the project is to advance methodologies for identifying optimal cordon designs and charge structures with optimal changes in capacity taking into account the needs of practitioners. The first stage concentrated on implementing a constraint cutting algorithm approach as described by Lawphongpanich and Hearn (2004) to solve the optimal toll level for a given set of links and we have extended it to incorporate investment in capacity. This has been implemented in Matlab and proved successful on small networks. As this approach presented problems with larger networks we will employ a sensitivity based approach to the same problem. The second stage of the project is now underway and looks at location of tolls and capacity changes in parallel extending our previous work with genetic algorithms. This approach has been applied successfully to the network of Edinburgh and we will be extending it to deal with multiple user classes. Finally in parallel we developed a short-cut approach to cordon location which has been included in the DfT's webtag guidance.

Sustainability Planning for Asian Cities making use of Research, Know-how, and Lessons from Europe (SPARKLE)
European Commission (Europe-Aid) from November 2004 to August 2006
Collaborating Partners: Institute for Transport Planning and Traffic Engineering, Vienna University of Technology (Austria), Faculty of Engineering, Ubon Ratchathani University (Thailand), Faculty of Engineering, Chiang Mai University (Thailand).Faculty of Engineering, Khon Kaen University (Thailand),Transport Development and Strategy Institute (Vietnam), National Transport Committee, Ministry of Communication, Transport, Post and Construction (Laos PDR), Ministry of Public Works & Transport, Department of Planning (Cambodia).
Prof. Anthony May; Dr Agachai Sumalee, Grant holder: Dr Paul Timms

The project objectives were: (1) to promote and transfer knowledge, from relevant EU research projects, to the countries of South East Asia on the process of developing sustainable urban land use and transport policies; and (2) to provide technical training to local planners and decision-makers on how to use scientific and logical approaches to formulate a sustainable land use and transport policy. The project organised two seminars on "Sustainable Urban Transport and Land Use Planning", in Bangkok (September 2005) and Hanoi (June 2006), aimed mainly at those who formulate transport policy and those who give advice to policy-makers. Both seminars had more than 200 participants, mainly from the four "Mekong Region" countries targeted in the project (Thailand, Vietnam, Laos and Cambodia), but also with representatives from seven other Asian countries. Further information can be found on the seminar websites: http://www.en.kku.ac.th/sirdc/SPARKLE and http://www.mt.gov.vn/seminar/sparkle. The project also organised eight training workshops (in all four target countries) for people involved with the practical implementation of urban transport policy.

Platform Grant: Towards a Unified Theoretical Framework for Transport Network and Choice Modelling
EPSRC from January 2004 to December 2007
Dr Paul Timms, Dr Richard Batley, Dr Agachai Sumalee, Dr Richard Connors, Dr Simon Shepherd, John Nellthorp, Dr Gerard Whelan, Grant holders: Prof. David Watling, Prof. Andrew Daly, Prof. Anthony May

The Platform Grant (PG) has served as an overarching strategic impetus for the group's fundamental research, in a way that has allowed us to speculatively look ahead, beyond our current research-project funding, with scoping studies of promising or strategically-important research areas for the group. The theme of this PG is the development of modelling capabilities for the future; it departs, however, from other modelling initiatives that have focused on the development of computational methods. Rather, the thesis in the PG is that a sounder theoretical grounding is required for the methods we presently have, unifying alternative modelling paradigms, as well as addressing the inconsistencies in the approaches commonly adopted in practice between the stages of behavioural modelling, network modelling, and appraisal. The special nature of the PG has supported various types of activity; these might be divided into:

- Added value studies: speculative extensions of previous research, or linking previous project findings.
- Scoping research studies of new areas for the group, as a platform for further research outside the PG.
- Training, particularly to support the group in going into new areas of research.
- Cross-cutting research themes that have the potential for relevance for many current and future projects.
- Collaboration and visits to/from other internationally-leading transport modelling research groups.
- Visits to and from other leading, relevant methodological groups outside transport.
- Technical workshops to elicit feedback on PG activities from practitioners and other academics.
- Conference papers presented, publications and journal papers submitted.
- Flexibility to effectively manage availability of key researchers relative to project start and end dates.
- Strategic planning, co-ordinating our portfolio of projects with a view to a common long-term purpose.
- Capacity-building, assisting in staff retention/progression and in attracting new staff with specific skills.

Exploratory research activities have included work on (1) the foundations of transport modelling (2) theoretical frameworks for choice modelling (3) activity based modelling (4) reliability (5) model calibration and experimental design (6) dynamic traffic assignment (7) public transport and multi-modal network modelling, with many additional interactions with disciplines outside transport

STEPS (Scenarios for the Transport System and Energy Supply and their Potential Effects)
EU from Jan 2004 to July 2006
Collaborating Partners: Buck Consultants International (BCI), The Netherlands (Project Coordinators), AUEB, Greece, JRC IPTS, Spain / EU, KUL - SADL, Belgium, LT, Finland, Novem, Netherlands, Spiekermann und Wegener (S&W), Germany, Stratec, Belgium, TIS, Portugal, TRL, United Kingdom, TRT, Italy, TTR, United Kingdom, UPM, Spain.
Prof. Anthony May, Dr Ann Jopson, Dr Graham Clarke (Geography), Grant holder: Dr Simon Shepherd

STEPS is funded under the EU Thematic Priority 1.6.2 'Sustainable Surface Transport'. The Overall objectives are (i) to develop scenarios for the transport system and energy supply of the future which will be compared and assessed, (ii) to translate these scenarios into policy recommendations and to identify needs for future research, (iii) to communicate and discuss the results and findings of the project by holding Sounding Board Forums and Clustering Meetings.

The project is complete and has developed a scenario based approach which investigates the effects of scarcity of oil supply combined with broad policies on demand regulation versus investment in new technologies and infrastructure, on the sustainability of the transport and land use system. Three levels of models are used, first a model of the world energy market which gives the development of fuel prices, this interacts with a European level transport model and in combination these models define the development of the fleet and fuel prices which are then applied in the regional level land use transport models. An assessment of the impact and robustness of each policy against assumptions about the future supply of and demand for oil has been made.

The results highlight several key issues relevant to policy makers and other stakeholders. Scarcity of oil can accelerate the development and take up of alternative fuel technologies, in response to increasing fuel prices. Investment in alternative technologies could alleviate the impact of local emissions and reduce energy consumption per km travelled, but will only reduce yearly CO2-emissions after a time lag of about 15 years. As a consequence, regulation on the demand side will be necessary to reduce total emissions and externalities caused by congestion. The final results were presented along-side the first Transport Research Arena (TRA) conference in Gothenburg, Sweden in June 2006, and a book, STEPS - Transport strategies under the scarcity of energy supply published by Bucks Consultants International.

Marie Curie Training Site TMS
European Commission from January 2002 to July 2006
Grant holder: Dr Susan Grant-Muller

The Traffic, Modelling and Safety Marie Curie Training Site is one of two sites for which ITS gained international recognition under the EU FP5 programme. The site had the overall objective of providing research training for fellows already registered for PhD study in Europe. 11 fellows were recruited to the site from across Europe, including new member states. Fellows were expected to be primarily concerned with research to enhance their PhD and to engage in wider research training. The fellows attended a total of 71 seminars, training courses and workshops. A wide range of technical areas were researched under the general theme of traffic modelling and safety including: environmental impacts of traffic, information systems, freight modelling, car sharing, rail, logistics and transport planning. Whilst the primary concrete output was progress with the PhD thesis, 14 journal articles, conference papers and other written materials were produced.

TRAFFIC, ENVIRONMENT AND INFORMATICS

MALL (Modelling Air Quality for Leicester Local Transport Plan)
Leicester City Council from October 2006 to March 2007
Dr Anil Namdeo Grant Holder: Prof. Margaret Bell

This work was funded by the Leicester City Council (LCC) to carry out air quality modelling work for their Local Transport Plan (LTP). LCC has recently submitted their Local Transport Plan for the period 2006-2011. It has identified that nitrogen dioxide is the major source of pollution. Leicester has failed to meet the statutory air quality objectives for this pollutant at the end of 2005. It is anticipated that Leicester is likely to fail to meet the similar objectives and EC Limit Values set for 2010. LCC has identified several measures to reduce traffic and hence pollutant levels in the City. These measures are referred to as 'Preferred Package -2010'. LCC tasked the Institute for Transport Studies to carry out an audit of the air quality modelling work already carried out by their team and assess the methodological approach adopted by them. The tasks also involved ITS and LCC to agree on a set-up for Base Case which was used for the Preferred Package scenario modelling. Finally a set-up was designed by LCC in consultation with ITS, which enabled ITS to carry out the air quality modelling for the preferred package for the year 2010. Results of this air quality modelling work will be used by LCC in their updated LTP submissions.

Attitudes to Aviation and Climate Change
Commission for Integrated Transport from August to November 2006
Collaborators: TRL, ACCENT
Batool Menaz, Grant holder: Dr Joyce Dargay

The aim of this study is to review passenger air travel and airfreight in the UK in terms of its historical development, forecasts of future demand and associated carbon dioxide emissions and demand elasticities. The study gives a brief review of the historical development of air passenger travel and air freight in the UK, and illustrates the rapid growth in demand in both of these markets combined with a substantial fall in real airfares and cargo prices. Regarding emissions, estimates show that CO2 emissions have doubled between 1990 and 2000 and are expected to double again by 2020-2030. The drivers of aviation demand – income and price elasticities – are investigated by a literature review and new econometric modelling for the UK. Elasticity estimates are obtained for international air travel by UK residents for both short- and long-haul business and leisure travel and for air cargo. The results indicate that we can expect aviation demand to grow more rapidly than income, unless fare and cargo prices increase substantially.

MESSAGE (Mobile Environmental Sensing System Across a Grid Environment)
EPSRC and the Department for Transport from October 2006 to September 2009
Collaborating Partners: support from nineteen industrial organisations
Consortium of five universities led by Prof John Polak (Imperial College London), Prof Margaret Bell (Newcastle), Prof Phil Blythe (Newcastle), Dr Haibo Chen (Leeds), Prof Peter Landshoff (Cambridge), Prof Michael McDonald (Southampton).

The project involves developing new techniques for collecting, managing, interpreting and modelling data on environmental quality and its relationship to transport. It aims to bring about a step change improvement in the data and analysis methods available for the measurement and management of traffic pollution. More specifically, it will address key scientific challenges in the field of transport and environmental monitoring, using data derived from transportable sensors which can measure local environmental factors such as pollutants from vehicles, and develop a flexible and reusable sensor and communications infrastructure to support a wide range of scientific, policy-related and commercial uses and applications for the resultant data (e.g. pollution at the level of the individual) and to demonstrate the operation and utility of this infrastructure in a range of case study applications (e.g. mounted on a fleet of buses and individuals as they move about). The Leeds and Newcastle team will be responsible for the deployment and validation of a new class of low cost wireless sensors in and around the road environment in Gateshead, Headingley and Leicester, and the use of the data from the sensors to improve the calibration and validation of existing emissions and dispersion models.

MoSeS: Modelling and Simulation for e-Social Science
ESRC from 2005 to 2008
Dr Haibo Chen, Prof. Jie Xu, Prof. Justin Keen, Prof. Martin Clarke, Prof. Phil Rees, PI: Dr Mark Birkin (School of Geography, University of Leeds)

The overall vision which underpins this project is the creation of a Research Centre with a focus on Modelling and Simulation as a Node on the UK e-social science programme. The objectives of the project are directed towards a research programme which is centred on the representation of the entire UK population as individuals and households, together with a package of modelling tools which allows specific research and policy questions to be addressed. More specifically, it aims to create a synthetic model of the whole UK population; demonstrate a forecasting capability for the population model; and develop case study applications with specific reference to transport, business and health, including evaluation of wider-ranging policy scenarios. For the transport application, two scenarios have been identified and developed using system dynamics and transport planning models, respectively. The first scenario is to build a macroscopic model at a regional level (and the national level if possible) to evaluate the transport impact (e.g. journey time, journey distance and environmental factors) caused by the changes of population distribution, family composition and car ownership etc, and to assess how such changes influence the development of sustainable transport systems in

the future. The second scenario is to establish a mesoscopic transport analytical model at a city-wide scale, which can be used to analyse the change of travel behaviour (e.g. demand, trip distribution, modal split and assignment) as a result of changes in population distribution, business and healthcare services.

LANTERN Platform Grant Renewal
EPSRC from January 2005 to January 2009
Collaborators: Leeds, York and Leicester City Councils
Dr Paul Goodman, Dr James Tate, Dr. Anil Namdeo, Grant holder: Prof. Margaret Bell

The LANTERN Platform Grant (PG) was renewed in January 2005 for a further four years. This is providing the time needed for key researchers from the internationally leading departments of ITS and the Energy and Resources Research Institute (ERRI) to extend UK and International research in the field of urban air quality and noise pollution. Research is making best use of the equipment and facilities provided and enhanced by the EPSRC:JIF and HEFCE:SRIF infrastructure investments. The PG Renewal aims to carry out a truly interdisciplinary and fundamental programme of research, including determining the interactions between vehicle emissions, chemical processes and the formation of secondary pollutants, urban meteorology and its influence on dispersion and noise attenuation, individuals exposure to pollutants by monitoring and modelling methods, the composition and health impacts of ultra-fine particles, the influence of driver behaviour and transport policies on pollutant emissions of both air and noise. Consistent with the philosophy of EPSRC: Platform Grants, the project renewal is facilitating the retention and further development of key staff. A major objective of the project is to more effectively influence National Government policy and achieve a wider dissemination of the results to key stakeholder beneficiaries and the international academic research community. More information on the Platform Grant is available on the ITS iC website.

Future Urban Technologies Undertaking Research to Enhance Sustainability (FUTURES)
EPSRC from April 2004 to March 2009
Collaborating partners: Energy and Resources Research Institute (ERRI), University of Leeds, Transport Research Group, University of Southampton, Institute of Sound and Vibration Research, University of Southampton, Unit for Transport & Society, University of the West of England, Bristol, Centre for Human Service Technology, University of Southampton, Intelligence, Agents, Multimedia Group, University of Southampton, Transport Research Laboratory (TRL)
Dr Paul Goodman, Dr Phil Skelton, Grant holder: Prof. Margaret Bell

ITS, in collaboration with ERRI of the LANTERN project, is engaged with the core project of FUTURES namely: Environment Assessment of New Vehicle Technology with Improved Confidence. FUTURES is one of four transport research consortia within the EPSRC's Towards a Sustainable Urban Environment Programme. The project, following on from an initial scoping study, is a five-year research programme to investigate and promote the role of new technologies in achieving sustainable urban mobility. FUTURES will address the ways in which new transport-related technologies will be able to contribute to a sustainable urban environment. There is no single scenario or vision which describes the extent to which various communications, location, detection, materials, power train, vehicle and computing technologies can contribute to a sustainable urban environment. Travellers can have their urban mobility needs met in effective and efficient ways through a mixture of conventional and novel services, utilising advanced vehicle and related technologies and tele-services. Understanding and quantifying the opportunities involves social, environmental, traffic, mobility, location/communication, vehicle, goods and operational issues, from a range of disciplines. The FUTURES consortium is comprised of six main research groupings in four institutions. The consortium possesses a collective and complementary expertise and track record in the understanding, development, application and opportunities of transport and transport-related technologies. It also harnesses an understanding of people, systems and vehicles which FUTURES believes are the three key 'actors' in the use of new technologies to pursue sustainable urban mobility. The overriding priority of the consortium is to conduct high quality research. More information on SUE FUTURES is available on the ITS iC website.

IMAGINE (Improved Methods for the Assessment of the Generic Impact of Noise in the Environment)
EU Sixth Framework from December 2003 to December 2006
Dr Paul Goodman, Dr Phillip Skelton, Grant holder: Prof. Margaret Bell

In response to the need for strategic noise maps and action plans, as required under the EU Directive 2002/49/EC, improved assessment methods for environmental noise have been developed. The IMAGINE project has recognised that noise from any major noise source, be it major roads, railways, airports or industrial activities in agglomerations, needs to be included in the required maps. Therefore, the calculation methods from the EU 5th Framework HARMONOISE project have been further developed in IMAGINE, and additional guidelines for effective data acquisition, noise mapping and action planning produced. For road traffic noise, traffic flow management is seen as a key element of such action plans, both on a national and a regional level. ITS has been extensively involved in the production of the guidelines for road traffic noise, as well as providing experience in GIS-based mapping solutions and on direct measurement of noise. More information on IMAGINE may be found on the project website.

RETEMM (Real World Traffic Emissions Monitoring and Modelling)
EPSRC from October 2003 to September 2007
Collaborators: Energy & Resources Research Institute (University of Leeds), City Councils of York, Leeds, Ford.
Dr Haibo Chen, Dr Karl Ropkins, Dr Phillip Skelton, Dr James Tate, Grant holder: Prof. Margaret Bell

The RETEMM EPSRC project is a collaborative venture between the ITS and ERRI Departments at the University of Leeds. The project is researching real-world, regulated and unregulated emissions at a low time resolution. This is being achieved using novel in-vehicle emission measurements and co-ordinated engine dynamometer tests. The effect of vehicle age/ technology, bio-fuels, cold-starts and driver behaviour on exhaust emissions is being investigated, with the findings informing integrated traffic and emission modelling tools. Making best use of LANTERN and SRIF2 funded infrastructure, a significant co-ordinated survey campaign has taken place at the Leeds test site, including: static traffic monitoring (flow, classification, fleet composition and age, journey time), local meteorology, roadside air quality concentrations and instrumented vehicle data. A fleet of six instrumented vehicles (equipped with a blend of driver behaviour, fuel, tail-pipe and GPS devices) circulated the test site in a range of traffic conditions (busy, quiet, congested). Outputs to date include: review of vehicle emission measurement technologies, assessment of the real-world emission characteristics from a passenger car using a bio-fuel, evaluation of a traffic management strategy in Leeds to promote the smooth progression of vehicles, assessment of 'cold-starts' on emissions from passenger car in real-world conditions, a study of the impact of vehicle technology and driver behaviour on tail-pipe emissions. More information on RETEMM is available on the ITS iC website.

M42 ATM
Highways Agency through Mott Macdonald from September 2002 to August 2008
Prof. Margaret Bell, Prof. Peter Bonsall, Dr Haibo Chen, Dr James Tate, Dr Tri Tjahjono, Grant holder: Dr Susan Grant-Muller

The Active Traffic Management project for Junctions 3A-7 of the M42 is one of the Highways Agency's largest and most significant implementation of ATM to date. ITS is advising on the assessment approach for establishing whether operational regimes have had a significant impact. Primary indicators have been specified, including impacts on safety and the environment as well as the performance of the traffic system overall. Work in the period has involved the preliminary analysis of the 'after' data.

DAPPLE (Dispersion of Air Pollutants and their Penetration into the Local Environment).
EPSRC from April 2002 to March 2006
Collaborators: Universities of Cambridge, Surrey, Bristol and Westminster, Imperial College London, Met Office
Dr. James Tate, Dr Anil Namdeo, Dr Haibo Chen, Grant holder: Prof. Margaret Bell

This was a collaborative project with LANTERN partners ITS and ERRI of the University of Leeds, and the Universities of Cambridge, Surrey, Bristol and Westminster, Imperial College London and the Met Office.

The global aim of DAPPLE was to increase our understanding of vehicle emissions, pollutant dispersion and exposure to pollution in realistic urban environments, to enable the better planning and management of urban air quality needed to make our cities healthier and more pleasant places in which to live and work. The research included wind tunnel modelling, computer simulations, extensive field work and analysis. The research teams worked closely with 'end users' (e.g. local authorities and government agencies) to ensure the deliverables were of real and practical value. The field work was based in the area around the intersection between Marylebone Road and Gloucester Place in central London. It involved vehicle movement monitoring, wind and pollution measurements, tracer dispersion studies, and personal exposure assessment. LANTERN consortium members played an important role in the delivery of two major four-week DAPPLE survey campaigns, during which time intensive simultaneous monitoring of air flow, traffic and pollutant concentrations at several positions in the vicinity of the junction took place. The flow measurements supported the evaluation of a tracer release experiment that took place in the middle of the campaign in order to provide an understanding of how an accidental release may disperse through London streets. ITS set up a database for the data collected during the campaigns and developed an algorithm that compensated for masking of traffic flows due to the one detector loop configuration over two lanes in the Marylebone SCOOT (Split Cycle Offset, Optimisation Technique, Region). The WebCOMIS and Enhanced Traffic Emissions Module that was developed by ITS in other research projects was also implemented and using the meteorological conditions data a richer understanding of the Canyon dispersion was achieved. More information on DAPPLE is available on the ITS iC website.

ECONOMICS AND BEHAVIOURAL MODELLING

Revealed Preference Study to Assess Impact of Reliability on Passenger Rail Demand
DfT from October 2006-March 2007
Prof. Mark Wardman, Dr. Joyce Dargay, Jeremy Shires, Dr. Nicholas Ibanez, Prof. Gerard de Jong, Nusrat Walid Grant holder: Dr. Richard Batley

This ongoing study, funded by the UK Department for Transport, is investigating the impact of punctuality (i.e. whether a train runs to time) and reliability (i.e. whether a train runs at all) on passenger rail demand. Acknowledging the biases that are sometimes inherent in stated preference data, the study aspires to place greater emphasis on actual (i.e. revealed and reported) behavior. Our analysis of this data is proceeding along two parallel streams, with dynamic econometric methods employed to yield evidence on market elasticities, and discrete choice methods employed to yield evidence on monetary valuations.

External Factors, Data Extension and Modelling
ATOC – DfT from July 2006 to September 2006
Joyce Dargay Grant Holder: Prof. Mark Wardman

The GDP elasticities contained in the railway industry's Passenger Demand Forecasting Handbook (PDFH) are fundamental to rail business planning. The recommended values were in part derived from analysis conducted at ITS on annual rail ticket sales data for 1990 to 1998. The Department for Transport wished to update this with data covering up to 2005 and a more comprehensive set of South East flows. Key findings were that there was no strong evidence in support of GDP elasticity variation over time, that there were different variations by distance band than had previously been estimated, and that the GDP elasticities again varied by type of flow being higher for long distance London flows and lowest for short distance suburban flows.

Green Logistics
EPSRC from June 2006 to June 2009.
Collaborating Partners: Cardiff University, Heriot-Watt University, Lancaster University, University of Southampton, University of Westminster
Dr A S Fowkes, Dr. N Ibanez, D H Johnson, D S Stantchev Grant Holder: Dr. A E Whiteing

This four year research project into the sustainability of logistics systems and supply chains is being undertaken by a consortium of six UK universities supported and steered by a range of project partners including the Department for Transport and CILT(UK). The main focus is on the use of freight transport within the supply chain, and how this can be made more environmentally sustainable. The project consists of a set of twelve interlinked work modules, investigating (inter alia) opportunities for modal shift, problems associated with logistics operations in urban areas, the environmental sustainability of reverse logistics and the opportunities for mileage reduction through the improved loading and scheduling of road freight. A major aim of the project is to develop enhanced methodologies for research into sustainable logistics, to assist in future policy formulation in this important field.
http://www.sml.hw.ac.uk/greenlogistics/

The Potential role of "new technologies" within the National Travel Survey
DfT from April 2006 – August 2006
Collaborating Partners: GeoStats and NatCen
Grant Holder: Prof. Peter Bonsall
This work was in response to a competitive tender issued by DfT. The work was conducted in 4 work packages which, respectively, reviewed worldwide experience with, and prospects for, new technologies which might contribute to the maintenance and enhancement of the National Travel Survey (NTS); explored the accuracy and consistency of current methods of estimating trip durations and distances; identified which of the technologies should be considered for implementation in the short to medium term; and outlined how selected technologies might be trialled. The technologies considered in the review included automatic tracking via satellite (eg GPS) or mobile phone, automatic activity monitors, and various alternatives to hard-copy questionnaires and diaries. The criteria used to assess the technologies included the necessity of maintaining a reliable and comparable data steam for NTS customers, the need for solutions to known and emerging problems (e.g. declining response rates among some groups and difficulties in obtaining accurate trip length estimates), cost effectiveness, and the possibility of providing useful data which has not been feasible using "traditional" methods. The final report is available on the DfT website (Bonsall, Wolf and Holroyd, 2006). Separate reports provide more detail on the results of the technological review at the heart of the project (Wolf et al, 2006) and on the analysis of the current estimates of trip length and duration (Cronberg and Bonsall, 2006).

M6 Toll
Faber Maunsel from April 2006 to September 2007
Dan Johnson, Dr Tony Fowkes Grant Holder: Prof. Mark Wardman

The 43 km three lane M6 Toll road is the United Kingdom's first toll motorway and provides the setting for this research. The aim of the study is to better understand the choices made by passengers and freight users between different routes amongst which is a tolled route. A major program of surveys has been conducted on car, LGV and HGV users based around the time savings offered by the M6 Toll road. Results emerging from the passenger survey indicate different valuations of travel time by type of time, traffic conditions, road type and journey duration. The opportunity has also been taken to distribute the questionnaires used in the Department for Transport's 1994 value of time study to those out of scope for this study to determine how the valuation of time and the response to tolls varies over time.

Secondary analysis of existing data on disabled people's use and experiences of public transport in Great Britain
Disability Rights Commission from March to September 2006
Debbie Jolly, Dr. Mark Priestly Grant holder: Bryan Mathews

A team comprising Debbie Jolly and Mark Priestley (School of Sociology and Social Policy)

and Bryan Matthews (Institute for Transport Studies) was commissioned by the Disability Rights Commission (DRC) to investigate the availability of existing data on disabled people's use of public transport, to evaluate the usefulness of this evidence in consultation with DRC staff, and to present findings in support of the Commission's transport campaign. The research was conducted in three phases. The first priority was to establish what datasets might exist for secondary analysis relating to disability and public transport (this was unknown at the outset). The team were advised to focus on large datasets within the UK Data Archive and also to collect examples of smaller studies through personal contacts. In the first month a list of more than 300 hundred potential datasets, together with an initial analysis of their usefulness, was prepared. In the second phase it was agreed to focus on a subset of key datasets and copies of these were purchased for more detailed analysis. The final phase of the research involved more specific investigation of questions and themes highlighted by DRC as particularly relevant (e.g. regional differences, changes over time, breakdown by ethnicity and impairment etc.). Many of the findings were then incorporated into DRC's efforts to raise public awareness of the new transport duties emerging out of the recent Disability Discrimination legislation. However, one of the key research findings is that existing surveys are not providing a complete picture upon which to base disability policy and that there is a case for larger-scale research to support DRC objectives and policy evaluation.

Fares Evidence Scotland
Transport Scotland from December 2005 to May 2006
Dr Joyce Dargay, Dr Jeremy Toner, Daniel Johnson, Dr William Lythgoe, Dr Gerard Whelan, Grant Holder: Prof. Mark Wardman

Scottish Ministers now have responsibility for the strategic development of rail in Scotland. Transport Scotland recognises that in order to optimise the range, level and complexity of fares with respect to Scottish circumstances, any policy decisions need to have a firm basis in sound evidence. The aim of this study was to provide a review of fares elasticity evidence relevant to Scotland, to review existing and possible means of modelling competition between tickets as a means of informing regulatory decisions and to provide recommendations for further research needs and data requirements. As part of the study, fresh econometric analysis of tickets sales data was conducted which provided the basis for a recommended set of fare elasticities for Scottish rail flows. The study also provided a specification for a major piece of work to develop the models required to underpin policy towards fares regulation in Scotland.

GRACE (Generalisation of Research on Accounts and Cost Estimation)
European Commission Sixth Framework from July 2005 to 2007
Bryan Matthews, Prof. Peter Bonsall, Daniel Johnson, Jeremy Shires, Dr Andrew Smith, Dr Agachai Sumalee, Phillip Wheat, Dr Kate Woodham, Grant Holder: Prof. Chris Nash

The project involves a consortium of 15 partners in 11 countries. The aim is to provide new evidence on the costs of transport infrastructure use for all modes of transport, and on the consequences of charging these costs to users.

The first part of the work concentrated on new econometric studies of road and rail, and airport infrastructure costs, new estimates of congestion and environmental costs and an examination of ports and inland waterways. Previous work on transport accounts in helping to measure and monitor costs has been extended and updated. Further work will concentrate on generalising the results obtained so far and on modelling of the consequences of charging users these costs.

Funding Infrastructure: Guidelines for Europe
EU 6th Framework Programme, Sustainable Surface Transport from July 2005 to December 2006.
Collaborating Partners: Katholieke Universiteit Leuven, Christian-Albrechts University of Kiel, Free University of Amsterdam, Berlin University of Technology, Hebrew University of Jerusalem, Tampere University of Technology, Transport & Mobility Leuven, Technical University of Vienna, Aristotle University of Thessaloniki, MDS Transmodal.
Prof. Anthony Whiteing, Dr. Astrid Guehnemann, Daniel Johnson, Prof. Nigel Smith, Grant Holder: Prof. Peter Mackie

The overall aim of the FUNDING project is to develop a scientifically sound approach to the funding of large transport infrastructure investments in the EU, most particularly the TEN-T projects. Different mechanisms are explored for the funding of these investments, including the creation of an EU transport infrastructure fund financed by pricing mark-ups on transport activities. The principal contributions from ITS in the early stages of the work of this research consortium were to review alternative approaches to the funding of transport infrastructure within European countries and to use this information to inform the development of the mechanisms to be studied in depth. ITS is also playing a major role in modelling work, for both passenger and freight traffic, to determine how the use of new transport infrastructure on selected corridors is impacted by the method of infrastructure funding employed. See http://econ.kuleuven.be/funding/ for more details.

Specialist Scientific Advisor
Transport for London from June 2005 to March 2006
Grant Holder: Dr. David Carslaw

This project involves providing Transport for London (TfL) with scientific advice on aspects related to the development of the London Low Emission Zone (LEZ). This advice includes the analysis of data to support the scientific underpinning of the LEZ.

DIFFERENT - User Reaction and Efficient Differentiation of Charges and Tolls.
EU DGTREN from May 2005 to may 2008
Partners: Transport Research Institute, Napier University (TRi) – project leaders; EIT; ESI-VU; ILiM; ISIS; TRT;TUD; CERAS; DITS; ECOPLAN; SINTEF; UM-TEMM
Bryan Matthews, Batool Menaz, Philip Wickham, Grant Holder: Prof. Peter Bonsall

This project investigates the use of differentiated tolls and charges to internalise the externalities of transport. The likely success of differentiated tolls and charges is being studied from a theoretical and empirical perspective. The analysis will explore the implications that differentiation has for revenues and behavioural response. It will seek to identify an optimum degree of differentiation given the economic and political costs of implementation and the psychological factors which are likely to influence users' reactions to differentiated charging. The empirical analysis will use literature, case studies of freight and passenger transport by road, rail, water and air. New data will be collected (Stated Preference and Revealed Preference) and new modelling work will be conducted. ITS's main roles in this project are to contribute to the psychological investigation of behavioural response, to lead the work on rail charges, to design the SP survey, and to study the implications of co-implementation of urban and inter-urban charges. Among other deliverables, ITS has contributed to a review of the current extent of differentiated charging in Europe (Enei et al, 2006) and to a review of the psychological issues affecting user response (Hoffmann et al, 2006).

Consumer Response to Complex Prices
DfT from May 2005 to August 2007
Partners: BMRB and MVA
Grant Holder: Prof. Peter Bonsall

This work was in response to a competitive tender issued by DfT. It is conducted in the context of the possible implementation of road pricing schemes in the UK – either as part of a national scheme or via local schemes such as those being considered under the Transport Innovation Fund. The research was commissioned following a review, conducted for DfT by ITS, of existing evidence on consumers' response to complex or highly differentiated prices. The current project has two main phases; the first qualitative and the second quantitative. The qualitative phase, now complete, involved focus groups and in depth interviews exploring people's general attitudes to prices and methods of payment, and their specific response to uncertainty or complexity in prices. Its findings (Bonsall et al, 2006) included evidence of a widespread tendency to disengage from the process of evaluating prices, widespread lack of knowledge about the cost of individual car journeys and a tendency to consider the cost as an "irrelevant" consideration. The project continues with the specification and trial of a quantitative

survey designed to establish the prevalence and incidence of these kinds of opinions and, more specifically, to allow estimates to be made of the implications that this has for the performance of road pricing schemes. A questionnaire has been designed, subjected to cognitive testing and pre-piloting, and is now being field-tested in CATI and CAPI formats.

Developing an Approach to Reviews of External Research Evidence on the Implementation and Impacts of DfT Policies
Department for Transport from May 2005 to January 2006
Collaborating Partners: AEA Technology and TRL. Prof. Chris Nash, Jeremy Drew (visiting research fellow) and Dr. Miles Tight Grant Holder: Dr. Andrew Smith

The Department for Transport appointed AEA Technology, ITS Leeds and TRL to develop an approach to reviews of external research evidence on the implementation and impacts of DfT policies. The objectives of this project were: (1) to develop and pilot an approach to evidence reviews that can be used to identify and assess reliable external research evidence on the implementation and impacts of key DfT policy initiatives; (2) to develop costed options for applying the approach across DfT policies; and (3) to develop approaches to reporting findings in a way that most effectively assists policy decision-making. The project concluded that an "off the shelf" process to policy review from the social literature was not appropriate in the transport context, due to the much more complex and interrelated issues surrounding transport policy interventions than other policy areas. Three review methodologies were developed to fit different timescale and budgets with DfT.

Rail Research UK
EPSRC from April 2003 to July 2009
Dr Gerard Whelan, Dr Anthony Fowkes, Daniel Johnson, Batool Menaz, Dr Andrew Smith, Phillip Wheat, Grant Holders: Prof. Chris Nash and Prof. Mark Wardman

Rail Research UK is the British universities rail research group; it is led by the Universities of Birmingham and Southampton and we are also working with Imperial College London and Loughborough University on these projects.

The first set of Rail Research UK projects was completed in 2006. We led two projects: C3 on alternative rail strategies, for which we have developed new strategic rail passenger and freight demand models and applied them to a range of external and policy scenarios. For project B4 on cost modelling we have both constructed a simple spreadsheet model and undertaken econometric work to identify the variability of different elements of infrastructure and train operating costs. We have also reviewed trends in costs to try to understand the reasons for the large increases in recent years, and whether these are likely to be sustained or reversed. We also contributed to project C2 on user needs, particularly regarding freight customers.

In the second set of projects we are leading project B7, which is further developing cost models and looking at the role of institutional arrangements in influencing costs, and contributing to Project C6 on the costs of unreliability of rail services.

POLICY AND APPRAISAL

European Union COST 358: Pedestrians' Quality Needs.
Networking grant from November 2006 – November 2010.
Grant Holder: Dr Miles Tight

The main objective of this project is networking and the development of high quality collaborative research proposals in the area of pedestrians quality needs. The study will focus of three perspectives, functionality of the pedestrian environment, perception of that environment by the users and durability. The project aims to provide an essential contribution to systems knowledge of pedestrians' quality needs, thus stimulating structural and functional interventions, policy making and regulation to support an improved pedestrian environment across the EU and other involved countries. The project involves experts in this field from 26 countries in Europe and elsewhere.

CityMobil
European Commission from May 2006 – April 2011
Collaborating Partners: TNO, ETRA,CRF, INRIA, DLR, Robosoft, TRG, CSST, TRW Conekt, IKA, SINTEF. DITS, GEA, POLIS, Rups, Frog, TML, ISIS, Technion, RATP, Roma, ITR, ATS, GVA, FCVARE, ENQ, UNI
Helen Muir, Charlotte Kelly, Dr Simon Shepherd, Dr Greg Marsden, Dr Astrid Guehnemann, Dr Ronghui Liu, Dr Samantha Jamson, Dr Natasha Merat Grant Holder: Prof. Anthony May

CityMobil involves examining the impacts that new transport technologies (mainly PRT, cybercars and high-tech buses) can have on improving the sustainability of European cities, and how these modes can be integrated into existing transport systems. ITS is involved in four out of the five sub-projects, including managing a sub-project to investigate how new technologies would fit into a range of future scenarios. Further work being undertaken by ITS includes: constructing strategic (MARS) and microsimulation (DRACULA) models to assess the future impacts of new technologies in four European cities; developing and applying a framework for evaluating new modes; aiding the co-ordination of links between CityMobil and the PRT system construction at Heathrow Airport; and using the University of Leeds Driving Simulator to assess the human factors issues associated with transfer of control between manual driving and full automation. http://www.citymobil-project.eu/

CURACAO (Coordination of Urban Road User Charging Organisational Issues)
European Commission from April 2006 to March 2009.
Collaborating Partner: TTR
Dr. David Milne, Andrew Koh Grant Holder: Prof. Anthony May

CURACAO is a three year project funded by the European Commission to provide support to cities interested in introducing road pricing schemes. Its overall objective is to promote and support fair and more efficient pricing of road usage in urban areas. CURACAO is not undertaking research itself, but reviewing the results of research and practice and collating these to provide advice to cities related to the questions which they are raising. ITS leads the Scientific Committee, which is producing an annual state of the art report. This report reviews evidence on each of the main issues of concern to cities: policy objectives; design methods and technology; prediction and appraisal; impacts on the economy, equity and the environment; acceptability and transferability. While the report focuses on European findings, the opportunity is being taken to seek expert advice from those involved in road pricing elsewhere in the world.

Transport policy appraisal and the development of a city scale carbon emissions accounting tool.
Tyndall Centre for Climate Change Research II from April 2006 to December 2007.
Collaborating Partners: Transport Studies Group, Department of Civil and Building Engineering, University of Loughborough
Helen Watters, Dr Paul Timms, Grant holder Dr Miles Tight

Transport is currently responsible for around a quarter of the UK's total anthropogenic CO2 emissions and this proportion is projected to increase. The transport sector will undoubtedly need to play a significant role in achieving carbon reductions if the Government is to meet its ambitious long term goal of a 60% reduction by 2050. This research project aims to examine the effects of transport activity in major cities on emissions of Carbon Dioxide. The focus of the work is on London, with comparisons made with other smaller UK cities. It aims to provide a unique insight into the role that cities play in generating carbon emissions from transport and identify the most effective policy instruments which could be used to promote change in the ways that individuals and business choose to use the transport options available to them.

Skye Bridge — Evaluation Of The Economic And Social Impacts
Highlands and Islands Enterprise and HITRANS from Feb 2006 to Feb 2007
James Laird Grant Holder: Prof. Peter Mackie for Derek Halden Consultancy

This report examines the impact of the changes in the policy regime for the Skye crossing over the last fifteen years, including the provision of the bridge and the subsequent abolition of tolls, on traffic patterns, trip lengths, user benefits, and associated impacts on business, households and

the community. The report is complete and is scheduled for publication in May 2007

Transport and Older People: Integrating Planning Tools with User Needs.
Sponsor EPSRC/BBSRC from February 2006 to March 2007.
Dr. Ann Jopson Grant Holder: Dr. Gregory Marsden

An investigation into the extent to which geographic information-led systems reflect and capture the key accessibility issues for older people and how different approaches may better capture these concerns. Research project held jointly with the Centre for Health Promotion research at Leeds Metropolitan University.

IMPACT (IMplementation Paths for ACTion - towards sustainable mobility)
MISTRA (The Swedish Foundation for Strategic Environmental Research) From January 2006 – December 2008.
Collaborators: Lund University. Traffic Planning, Lund University, Environmental and Energy Systems Studies, Lund University, Political Science, Lund University, Environmental Strategy, Institute of Transport Economics Norway (TØI), National Environmental Research Institute of Denmark (NERI), Trivector Traffic AB
Pelle Envall, Mary Kimble, Grant holder Dr Miles Tight

The project started in 2006 and aims to develop models and tools for the support of sustainability oriented decision-making and implementation in the transport sector.

The problem, as we see it, is that very few of the good intended solutions are put into practice. IMPACT claims that this is due to the lack of knowledge of implementation processes in relationship to the multi-level and multi-actor governance system of which such policies are a part and multiplicities of actors. The overall IMPACT vision is to determine ways to make it happen. The primary concern of the project is initiatives which are motivated from a climate change perspective, but we are also interested in effects on congestion, other transport externalities with consequences for health and environment, economy and social equity. The project will examine a range of measures from mobility management to transition of fuel and vehicle technologies and will include policy initiatives on a national as well as local levels and consider the effects on both personal travel and freight transport.

TRANSLINK (Transportation Research Links for Sustainable Development)
European Commission Asia-Link programme. From August 2005 to July 2008.
Collaborators: Department of Infrastructure, Royal Institute of Technology (KTH), Sweden, University of Indonesia, Indonesia, University of MARA,Malaysia.
Dr Nick Marler, Dr Paul Timms, Dr Samantha Jamson, Dr Tri Tjahjono, Grant Holder: Dr Miles Tight

The quality of the transport system is a major factor in economic development. Transportation research provides the knowledge, skills and tools to implement efficient transport policies, systems and services. This three year project is a partnership between two European and two South-East Asian universities with the overall aim to promote sustainable urban development in the latter region through development of their human resources. The main target groups are the transport research staff at the Malaysian and Indonesian universities who will be trained in research methodology and supervision. Institutional assistance will also be provided aiming at the creation of a transport PhD programme in their departments. The expected outcome is that the Asian universities will have staff with the skills and experience to develop their research programmes further, to the future benefit of their students, the transport planning profession and sustainable development in their countries.

Optimal incentive structures for integrated transport strategies
EPSRC from June 2005 to June 2007
Charlotte Kelly, John Nellthorp, Nusrat Walid, Dr. Astid Gühnemann Grant Holder: Dr. Gregory Marsden

This project is examining the behaviours that are induced in local transport planners by the Department for Transport's decision to adjust 25% of the indicated funding allowance for a local authority up or down based on performance against targets. The project is taking a game theoretic perspective to develop a theoretical model of behaviour. This will be further investigated by a laboratory experiment played out by city planners using a simulation of a simplified transport network for a city.

Cycling and Walking Appraisal
Department for Transport from February 2005 to February 2006
J. Parkin (University of Bolton), A. Cope (Sustrans), Prof. Mark Wardman, Dr. Miles Tight, Grant Holder: Matthew Page

Cycling and walking appraisal - helping the Department of transport develop its techniques for analysing and appraising cycling and walking schemes. The output will be a guidance note (to be added to the Department's Web based transport analysis guidance (WebTAG) to help local authorities analyse and prioritise cycling and walking schemes.

Connected Lives
ESRC from 2005-2008
Andrew Clark (LSSI) Grant holder(s) Frances Hodgson and Nick Emmel (Sociology and Social Policy)

The Connected Lives project is concerned with understanding the interrelations of social networks, mobilities, communities, neighbourhoods and health. The project draws on a number of perspectives from transport studies, geography and sociology and explores the use of qualitatively driven mixed methods, including participatory mapping, mobile methods and qualitative interviews. The Connected Lives project is a project of the Real Life Methods node of the ESRC National Centre for Research Methods.
www.reallifemethods.ac.uk/connected

Policy, Economics and Appraisal in Transport (PEAT)
European Commission from September 2004 to August 2008
Grant holder: Dr Susan Grant-Muller

The PEAT training site is one of a small number of highly prestigious training sites funded under the EU FP6 Marie Curie training and mobility programme. It provides a comprehensive research training environment covering the theoretical, methodological and contextual research issues within the field of Policy, Economics and Appraisal for the transport network of today and tomorrow. Eight full time scholarships have been awarded, each for a 3 year period of study towards PhD at ITS. Fellows have now completed the first year of training and are undergoing the process of upgrade and transfer to full PhD status. In addition to the main work of research, a total of 13 conference papers have been given by Fellows at a range of international conferences.

Sustainability Appraisal – Can it work for Transport?
Rees Jeffreys Road Fund, September 2004 to November 2006.
Charlotte Kelly, Nusrat Walid, John Nellthorp, Mary Kimble Grant Holder: Dr. Gregory Marsden

Despite recent improvements in the breadth of transport appraisal techniques, the principle behind appraisal remains unchanged. It involves the comparison of a series of policy interventions against a baseline or 'do-minimum' scenario. The results that are presented are relative to that baseline scenario. Whilst the results may indicate that a set of proposals performs better than a 'do-minimum' scenario and other competing options they do not demonstrate how well the proposals contribute to the sustainability of our transport system. This project seeks to bring together the substantial body of research that exists on defining sustainability and sustainable travel and demonstrate that these principles can be applied to the appraisal of transport projects.

Sustainability Of Land Use and Transport In Outer NeighbourhoodS (SOLUTIONS)
EPSRC from April 2004 to September 2008
Collaborating Partners: Dr Tony Hargreaves, Prof. Marcial Echenique, The Martin Centre, University of Cambridge: Prof. Hugh Barton (UWE), Dr Stephen Marshall (ICS), John Nelson, TORG, University of Newcastle

Dr Anil Namdeo, Grant Holder: Dr Gordon Mitchell
The principle research questions that SOLUTIONS

intends to answer are how far, and by what means, can towns and cities be planned so they are socially inclusive, economically efficient and environmentally sustainable. In particular, how should peri-urban areas, where most people live, be developed to accommodate current high growth levels in the most sustainable manner? To answer these questions a series of in-depth, integrated case studies in cities representing different urban scales and characteristics are being undertaken in partnership with the local planning authorities and a wide range of other stakeholders.

The research examines the interaction between strategic (whole city) and local (neighbourhood) levels using land use transport interaction modelling and neighbourhood design methods. Alternative designs of land use dispositions and transport configurations are being combined to form distinct archetypes of development at strategic and local scales (for example, urban compaction via new urbanist style neighbourhoods or edge expansion achieved via pod and cell neighbourhoods). The alternatives are being analysed through a combination of quantitative and qualitative procedures to estimate the likely outcome in terms of people's opportunities and behaviour. The resulting forecasts provide the basis for an assessment that quantifies criteria that encompass the impacts in the economic efficiency of the area studied, its social equity implications, and environmental sustainability.

By late 2006 evaluation procedures and development alternatives were agreed with stakeholders, a series of neighbourhood design evaluation case studies had been completed, and the majority of the land use transport interaction (LUTI) modelling completed for the London case study, using the MEPLAN LASER model. A series of tools have been developed by the Leeds team to enhance the appraisal of the LASER model outputs, and there is now a capability to quantify more than 20 criteria sensitive to land use and transport, addressing social, economic and environmental effects. Methods have been devised to assess factors such as building stock energy demand, biodiversity, and diffuse pollution loadings which have not traditionally been addressed in LUTI modelling studies.

The London case study is due to be completed in summer 2007, and the Cambridge and Tyne and Wear studies in 2008. Due to difficulties experienced with developing the LASER model, the project end date has been extended to Sept 2008, when the final products of the research will be available. These will comprise individual case study reports describing the effect of alternative growth accommodation strategies on sustainability in the case study areas, and the production of a generic, innovative, practical guide for the development of more sustainable outer cities.

DISTILLATE (Design and Implementation Support Tools for Integrated Local Land use, Transport and the Environment)

EPSRC from April 2004 to March 2008

Collaborating Partners: TRL; Heriot-Watt University, University of York and University College London

Matthew Page, Dr Simon Shepherd, Dr Greg Marsden, Dr Ann Jopson, Charlotte Kelly, Jeremy Shires, Batool Menaz, Grant holder: Prof. Anthony May

DISTILLATE is one of 14 research programmes funded under EPSRC's Sustainable Urban Environment programme. Its principal objective is to develop ways of overcoming the barriers to effective development and delivery of sustainable urban transport and land use strategies. It is based on the Scoping Study, which highlighted nine priority research needs, of which seven were funded in the main programme. The seven are understanding the barriers to delivery; generating strategy and scheme options; establishing a set of core indicators and targets; supporting effective collaboration; overcoming financial and other implementation barriers; enhancing predictive models; and improving appraisal methods. These are being pursued, in conjunction with 15 local authority partners, through a combination of research and case study trials. Detailed surveys of the barriers experienced by local authorities have been carried out and literature reviews on option generation, selection and use of indicators, organisational barriers and funding and a review of modelling capabilities have been completed. A number of "products" are being developed in each area with local authorities and will help them to overcome the barriers identified. All results are available on the website: www.distillate.ac.uk.

HEATCO

EC from February 2004 to July 2006

Collaborating Partners: IER, COWI, TNO, E-CO, NTUA, Sudop, VTI, ISIS, BUTE, Herry, EIT, Ecoplan, UBath

James Laird, John Nellthorp, Charlotte Kelly, Grant Holder: Prof. Peter Mackie

High quality facilities for transportation are of vital importance to the economy and the environment. However, there are still no clear guidelines for evaluating the costs and benefits of transport investments and policies agreed among EU Member States. While national evaluation frameworks exist, these methods are inadequate to address specific EU challenges such as cross-border effects or competitiveness. There is a clear need for an unambiguous and harmonised framework for socio-economic evaluation of transport policies. Although first steps were taken in the EUNET and IASON projects, further integration between existing methods and practices is addressed in HEATCO.

HEATCO's primary objective is the development of harmonised guidelines for project assessment on EU level. This includes the provision of a consistent framework for monetary valuation based on the principles of welfare economics. Existing practice in the assessment of the value of time and congestion, accident risk reduction, health impacts and nuisances from pollutant and noise emissions, and infrastructure costs are compared to the theoretical and empirical evidence from the literature. A number of stated-preference surveys and a meta-analysis have been carried out to help fill the most significant gaps in monetary values and add knowledge on the issue of transferability and comparability of values between countries. The harmonised guidelines are applied to 3 TEN transport infrastructure projects to illustrate differences to existing procedures. A PowerPoint show of the final conference presentations can be made available.
Visit heatco.ier.uni-stuttgart.de

Marie Curie Training Site EPA

European Commission from January 2002 to December July 2006

Grant holder: Dr Susan Grant-Muller

The Economic, Policy and Appraisal Marie Curie Training Site is one of two sites for which ITS gained international recognition under the EU FP5 programme. The site had the overall objective of providing research training for fellows already registered for PhD study in Europe. 16 fellows were recruited to the site from across Europe, including new member states. Fellows were expected to be primarily concerned with research to enhance their PhD and to engage in wider research training. The fellows attended a total of 101 seminars, training courses and workshops. A wide range of technical areas were researched under the general theme of transport economics, policy and appraisal including: Public transport fare structures, organisation and ownership in the rail industry, road pricing schemes, freight transport modelling, discrete choice modelling, and airline costs. Whilst the primary concrete output was progress with the PhD thesis, 17 journal articles, conference papers and other written materials were produced.

KonSULT (Knowledgebase on Sustainable Urban Land use and Transport)

DfT since 2002; Rees Jeffreys Road Fund and EPSRC

Dr Ann Jopson, Charlotte Kelly, Bryan Matthews, Jeremy Shires; Grant holder: Prof. Anthony May

KonSULT has been developed as a web-based knowledgebase on the impact of a wide range of urban transport policy instruments. The prototype was developed with EPSRC funding in 2001, and DfT and Rees Jeffreys support was used to populate it with information on some 25 policy instruments. The opportunity has been taken since to include information generated in other research projects. To date, 37 policy instruments are included out of a potential list of 60. KonSULT is now being used as an input to the research on option generation in the DISTILLATE research programme. The website can be found at www.konsult.leeds.ac.uk.

EXTR@Web (Exploitation of Transport Research Results via the Web)

Funded by the European Commission's Directorate-General for Energy and Transport (DG TREN) from 2002 to August 2006

Collaborating partners: GOPA-Cartermill

(coordinating); DITS Roma, IABG, ISIS France, Neptune, Systema, GIE
Dr Paul Firmin, Dr Ann Jopson, Mary Kimble, Bryan Matthews, Batool Menaz, Prof. Chris Nash, Damian Stantchev, Dr. Miles Tight, Nusrat Walid, Philip Wheat Grant holder: Prof. Anthony May

EXTR@Web has produced a web-based Transport Research knowledge Centre to collect, structure, analyse and disseminate research conducted on all aspects of transport and financed by the European Commission and the countries of the European Research Area over the period covered by the European Commission's Fifth Framework Programme. Profiles, results and final reports for over 600 European and national projects are available online in a standard format. Research results are collated into 28 Thematic Research Summaries dealing with different transport sectors, modes, policy objectives and policy instruments. A set of 8 Policy Brochures, which discuss the implications of research for the future development of policy at the European and national levels, has been prepared. Details can be found at: http://ec.europa.eu/transport/extra

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