ITS (MONASH)
2006 ANNUAL REPORT

31 January 2007

Established under the
Australian Research Council’s Key Centre Program.

INSTITUTE OF TRANSPORT STUDIES
The Australian Key Centre in Transport Management

The University of Sydney
and Monash University
Table of Contents

FROM THE DIRECTOR’S DESK – HIGHLIGHTS OF 2006 ............ 1

ABOUT ITS (MONASH) .......................................................... 3

EDUCATION ACTIVITIES ...................................................... 5
  UNDERGRADUATE TEACHING ......................................... 5
  POSTGRADUATE DEGREES BY COURSEWORK ................ 7
  POSTGRADUATE RESEARCH DEGREES ............................ 10
  TRANSPORT INDUSTRY EDUCATION PROGRAMS ............ 12
  PROFESSIONAL DEVELOPMENT ..................................... 14

RESEARCH ACTIVITIES ........................................................ 16
  OVERVIEW OF CURRENT RESEARCH PROJECTS .............. 17
  TRANSPORT RESEARCH WORKSHOPS (TRWS) .................... 27
  MONASH TRANSPORT .................................................... 28
  STUDY TRIP TO JAPAN .................................................. 33
  DEVELOPING COLLABORATIVE RESEARCH LINKS ............ 33
  PUBLIC TRANSPORT DESIGN RESEARCH INITIATIVE ......... 34
  STAFF INDUSTRY AWARD ............................................... 35

COMMUNITY AND PROFESSIONAL SERVICE ACTIVITIES ...... 36
  SIXTH ANNUAL OGDEN TRANSPORT LECTURE .................. 36
  INTERNATIONAL POSITIONS ......................................... 36
  AUSTRALIAN POSITIONS .............................................. 36
  EDITORIAL POSITIONS ................................................ 37
  REVIEWS OF PAPERS ................................................... 37
  CONFERENCE, SEMINAR AND FORUM PRESENTATIONS AND ATTENDANCE .......... 38
  OVERSEAS AND INTERSTATE VISITS ................................ 38
  OTHER ACTIVITIES ...................................................... 38

CENTRE MANAGEMENT ACTIVITIES ....................................... 40
  ITS (MONASH) ADVISORY COMMITTEE .............................. 40

APPENDIX A - STAFF .......................................................... 41

APPENDIX B – PUBLICATIONS ................................................ 48
FROM THE DIRECTOR’S DESK – HIGHLIGHTS OF 2006

The preparation of this annual report always brings into focus the achievements of the preceding year. Our efforts in 2006 have resulted in considerable growth in our education and research activities.

Through its education programs, ITS (Monash) plays a key role in developing professional capacity for the transport and traffic profession. Enrolments in the postgraduate program in Transport and Traffic, along with the Transport Management Course in Bus and Coach Operations, remained stable while strong growth was recorded in undergraduate subject enrolments. As part of the undergraduate programs in Civil and Environmental Engineering, we had responsibility for 480 subject enrolments in transport/traffic related subjects in 2006. That figure represented a 16 per cent increase over 2005. Interest in undertaking research in transport was also high amongst final year students in the undergraduate program with a record number of 33 students enrolled in 2006 in final year transport projects – a 74 per cent increase over the previous year. These increased numbers were accommodated without compromising quality and once again the students rated a number of the transport and traffic subjects as amongst the best they have taken at the University.

The staff responsible for the delivery of the Transport Management Course in Bus and Coach Operations deserve a special mention. Their dedication to that program is responsible for the very positive feedback it received in an external review conducted by the Department of Infrastructure. The consultants who conducted the review noted that the effective quality improvement process established by ITS (Monash), has contributed to keeping the course responsive to the needs of the industry and the key stakeholders.

In addition to our contributions to structured education programs, ITS (Monash) was also active in offering professional development workshops. This year two courses were offered in the public transport field, namely ‘Public Transport Planning II - Network and Strategic Perspective’ and ‘Tram Planning –Lessons from Toronto’. Each of those courses attracted over 50 professionals and the positive feedback from the participants at those workshops has provided the encouragement to progress plans to expand the workshop offerings in the public transport field in 2007.

Our research activities grew considerably in 2006. Of particular note was Professor Currie’s success in securing a $1.1M ARC Linkage Grant to investigate transport disadvantage, social exclusion and well being in Metropolitan, Regional and Rural Victoria. Over the three years of that project, Graham will have the opportunity to work closely with the local industry sponsors; the Department of Infrastructure, The Brotherhood of St Lawrence and the Bus Association of Victoria, as well as with two international collaborators (Prof Hine from the University of Ulster and Dr Karen Lucas from University of Westminster in London). Graham was also honoured with the Bus Association of Victoria’s Industry Contribution Award at the 2006 Bus Maintenance and Expo Conference held in Melbourne.

During the year, ITS welcomed many national and international visitors including Professor Julian Hine from the University of Ulster, UK; Professor Avi Ceder from the Technion Israel Institute of Technology; Professor Michiel Bleimer from the Technical University of Delft, Professor Amer Shalaby from the University of Toronto; Prof. Masao Kuwahara from the University of Tokyo and Dr. Edward Chung from EPFL Switzerland. Interaction with those visitors helped to strengthen our research activities and their
visits provided a valuable opportunity for our students to hear first hand of research developments overseas. During Prof. Kuwahara’s visit, a Memorandum of Understanding (MOU) was signed with the Collaborative Research Center for Advanced Mobility at the University of Tokyo. That MOU will facilitate an expansion of our international research collaboration with the Center for Advanced Mobility.

ITS (Monash) continued to undertake a diversity of transport related research in 2006. We began a new project for AUSTROADS, in conjunction with ARRB Group, which is developing a National evaluation framework for travel demand management initiatives. Dr Sarvi has continued his development work on an instrumented vehicle which will play a valuable role in gathering data to improve our understanding of driver behaviour on motorways. Other new projects include the exploration of market futures for public transport, development of a framework to manage the patronage data to be collected by smart card ticketing systems and exploration of the performance of active signal priority using traffic microsimulation.

Part of my time during the year was also spent developing the Monash Transport initiative to facilitate linkages with researchers in other faculties who have an interest in transport related research. This initiative has already produced a number of collaborative projects and following a successful event late in the year, which brought together researchers from throughout Monash, more collaborative projects are certain to follow. The Monash Transport initiative gathered a good deal of internal momentum in 2006 and preparations were made for it to increase its activities in 2007.

This year has seen three researchers join our staff (Dr Muhummad, Mr Senbergs and Mr Zavabeti) and their efforts will help to further boost our research activities. We also said farewell to Julia Arnold who had played a valuable role in supporting the management of the centre for a number of years.

We hope that you will find this report of our 2006 activities to be of value. Please do not hesitate to contact me if you would like further details on any of the items covered in this report.

G. Rose

Associate Professor Geoff Rose
Director, ITS (Monash)
ABOUT ITS (MONASH)
The Institute of Transport Studies was established in 1995 as a Commonwealth Key Centre of Teaching and Research in Transport Management. While transport education and research programs have been offered at the Monash University Clayton campus for over 37 years, the formation of the Institute of Transport Studies heralded an expansion of those activities and in particular the development of a number of off-campus learning (distance education) programs. The Institute of Transport Studies (Monash) now operates as a self-funded entity but continues to collaborate with the Institute of Transport and Logistics Studies, at the University of Sydney, the other node of the Key Centre. ITS (Monash) is located within the Department of Civil Engineering, the original home of the transport education and research programs at Monash University.

Our Mission
• To progress transport knowledge and practice

Our Vision
• To be regarded as a provider of international standard transport education and research which contributes to the prosperity and sustainability of industry and the wider community

Our Values
In following our mission, we:
• Lead through innovation
• Provide quality education and research services
• Build a supportive team
• Develop effective partnerships
• Practise self-sustaining financial management

Our Core Activity Areas
The activities of ITS (Monash) are concentrated in the following areas:

Education:
Education activities contribute to building professional capacity in the transport and traffic industry and focus on transport and traffic engineering, transport policy, planning and operations management. Education programs are offered at the following levels:

• Undergraduate
• Postgraduate
• Continuing education: seminars, short courses and workshops
• Industry programs

Research:
ITS (Monash) conducts research which contributes to the prosperity and sustainability of industry and the wider community through understanding, predicting and evaluating travel demand, transport operations, transport and traffic management and public transport planning and management. ITS (Monash) research is focused in four program areas:
• Travel demand
• Transport operations
• Transport and traffic planning and management
• Public transport planning and management

**Professional and community service:**
ITS (Monash) staff engage in a range of professional and community service activities including:

• Arranging public lectures on contemporary transport issues
• Serving as committee members of national and international bodies
• Contributing to the organization of state, national and international conferences
• Providing editorial services to professional journals and publications
• Reviewing papers submitted for publication at conferences and in journals

**Our Team**
In 2006, the ITS (Monash) team included:

• Professor Bill Young, Head of the Department of Civil Engineering
• Professor Graham Currie, Professor of Public Transport
• Professor Rahmi Akcelik, Adjunct Professor
• Professor Tony Richardson, Adjunct Professor
• Associate Professor Geoff Rose, Director of ITS (Monash)
• Mr John Clements, Program Director, Transport Management Course
• Dr Majid Sarvi, Lecturer, Department of Civil Engineering
• Ms Astrid de Alwis, Assistant Program Director, Transport Management Course
• Dr Imran Muhammad, Research Fellow
• Mr Zed Senbergs, Research Assistant
• Mr Ali Zavabeti, Research Assistant
• Ms Brenda O’Keefe, Administration Manager
• Ms Julia Arnold, Administration Officer (Finance)
• Mr Mark Karpovitch, research student
• Mr Md. Iqbal Kabir, research student
• Mr Mohammad Aftabuzzaman, research student
• Mr Richard Yeo, research student
• Mr Tan Yan Weng, research student
• Mr Tim Martin, research student
• Mr Daniel Csikos, research student
• Mr Mahmoud Mesbah, research student
• Mr Mike Shackleton, research student
• Mr Richard Yeo, research student
• Mr Roger Toleman, research student
• Ms Rita Seethaler, research student
• Ms Ruimin Li, research student
• Ms Sara Moridpour, research student
EDUCATION ACTIVITIES

The educational activities and programs at ITS (Monash) include:

- Undergraduate teaching
- Postgraduate degrees by coursework
  - Graduate Certificate in Transport and Traffic
  - Postgraduate Diploma in Transport and Traffic
  - Master of Transport
  - Master of Traffic
  - Master of Infrastructure Engineering and Management (course management responsibility)
- Postgraduate degrees by research
  - PhD program
  - Master of Engineering Science by research
- Transport industry education programs
  - Transport Management Course in Bus and Coach Operations
  - Education Program in Parking Management
- Professional development, workshops/short courses

Undergraduate Teaching
Staff associated with ITS (Monash) continue to play a key role in the delivery of the undergraduate transport units in the civil and environmental engineering programs. Figure 1 illustrates the trends in undergraduate student numbers. Level 2 enrolments increased substantially this year. In addition to passing the 200 mark in terms of enrolments, the Level 2 core unit in Transport and Traffic Engineering increased from 4 to 6 credit points. This increase in the size of the unit reflected the implementation of a recent course review and involved incorporating an explicit oral and written communications component in the unit. In one of the assignments, students prepared a technical paper which they then presented at an end of semester ‘Transport Conference’. Enrolments have stabilised in the level 3 core unit which this year incorporated material on pavement design. That material fits naturally with the geometric design content of that unit.

Enrolments also rose in the final year electives, with the biggest increase being for the Transport Planning unit. Students in that unit completed a major project which involved designing and undertaking a survey of cyclists using Melbourne’s off-road bicycle paths. Vic Roads collaborated closely on the project which aimed to add value to the data currently collected from inductive loop detectors installed on Melbourne’s bike paths. Vic Roads also sponsored a prize for the winning team and the Manager of Vic Roads Bicycle and Pedestrian Programs (My Tony Barton) acted as second marker on the student reports and came along to class to provide verbal feedback on all the student’s reports and to present the prize to the winning team (as shown in Figure 2).
Geoff Rose presented a paper at the 2006 ATRF conference based on the CIV4283 class project\(^1\).

**Figure 1**: Trends in undergraduate transport unit enrolments

**Figure 2**: Winners of the Vic Roads Prize for the best report on the project in CIV4283 Transport Planning
(L to R): Kathryn Campbell, Rebecca Chase, Tony Barton (Vic Roads Manager of Bicycle and Pedestrian Programs) and James Kear.

\(^1\) Rose, G. 2006, ‘Learning in more ways than one about the users of Melbourne's bike paths’, Proc ATRF 2006 conference
Staff also supervise final year research project students who are enrolled in CIV4210 Project A and CIV4211 Project B (Professors Bill Young and Graham Currie, Associate Professor Geoff Rose and Dr Majid Sarvi). A total of 33 undergraduate students were supervised when undertaking final year research projects in transport in 2006. This was a dramatic increase on the 19 students who undertook transport projects in 2005. Details of those projects are provided in the section of this report which deals with research activities.

Apart from the dedicated transport units described above, the staff also contribute to other units in the civil engineering program. Dr Majid Sarvi is responsible for the transport component of the major group design subject (CIV4212 Civil engineering practice 4), which is a core unit in the final year of the civil engineering degree. Staff are also responsible for two other units in the civil and environmental engineering programs: CIV3204 Engineering investigations which is taught by Dr Majid Sarvi and CIV3205 Project management for civil engineers which is taught by Professor Bill Young.

**Undergraduate student prizes**
The following prizes were awarded in 2006:

- **The GHD Highway Design Prize** – awarded to the group of Bachelor of Engineering students who submitted the best highway design – Michael Matthews, Deniz Ibrahim, Thomas Achilles
- **The Richardson Prize in Transport** – awarded to the BE student showing the greatest proficiency in one transport elective and project – Jordan Allan
- **The Traffix Group Prize** – awarded to the BE student showing the greatest proficiency in level 4 transport engineering elective subjects – Jordan Allan

**Undergraduate student scholarships**

- **The Traffix Group** generously offers two scholarships to students who have an interest in and intend to pursue careers in transport engineering. The students must be in levels 2 and 3 of the Bachelor of Engineering degree at the time of application, and are awarded $1,000 and $1,500 respectively, as well as six to twelve weeks’ work experience with the company. In 2006, the level 2 scholarship was awarded to Leigh Furness and the level 3 scholarship to Chris Arnott.

**Postgraduate Degrees by Coursework**

Trends in enrolments in the postgraduate coursework program are shown in Figure 3. Enrolments stabilised in 2006 with the postgraduate program in transport and traffic continuing to attract strong interest from throughout Australia and overseas. A new unit covering public transport planning and management was introduced in semester 2, 2006.
Transport and traffic related units offered in 2006, as part of the distance education postgraduate coursework degree programs, are listed below along with details of the unit co-ordinator:

- CIV5301 Traffic engineering fundamentals (Rose)
- CIV5302 Road traffic: engineering and management (Young)
- CIV5303 Quantitative methods (Sarvi)
- CIV5304 Intelligent transport systems (Rose)
- CIV5305 Transport network models (Sarvi)
- CIV5306 Road safety engineering (Daly/Rose)
- CIV5307 Parking policy and design (Young)
- CIV5308 Case studies in transport (Rose/Currie)
- CIV5310 Infrastructure project management (Seethaler)
- CIV5311 Infrastructure project and policy evaluation (Richardson)
- CIV5314 Transport planning and policy (Rose)
- CIV5315 Transport economics (Clements)
- CIV5316 Public Transport Planning (Currie)

Postgraduate student awards

The VicRoads prize in Transport Engineering is awarded to the postgraduate student who has achieved the highest average mark in their coursework units. The 2005 award was won by Kate Mould (See Figure 4). Kate has recently started in a new role as a Project Officer at the City of Ballarat in the Transport and Traffic group. Prior to this, Kate worked as a transport planner and traffic engineer in the Melbourne office of the International consulting firm ARUP. Kate completed her Bachelor of Engineering (Civil) (Honours 1) at Monash University in 1999.
This year saw a number of postgraduate students complete their coursework degrees. Some of them chose to attend the graduation ceremonies held throughout the year (See Figures 5 and 6). One of the students, Chris DeGruyter was well known to us since he completed his undergraduate civil engineering degree at Monash. For two of the other students, Lindsay Smith and Kevin Flynn the graduation ceremony provided an opportunity for them to meet the staff for the first time.

**Master of Infrastructure Engineering and Management**

Using the same format and operational methods as the ITS (Monash) postgraduate programs in transport and traffic, the Department of Civil Engineering developed a distance education masters program in infrastructure engineering and management in 2001. The course consists of eight units dealing with asset management, project management and policy evaluation, with specialisations in traffic, transport and water engineering. As a result of the experience gained in running the Bus and Coach and Transport Masters courses, it is managed by the Administration Manager of ITS (Monash), Brenda O’Keefe, on a contract basis for the Department. The course had 38 students enrolled in 2006.
Figure 5: Assoc Prof. Geoff Rose, Kevin Flynn, Prof Bill Young, Chris DeGruyter and Dr Majid Sarvi

Figure 6: Prof Bill Young, Lindsay Smith and Assoc Prof. Geoff Rose

Postgraduate Research Degrees
Trends in higher degree by research enrolments [MEngSci (Research) and PhD], are shown in Figure 7. Postgraduate research student enrolments strengthened considerably in 2006 with most of the students enrolled in the Masters planning to transfer to the PhD program.
Figure 7: Trends in postgraduate research student enrolments

Students engaged in research degrees at ITS Monash during 2006 were:

- Daniel Csikos: Exploring commuter stress and public transport reliability
- Mahmoud Mesbah: Optimisation of transit priority systems
- Mark Karpovitch: Transport, infrastructure and engineering projects based on transferred technology financed in China
- Md. Aftabuzzaman: Public transport performance measures of road traffic congestion relief
- Md. Iqbal Kabir: Transport and land use modelling: a Melbourne Case Study
- Mike Shackleton: A model for management of a public-good transport related research institutions
- Richard Yeo: Effects of large road freight vehicles on the performance of typical Australian road pavements: the performance of cemented pavement materials under heavy axle loading.
- Roger Toleman: Tollroads and sustainability: Friends or foes?
- Sara Moridpour: Lane changing behaviour of heavy vehicles
- Tan Yan Weng (external): A study of parking in multi-use facilities.
- Tim Martin: Predicting pavement performance at a road network and road program level.

Two students submitted their PhD dissertations in 2006 and are awaiting the reports from their examiners:
- Rita Seethaler: Incorporating the psychological principles of persuasion into a community-based TravelSmart campaign
- Ruimin Li: Incorporating travel time variability into travel time prediction models

Research Student Awards

The following ITS (Monash) students received the two prizes awarded at the 2005 CAITR conference:
- Daniel Csikios was awarded the postgraduate student prize for his paper on ‘The impact of reliability on passenger wait time’, and
- Yannick Michel was awarded the undergraduate student prize for his paper on ‘A Freight Capacity Model’.
Transport Industry Education Programs

The transport industry education programs remain core activities of ITS (Monash). Following the launch of the Bus and Coach accreditation course in 1999, enrolments have stabilised (see Figure 8) as new operators join the industry or existing operators employ new staff or seek to upgrade their qualifications. Enrolments in the course in Parking Management also remain steady but are much smaller than the Transport Management Course in Bus and Coach Operations.

![TMC Bus and Coach Enrolments](image)

**Figure 8: Enrolments in the Transport Management Course in Bus and Coach Operations**

Transport Management Course in Bus and Coach Operations

The Transport Management Course in Bus and Coach Operations, which forms part of the industry accreditation system, was launched in March 1999. The distance education delivery is supplemented by a half day introductory ‘face-to-face’ session at the beginning of each semester, for students who are new to the course. Since the course was introduced in 1999, over 1500 operators have successfully completed this educational component towards their accreditation.

The Department of Infrastructure initiated an external review of the Transport Management Course in 2006 to examine whether the course has achieved its original objectives and whether those objectives were still relevant to current day bus and coach operations. The results of the review were extremely encouraging and are summarised in the following quote from the final report:

> "From the feedback received it was evident that there are high levels of satisfaction from all stakeholder groups regarding the course in its current form. There are similar satisfaction levels regarding the delivery mode and the staff of the Institute of Transport Studies, Monash. There is no doubt that the course is successful in meeting its original criterion, and that it remains relevant to the bus industry."

---

The course remains relevant to the industry by means of the effective quality improvement process established by ITS Monash, where relevant feedback from key stakeholders is incorporated into the course in an ongoing manner. This process has contributed to keeping the course responsive to the needs of the industry and the key stakeholders.”

The review also provided some valuable insight into potential pathways for working towards mutual recognition of interstate courses and this is one of the issues which will receive attention in 2007.

Education program in parking management
The Education Program in Parking Management was initiated by ITS (Monash) in February 1998. It is a national course offered by distance education. The program was developed by ITS (Monash) and the Parking Association of Australia Inc., in consultation with parking operators, equipment manufacturers, consultants and local government engineers. The course is aimed at operators, managers, engineers, analysts and planners working in the parking area. The education program aims to develop knowledge and understanding of parking specialisations which will assist participants to advance their careers in the parking industry by providing knowledge of management, policy, design, technology and information systems. The program is built around four units which each comprise 12 topics, and there are self-assessment review questions for each topic and an assignment for each unit. There were 5 enrolments in the course in 2006.

Transport industry education program and postgraduate coursework program awards
In 2006, the presentation of awards to outstanding students in the Transport Management Course in Bus and Coach Operations and the postgraduate program in Transport and Traffic was again held in conjunction with the fifth annual Ogden Lecture (see Figure 9). This high profile evening was held at the State Library of Victoria Theatrette in Melbourne in early August and provided the ideal forum in which to recognize the achievements of our most successful students.

A large audience participated in the evening, including senior officers of the Department of Infrastructure (DOI) and the Executive Director of the Bus Association of Victoria (BAV), as well as many industry, government and academic representatives. The awards are sponsored by industry and government and recognise outstanding performance of bus and coach operators completing subjects in the course. The winners of the 2006 awards were as follows:

- **Bus Association of Victoria** award for best overall performance in the Transport Management Course in Bus & Coach Operations (bus and coach operations, AO accreditation) – Simon Millar, Wendouree
- **Bus Association of Victoria** award for best overall performance in the Transport Management Course in Bus & Coach Operations (charter and coach operations, AC accreditation) – Michael Di Lisio, Ararat
- **Department of Infrastructure** Small Operator Award for Unit 4101 Introduction to legislation and operations – Wendy Quinn, Echuca
• **iComply**, AC/AO Operator Award for Unit 4101 Introduction to legislation and operations – Robert Ettery, Traralgon

• **The Pitcher Partners** Large Operator Award for Unit 4102 Financial management – Brooke Mellington, Rainbow

• **Grenda Transit** Large Operator Award for Unit 4103 Human Resource Management – Simon Millar, Wendouree

• **The Ventura National Bus** Award for Unit 4104, Marketing, planning and operations – Michael Thorn, Dandenong

![Figure 9: Award recipients and sponsor representatives associated with the Transport Management Course in Bus and Coach Operations at the annual awards night](image)

**Professional Development**

**Public Transport Planning II – Network and Strategic Perspectives**

This workshop was held on 4th and the 5th October 2006 at the Bayview Conference Centre, Monash University. There were 55 participants, the largest attendance yet for this now annual event. Attendance was from a wide variety of professional backgrounds including public transport operators and state government agencies from throughout Australia and overseas. The course was presented by Professor Currie and also Professor Avi Ceder from the Technion Israel Institute of Technology. Topics covered included strategic perspectives on planning public transport, performance monitoring and network design as well as operational perspectives. While this was the third public transport planning workshop hosted by ITS (Monash) it covered new subject matter. During 2006, plans were developed for three separate workshops which are to be offered in 2007.
Tram Planning – Lessons from Toronto
This workshop was held on 8th November at the Monash City Campus in Collins Street. The aim of the workshop was to learn from the planning approaches adopted in Toronto Canada, the second largest tram system in the western world where trams have to share roadspace with car traffic. Melbourne has the largest tram system in the world. The workshop is part of an initiative by the Chair of Public Transport to develop links between cities running streetcar based transit systems. The workshop was hosted by ITS (Monash) and features a number of presentations by Professor Amer Shalaby from the University of Toronto. The morning session covered general tram planning issues while the afternoon session covered micro-simulation approaches in streetcar modelling. There were some 70 invited participants including planners from Yarra Trams, DoT, VicRoads and Local Government. Prof Currie and Dr Sarvi of ITS (Monash) also spoke alongside Mr Chris Wilson a consultant from Masson Wilson Twiney. A follow up presentation, focussing on ‘Tram Planning Lessons from Melbourne’, is planned in Toronto for 2007.
RESEARCH ACTIVITIES

Transport research at ITS (Monash) is focused into four program streams with each covering a range of topics as listed below:

- **Travel demand**
  - Mobility management and travel behaviour change
  - Role of information (e.g. ATIS) in influencing travel behaviour
  - Transport and land use interaction
  - Disabled access
  - Demand response to innovative transport modes and technologies

- **Transport operations**
  - Road based public transport
  - Operations management
  - Environmental impacts
  - Intelligent Transport Systems
  - Non-motorised transport

- **Transport and traffic management**
  - Road space and traffic management
  - Investment appraisal and evaluation
  - Demand management
  - Policy

- **Public transport planning and management**
  - Service planning and development
  - Transport needs analysis
  - Demand assessment and forecasting
  - Rural and regional transport
  - Mass transit
  - Transport planning for special events
Overview of Current Research Projects

The following abstracts of current research projects have been classified under the above research program streams. Funding source is noted where applicable.

Travel demand

- **A study of parking in multi-use facilities (Tan/Young) - PhD project**
  Tan Yan Weng is an Associate Professor in the School of Civil and Structural Engineering at Nanyang Technological University, Singapore. His current PhD research is in the area of parking systems design, with particular emphasis on developing an interactive stated preference approach to collect information on parking behaviour in multi-use facilities. This study investigates the application of parking modelling to the design and enhancement of multi-storey parking facilities. The PARKSIM model is used as a base and vehicle movement in multi-storey facilities modelled to enhance its present capabilities. The microsimulation model considers different user and vehicle types within a mixed use development as well as different types of parking operations. It incorporates algorithms for route choice, car following and lane-changing within the car park and external road network.

- **Development of a National framework for appraisal and evaluation of TDM initiatives (Rose)**
  This research project, being undertaken for Austroads, is developing a framework to assist in the selection and evaluation of Travel Demand Management (TDM) measures. As part of the study, experience with TDM evaluation in Australia, Europe and the North America was reviewed. The project has drawn on the UK Governments' 'New Approach to Appraisal', the Auslink 'Transportation System Management Guidelines' and work previously undertaken by ARRB Transport Research for the Victorian Department of Infrastructure to develop a TDM measure selection toolkit and draft National Guidelines for TDM appraisal and evaluation. A series of workshops held in Melbourne, Brisbane, Sydney and Wellington was used to obtain practitioner feedback on the framework. The final report on the framework will be submitted to Austroads early in 2007.

- **Impact of the Monash University TravelSmart initiative (Eady/Rose)**
  At the beginning of 2005, incoming students at the Monash Clayton Campus received comprehensive travel advice to encourage greater use of walking, cycling, public transport and carpooling to campus. This study drew on student responses to a questionnaire distributed six months after the program was run to evaluate its impact on travel behaviour. The TravelSmart initiative stimulated about 11 per cent of students to either try or use green travel modes. Students who received the TravelSmart packs as part of enrolment generally expected to be greater users of green travel modes at the time of enrolment and that continued through to their actual mode usage. TravelSmart treated respondents reported higher use of green modes than the respondents who did not receive TravelSmart. Information about public transport and carpool services were the most highly valued components of the TravelSmart initiative.

- **Impact of an office relocation (Fu/Rose)**
  This case study focused on the head office of a major organization which relocated from the city to the inner eastern suburbs. Using a series of travel surveys, the study examined employee travel behaviour prior to the move, anticipated mode of travel to work at the new location and actual mode at the new
location. It was found that staff over-estimated the extent to which public transport would be used to travel to work at the new location.

- **Comparing cycling in Melbourne and Sydney (Rose/Garrard/Greaves/Rissel/Pucher)**
  This study is comparing cycling in Melbourne and Sydney. It seeks to examine differences in the level of involvement in cycling and the relative safety of cycling in the two cities.

- **Understanding use of Melbourne's off-road bicycle paths (Rose and Phung)**
  This study draws on travel survey data to provide insight into usage of Melbourne’s off-road bicycle paths. Automatic loop detector data is being analysed to provide insight into the impact of weather effects, specifically rain and temperature, on the level of cycling. Intercept surveys and self completion questionnaires were used to obtain richer information on usage patterns. If the off-road facilities were not available, approximately one in five (20 per cent) of riders would change modes. A slight majority (60 per cent) of those would turn to public transport as opposed to the car to complete their trip. These results highlight the role which bicycle facilities play in moderating demand for motorised transport options particularly during the peak commuting period.

**Transport operations**

- **Predicting pavement performance at a road network and road project level (Martin/Young) – PhD project**
  Tim Martin is a principal research engineer with ARRB Transport Research Ltd, and commenced his PhD in April 2001. It is postulated, and generally observed, that pavement performance is influenced mainly by levels of maintenance expenditure, climate, traffic loading and its associated dynamic effects and the structural condition of the pavement and its variability along the pavement. All factors are interrelated and correlation of these factors is prevalent in the usual historical performance databases used in quantifying pavement performance. This research aims to develop improved network and program level roughness deterioration models, including identifying the components of uncertainty associated with these models. The quantification of pavement performance will take the form of deterioration relationships expressed as a function of time, traffic loading and other variables and will cover sealed granular pavements (typical of 95% of Australia’s sealed road network) and the typical range of traffic levels and climatic conditions for pavements (network and program level) within most road networks in Australia. Pavement performance will be assessed by an overall serviceability and surface condition measure and an overall structural condition measure. More accurate deterioration models will improve the reliability of the estimates of road wear and cost allocation (with implications for heavy vehicle charging), of the estimates of the differences in road maintenance costs that are due to the various climatic regions in Australia, and of the estimates for maintenance and rehabilitation scheduling along each road in the road network (with implications for the estimation of the capital costs of increased pavement capacity under the regime of increased road use).

- **Performance based standards for heavy vehicles (Young)**
  This study has explored the role and potential for performance based standards in improving the economic, safety and environmental performance of the road system. This study is part of an Austroads project on performance based standards for heavy vehicles.
• **Environmental impacts of transport (Young)**
  This project explores the relationship between land use, transport and the environment. Long term changes in transport and their impact on land use and the environment are investigated.

• **The effects of large road freight vehicles on the performance of typical Australian road pavements: the performance of cemented pavement materials under heavy axle loading (Yeo/Young/Kokikara) - PhD project**
  This project involves a study of road capacity to carry increasing axle loads on pavement structures incorporating cemented materials. Full scale accelerated load testing of two purpose built test pavements will be undertaken to assess the effects of axle load on pavement life. Laboratory test protocols for assessment of the elastic properties and fatigue properties of cemented materials will be investigated and the results of the full scale and laboratory tests will be compared with current theory.

• **Transferred technology-based transport, infrastructure and engineering projects financed and undertaken in China and Asia (Karpovitch/Young) - PhD project**
  High economic growth rates of the economies in Asia and China have meant increased transport and infrastructure construction project activity in the region. This program of research aims to investigate and analyse the influence of systems of managing and financing large public transport and infrastructure projects on their outcome.

• **Incorporating travel time variability into travel time prediction models (Li/Rose/Sarvi) - PhD project**
  Information on travel time is important to road users and road system managers. This project is developing models which can be used to predict travel times. While traditional approaches focus on prediction of average travel time, this research is also aiming to estimate the level of uncertainty of the forecast. The models are being developed on the basis of the traffic data routinely collected by inductive loop detectors on motorways (speed, flow and occupancy) as well as probe vehicle data which can be provided by automatic vehicle identification systems. This study is being undertaken in conjunction with Transurban and Vic Roads.

• **Understanding and predicting the nature of freeway incidents (Campbell/Rose) – undergraduate research project**
  Incidents are random events such as crashes, breakdowns or spilled loads which affect freeway operations. As part of this study, a literature review was conducted to identify attempts to probabilistically model the frequency and severity of freeway incidents. Data from Melbourne’s CityLink motorway was analysed to examine the potential to develop incident models.

• **Reliability maps for Melbourne Freeways (Chudleigh/Rose) – undergraduate research project**
  Travel time reliability has been highlighted in the literature as being as important, or in some cases more important, to travelers than average travel time. This study sought to quantify the levels of (un)reliability in travel times across five freeway segments in Melbourne. Using two years of inductive loop data supplied by Vic Roads, travel time distributions were developed for each of the freeway segments. A range of reliability metrics were then considered for mapping the levels of reliability as a function of time of day and day of week. The research confirmed the conclusions of European studies that the coefficient of variation, a common metric
for measuring variability, does not help to identify patterns in reliability. Clearer insight was obtained using metrics based on the variance and skew of the travel time distribution.

- **Development of an instrumented vehicle utilizing laser based sensing technology (Sarvi, Zavabeti)**
  In this study a sophisticated instrumented vehicle is being developed utilizing laser based sensing technology. The key enabling technology required is an automatic and accurate system capable of capturing real time traffic and driver data. Laser sensors and a model known as ‘SLAMMOT’ are being used for automating the sensing and interpretation of sensing data, respectively. The laser sensors handle the task of sensing the environment and the SLAMMOT model is employed to interpret the data obtained by the laser sensors (ie. “sense and make sense” tasks). While the operation of the laser sensors is based on the emission of a laser beam, recovering the reflected beam and measuring distances to significant points in the environment draws on the SLAMMOT model which is able to detect and model both static and moving objects in unknown environments. SLAMMOT involves both simultaneous localisation and mapping in dynamic environments and detection and tracking of these dynamic entities.

**Transport and traffic management**

- **Accuracy and traffic simulation modelling (Young)**
  This project looks at the reliability of traffic simulation models. In particular it investigates the assumptions made in the model and their impact on the output. Particular attention will be paid to assumptions about drivers risk taking.

- **Modelling of weaving phenomena observed during traffic congestion (Young/Sarvi)**
  This work focuses on a little researched area of modelling vehicle acceleration-deceleration behaviour during weaving manoeuvres under congested traffic situations. Traffic congestion frequently occurs at weaving bottleneck sections and it is vital to investigate traffic behaviour and characteristics during traffic weaving processes under congested traffic flow in order to design safer and less congested weaving points.

- **Research quality in transport (Shakelton/Currie/Young)**
  This project examines the quantification of quality in research. It looks at research quality in industry, academia and research companies to investigate the best methods of ensuring and measuring it.

- **Application of persuasion principles to a community based travel behaviour change program (Seethaler/Rose/Allen) – PhD project**
  Policies aiming to increase the sustainability of urban transport often face the problem of overcoming unsustainable behaviour patterns that are principally centred around the car and largely dominated by routine choices that do not take sustainability considerations into account. To overcome the barrier of habitual behaviour patterns, awareness campaigns, principally based on the provision of information about the effects of modal choice, are insufficient for stimulating change. Social psychology offers a series of persuasion techniques that are able to reach beyond the mere raising of awareness. For example, involving the target population in a process of personal commitment is likely to increase the up-take of the policy intervention and will therefore have a better chance of creating lasting changes in behaviour. Based on TravelSmart, the travel behaviour change (TBC)
policy currently under development by the Victorian DOI, this project attempts to study the effect of different persuasion techniques individually and in combination by using an appropriate experimental design and evaluation techniques. This research is being supported by a Victorian Minister of Transport Scholarship.

- **Evaluation of the Monash University Carpool System (Wilcock/Rose)**  
  This study examined the potential for a variety of data to enhance understanding of the Monash University Carpooling system. In addition to a web-based survey of individuals registered for the carpool service, an analysis of ticket machine data and surveys of carpool usage provided a comprehensive data base for the study. While the carpool carpark provides free parking it was found that the majority of vehicles displayed a blue permit (for which an annual fee is charged) which would have allowed them to park in blue permit areas. This highlights that the carpools do not operate every day and blue permit parking areas are used on other days when the vehicle may not have sufficient occupants to qualify for carpool parking. Users value the premium location of the carpool carparks (close to the buildings) and the guarantee of a space. The majority of carpools have an explicit mechanism for sharing commuting cost, either by payments to the driver or by rotating the driver and vehicle used for commuting.

- **Study of freight operations (Abdulmalek, Reddy, Sarvi) – undergraduate research project**  
  This project explored the lane changing behaviours of heavy vehicles and their interaction with surrounding vehicles on freeways and arterial roads under congested conditions. This research has potential to enhance freeway and arterial road operations and safety. Video and vehicle trajectory data were obtained from the Next Generation Simulation project in California. From these, heavy vehicle lane change maneuvers were identified and analysed. These individual analyses were collated to explore a number of driver stimuli affecting lane changing behaviour such as relative speeds, absolute speeds, and space gaps between vehicles. The results indicated a relationship between the lane changing vehicle and the leader and follower vehicle in the target lane. The strongest relationships were found between the accepted gap and the speed of the leader and follower vehicles relative to the lane changer, as well as the lane changer's acceleration.

- **Study of driver interaction behaviours (Chase, Sarvi) – undergraduate research project**  
  Being able to model different vehicle classes is becoming increasingly important given predictions that passenger vehicles will comprise a declining proportion of traffic in the future. The number of motorcycles and the level of road freight are correspondingly predicted to increase. Understanding the behaviour of these vehicle types, and their interactions will help in developing more accurate models real-life traffic problems. Existing models tend to be limited to the study of how passenger vehicles approach and pass larger vehicles, but the understanding of travel behaviour in the presence of following vehicles has not been rigorously examined. The Federal Highway Administration in North America has undertaken the Next Generation Simulation Project. One of the components of the project is an extensive data collection exercise designed to collect information that can be used for analysis and to check the validity of different transport models. The data extracted for this investigation included a 45-minute dataset collected between 7:50 a.m. and 8:35 a.m. from the southbound lane of the freeway US 101. Extensive data extraction using Microsoft Excel was undertaken to obtain information relating to the travel characteristics of different transport classes under
different conditions. Statistical tests were applied to examine relationships between the driving characteristics of the different vehicle classes. The aim of this research was to better understand how each vehicle class travels, and any interactions that may occur. From the limited information available on motorcyclists, the analysis found that these vehicles do not travel at a headway statistically different from that of the passenger vehicles but the average speed on the freeway is higher than other vehicle types. Trucks travel at a larger spacing and headway then other vehicles, but the difference in speed is not statistically different from that of a car under the same traffic conditions. The headway of passenger cars remains unaffected by the presence of a following vehicle however when unimpeded there is a statistically significant increase in travel speed. There was evidence to suggest that the change in travel speed tended to be larger if the vehicle behind was another car. This research has important implications for refinement of the ‘car following’ models which lie at the heart of many micro-simulation software packages.

Public transport planning and management

- **Investigating Transport Disadvantage, Social Exclusion and Well Being in Metropolitan, Regional and Rural Victoria (Currie, Richardson, Smyth and Vella-Broderick)**

  ITS (Monash) has won its first Australian Research Council Industry Linkage award for this 3 year interdisciplinary project to explore how transport problems impact on life opportunities and community well being. The project has a $1.1M budget and draws together international collaborations from the UK (Prof Hine, University of Ulster and Dr Karen Lucas, University of Westminster) as well as sponsorship resources from the Department of Infrastructure, The Brotherhood of St Lawrence and the Bus Association of Victoria. The project will entail case study analysis of six regions of Victoria and the development of quantitative survey instruments to explore the mechanisms and behaviors associated with transport disadvantage, understand how public transport acts to influence these issues and explore wider life impacts of lack of mobility.

- **A Review Of Australian Bus Rapid Transit System Developments (Currie)**

  Started in 2004 this is proving an ongoing project as developments in BRT have continued in Australasia throughout 2006. ITS (Monash) has been invited to undertake presentations of our research in this area in Barcelona Spain (February 2006), Florida (January 2006) and also Bogota, Columbia at the 5th International Bus Conference (February 2007).

- **Metlink Market Futures Research and Development Project (Currie, Senbergs and Imran)**

  This project is exploring the influences which changes in society might have on public transport travel into the future. The first of two major stages of the project are nearing completion. Phase 1 has reviewed literature and experience in a series of 11 major theme areas. These are to be workshopped with the transit industry in Melbourne and stage 2 will commence in 2007 exploring travel behaviour evidence from available secondary surveys.

- **Signal Priority Modelling Project (Currie, Sarvi)**

  This project was commissioned by VicRoads in association with the Department of Infrastructure to explore the performance of active signal priority using traffic micro simulation. This is theoretical work supporting the development of a new generation active signal priority system for Melbournes’ tram and bus services.
• **Demand Responsive Transit Pilot Project Development (Currie, Senbergs)**  
  This project commissioned by the Bus Association of Victoria in association with the Department of Infrastructure is to advise and manage the development of projects for a trialling of demand responsive bus services suitable for fringe urban Australian conditions. ITS (Monash) reviewed previous research evidence and assessed the performance of DRT systems in these circumstances. A series of proposals for trial services were developed from workshops and consultation with industry. Advice on optimal design for pilot project development and monitoring was provided.

• **Smart Card Ticketing and Passenger Information Data Design (Currie, Wilson)**  
  This project commenced in 2006 is a collaboration between ITS(Monash) and the Massachusetts Institute of Technology in the United States. It was commissioned by the Transport Ticketing Authority who are developing the new ‘Myki’ smart card ticketing project for Melbourne’s public transport systems. The aim is to review international experience in designing the framework for managing patronage information which can be collected from smart card systems as a basis to inform future systems development in Melbourne.

• **Social Capital Community Strengthening and Public Transport (Currie, Stanley)**  
  This project undertaken for the Department of Infrastructure is a collaboration between ITS (Monash), the Department of Social Work at Monash University and the Brotherhood of St Lawrence Research Group. Its aim is to explore how the social policy concepts of social capital and community strengthening relate to public transport as a basis to inform policy development and research in the field.

• **The Impacts of Transit Reliability and Wait Time for Long Headway Services (Csikos, Currie)**  
  A review of theoretical research on the waiting time impact of headways and alternative service reliability has been completed and followed by primary data collection on wait times and reliability associated with Melbourne passenger rail services. Data was collected using magnetic ticket validation data and established one of the most robust models ever to test the theory associated with these issues. Results are to be reported at the 2007 Annual Meeting of the US Transportation Research Board and have been recommended for publication in Transportation Research Record.

• **Linking Fuel Price Increases and Public Transport Demand – Melbourne (Currie, Phung)**  
  This project was an empirical statistical exploration of the relationship between car fuel price changes and public transport patronage growth on Melbourne’s public transport. An econometric statistical model was developed which identified a significant statistical relationship between rail and bus patronage growth and fuel prices. A major finding was the significantly higher cross elasticities which were demonstrated for rail patronage in Melbourne. Results were published at ATRF 2006.

• **US Transit Ridership and Auto Gas Prices and World Events – new Drivers of Change? (Currie, Phung)**  
  This project extended the econometric modeling undertaken at ITS (Monash) on changes in ridership and fuel price in Melbourne to a short term contemporary assessment of these issues for transit systems in the United States of America.
The results confirmed statistically significant elasticities which demonstrated changes in market sensitivity to fuel price over short term periods before the 9/11 terrorist attacks, the Iraq war and Hurricane Katrina. Results are to be presented at the 2007 annual meeting of the US Transportation Research Board in Washington and have been recommended for publication in the Transportation Research Record.

- **Linking Fuel Price Increases and Bus Demand – Melbourne (Currie, Phung)**
  Continuing on from previous topical research in this field a project examining the market impacts on individual bus routes is being undertaken into 2007.

- **Successes and Challenges in Modernising Streetcar Systems – Experience in Melbourne and Toronto (Currie, Shallaby)**
  This project is part of a program of research developed by ITS (Monash) which aims to assist the Melbourne tram system learn from lessons in other streetcar (or mixed traffic) based tram systems. It is a collaboration of ITS (Monash) and the University of Toronto and has included a review of the challenges associated with streetcar operations and a comparative assessment of the policy measures aimed at addressing these challenges. The research which resulted was one of the subjects presented at the Melbourne workshop ‘Tram Planning – Lessons from Toronto’. A follow on workshop is planned for 2007 in Toronto. The work is also part of a program run by the US Transportation Research Board’s committee AP070 on Light Rail Transit and will be part of a special session of the 2007 TRB Annual Meeting focusing on modernizing streetcar systems.

- **Assessing the Quality of Australian Transit Signal Priority Against Worlds Best Practice (Currie)**
  This project followed on from a literature review of signal priority practices undertaken in 2005 for VicRoads. It included a review of current Australian approaches to signal priority in each state and an assessment of these against world practice. A key finding was that despite much enthusiasm in the 1980’s and 1990’s for signal priority, in practice, the development of these technologies has proven problematic and little real progress has been occurring over the last few years.

- **Transport Disadvantage and Indigenous Australians (Currie, Senbergs)**
  This project comprised a review of research and experience concerning transport disadvantage and indigenous Australians. It includes a review of issues and problems related to transport and behavioral and social issues which are related to this.

- **Australians with Disabilities – Transport Issues and Problems (Currie, Senbergs and Allen)**
  This project is a collaboration of the ITS (Monash) and the Department of Design at Monash Caulfield. It is a review of current experience and research evidence on transport disadvantage issues and the full range of Australian groups facing physical, social and intellectual disabilities.

- **Young Australians and Transport Disadvantage (Currie)**
  This project follows on from Prof Curries’ national review of transport for rural and regional young people undertaken for the National Youth Affairs Research program in 2005. It is an update and review of issues associated with transport and access problems for young Australians.
• **Investigating Australian Government Structures and Public Transport (Currie)**
  This project is a review of evidence concerning the structure of local, state and federal government involvement in the planning, funding and development of public transport services. Results were presented at the 2006 Australian Institute of Traffic Planning and Management Conference.

• **A Strategic Assessment of Australian Urban Passenger Railways (Currie, Imran)**
  This project was initiated in response to an invitation to present at the 2006 AusRAIL national conference. It is a strategic critique of Australian Urban Passenger Railways from a patronage development and sustainability perspective and included a historical assessment of rails’ market development, access catchment coverage and performance in terms of network expansion.

• **Designing for Pedestrian (Ronquillo, Hislop, Currie) – undergraduate research project**
  This project reviewed the factors of importance to creating a safe and attractive environment for pedestrians. It includes a review of readily available research on good practices in designing for pedestrians. It also reviewed techniques for undertaking manual quantification of the relative ‘walkability’ of communities and the quality and level of service of existing provision for pedestrians. This project includes the application of self completion ‘walkability’ and “walk quality” assessments at Clayton Campus to assess the performance of existing street and path design and to identify ideas for improving the ‘walkability’ of campus.

• **The Design of Public Transport Interchanges and Terminals (Constance, Currie) – undergraduate research project**
  This project included a review of research literature regarding public transport stations, terminals, interchanges and bus and tram stops to understand the design requirements, techniques for evaluating interchanges and good practices and innovations in design. The project also involved the application of the findings of this research on the Huntingdale bus rail interchange and Monash University interchange to assess their performance from a transit operations and patronage amenity viewpoint.

• **Design of the Caulfield-Huntingdale-Monash-Rowville bus rapid transit service (Neal/Currie) – undergraduate research project**
  The Victorian Government has announced it will invest over $30M on a Smart Bus service between Caulfield, Monash and Rowville on Wellington Road. The aim is to deliver Victoria’s first ‘Bus Rapid Transit’ service in line with worlds best practice. This project developed design concepts for the proposed service with reference to world best practice in relation to Bus Rapid Transit (BRT). The project included a review of BRT literature, a review of existing Smart Bus services and the policy context of Smart Bus in Victoria, an assessment of existing conditions in the proposed service corridor including field surveys and the development of design concepts for the service.

• **A Review of the Public Transport Customer Satisfaction Database (Mak, Currie) - undergraduate research project**
  This project was undertaken in association with Metlink and mined the long running Melbourne Public Transport Customer Satisfaction Database to undertaken relationships between service performance factors and customer satisfaction elements output from the quarterly survey.
• Investigating Passenger Waiting Behaviour at Transit Stops and Stations (Hung, Shen, Wan and Currie) - undergraduate research project
This project explored the theoretical literature associated with passenger waiting behaviour at bus and rail stops concerning average waiting times and relationships to headways. A field survey was then undertaken to collect primary evidence to test the theoretical background in practice.

• Improving methodologies to assess on road public transport priority (Currie/Sarvi/Young)
This project examines previous approaches to allocating road space for all users and also reviews approaches to giving public transport priority in road space allocation. A new approach to determining 'optimum' road space allocation is developed using a Social Cost Benefit approach. Advanced micro-simulation approaches to model traffic impacts of alternative public transport priority designs is used to determine guidelines for 'optimal' road space allocation in relation to public transport. The research is being funded by Vic Roads.

• Investigating public transport travel time variability (Tiong /Sarvi) – undergraduate research project
This study investigates the variability of public transport travel time and aims to not only quantify that variability but also better understand the factors which contribute to that variability.
Transport Research Workshops (TRWs)

ITS (Monash) holds regular Transport Research Workshops (TRWs) at which staff, students and visitors are able to present recent research results, discuss grant applications and workshop new ideas for projects (see Figure 10 and 11). At each TRW, a formal presentation is made by one of the ITS (Monash) staff or students or by a visiting researcher. Presentations made during 2006 included:

- ‘On my bike - Reflections on an OSP Experience based in the Netherlands’ – Assoc. Prof Geoff Rose (ITS Monash)
- ‘Transport Research Initiatives at PATREC’ – Professor Fred Afflick, PATREC, WA
- ‘Safer Journeys to School: Issues and Practices in Northern Ireland and Great Britain – Professor Julian Hyne, University of Ulster, Ireland
- ‘Assessment and reduction of the impacts of large freight vehicles on urban traffic corridor performance’ – Euan Ramsay (QUT, Brisbane)
- ‘Dynamic traffic modelling and management of motorway networks’ – Professor Michiel Bleimer, Technical University of Delft, The Netherlands
- ‘Development on an instrumented vehicle’ – Dr Majid Sarvi (ITS, Monash University)
- ‘Identifying the Institutional Barriers to Sustainable Urban Transport’ – Imran Muhammad (The University of Melbourne)
- ‘Tollroads and Sustainability’ – Roger Toleman (ITS, Monash University)
- ‘Passenger Arrival Profiles at Suburban Railway Stations: Impacts of Reliability and Headway on Wait Time’ - Daniel Csikos (ITS, Monash University)
- ‘Optimal Design of Transit Short-Turn Trips’ - Professor Avi Ceder (MIT and Technican Institute of Israel)
- ‘MILATRAS (Micro simulation Learning-based Approach for Transit Assignment): A New Modelling Framework for the Transit Assignment Problem’ - Professor Amer Shalaby (University of Toronto, Canada)
- ‘Learning (in more ways than one) about the users of Melbourne’s off-Road bicycle paths’ – Assoc. Professor Geoff Rose, (Director ITS, Monash University)
- ‘Practical Applications of Traffic Micro-simulation’ - Dr. Jeffery Archer (Accident Research Centre, Monash University)

![Figure 10: Staff and Research Students at one of the TRW Seminars](image-url)
Figure 11: Professor Julian Hine (middle) visited ITS (Monash) as part of the collaborative research on transport and social exclusion he is conducting with Professor Currie. Prof. Hine delivered a TRW address which focussed on school travel in Northern Ireland and Great Britain.

Monash Transport

In 2005, following a successful workshop which bought together researchers from across Monash with an interest in Transport research, a plan was put to the university’s senior management to provide funding to support a multi-disciplinary transport research initiative at Monash. That initiative bore fruit in 2006 through the establishment of the Monash Sustainability Institute (MSI). Four key themes have been established for MSI: Water, Climate, Energy and Transport. Geoff Rose was appointed Interim Director of the Transport Theme which will operate under the banner of ‘Monash Transport’.

Monash Transport aims to address the social, economic and environmental challenges associated with the development of a sustainable transport system for the movement of both people and freight. By building teams that cross traditional discipline boundaries, Monash Transport aims to develop and share sustainable transport knowledge between Monash and the community.

To enable Geoff Rose to develop the Monash Transport initiative, central university funding was provided to facilitate some teaching support. Dr Imran Muhammad, who had joined ITS (Monash) this year as a research fellow in the public transport area, collaborated with Geoff to assist with some of his teaching commitments in second semester - particularly in relation to CIV2282 Transport and Traffic Engineering.

The main activities undertaken by Monash Transport in 2006 were preparatory work on a number of collaborative research projects, structuring a web site and arranging a reconnection event with the Monash staff who attended the Transport Research at
Monash (TRAM) workshop in 2005. The reconnection event was opened by Professor Edwina Cornish, Deputy Vice-Chancellor Research and included presentations on a number of successful research projects with developed as part of the 2005 event. A ‘Speed Dating for Transport Researchers’ activity (See Figure 12) which formed part of the event proved to be not only fun but also fertile in that a number of new collaborative research projects were generated by the staff who met at the event.

As part of the Monash Transport initiative, Geoff Rose participated in a seminar in France in October which aimed to build stronger links with INRET S, the French National Institute for Transport and Safety Research. The seminar was jointly hosted by Monash University and INRET S. Geoff has undertaken a number of collaborative projects with Dr Jean-Luc Ygnace from INRET S, and both INRET S and Monash are working to undertake more collaborative research in the future. The seminar was attended by representatives from a number of Australian universities and industry groups (See Figure 13). To increase the interaction between Monash and INRET S, Dr Mike Regan from the Monash University Accident Research Centre is being seconded to INRET S for a three year period beginning in 2007.

Figure 12: Assoc. Prof Geoff Rose shown with the ‘Speed Dating for Transport Researchers’ event taking place in the background.
Figure 13: Participants at the INRETS/Monash Seminar to build collaborative research links between INRETS and Australian Transport researchers

On the way back to Australia from France, Geoff made a stop at Monash South Africa (see Figure 14 and 15). The campus is currently home to round 1000 students from 25 countries with only about 20 per cent of them coming from South Africa. The campus is growing rapidly. While the initial emphasis has been teaching activities, effort is now being directed at building its research activities. Transport has been identified as one of the areas where Monash South Africa can grow its research activities and Geoff’s visit provided an opportunity to develop plans to add value to the Monash South Africa’s research activities through the Monash Transport initiative. During his visit, Geoff presented a seminar on Community-based TravelSmart initiatives in Australia.

Figure 14: Monash South Africa
New Frontiers in Transport Systems Seminar
In November, ITS (Monash) arranged a one day seminar to highlight insight from the leading edge of transport research. The seminar was attended by about 35 staff from a variety of transport organisations including the Department of Infrastructure, Vic Roads, RACV, Intelematics Australia, Transurban and ConnectEast. The seminar gave attendees an opportunity to hear from a range of local and international speakers (See Figure 16). The topics covered at the seminar, and the speakers involved, were as follows:

- New Frontiers in Simulation Modelling of Transport Systems - Prof. Masao Kuwahara, University of Tokyo
- Transit Connection Protection – Prof Amer Shalaby, University of Toronto
- Intelligent Roads – Prof. Edward Chung, EPFL Switzerland
- ITS and Management of Commercial Vehicle Operations on Motorways - Dr. Majid Sarvi, ITS (Monash)
- Travel Time Variability: Measuring, Mapping and Implications – Assoc Prof. Geoff Rose, ITS (Monash)
- Insights from Electronic Toll Collection Data , Prof. Masao Kuwahara, University of Tokyo
- GPS enabled Cell Phones for Traffic Monitoring, Prof Amer Shalaby, University of Toronto
Sabbatical Leave – Assoc Prof Geoff Rose

Geoff Rose was on sabbatical leave from the middle of 2005 until February 2006. That period proved to be very productive from a research perspective. The Department of Civil Engineering at Delft Technical University in the Netherlands provided the base for this period of leave with the research activities focused in two main areas: applications of advanced technology in transport and travel behaviour analysis. A total of nine papers were submitted/presented while on his Outside Studies Program (OSP), four of those in international journals and another three in international peer reviewed conferences. A number of new research initiatives were also begun covering the analysis of travel time reliability and the evaluation of voluntary travel behaviour change programs. Discussions with a number of international research groups resulted in plans to develop a formalized arrangement for research co-operation with the Collaborative Research Centre for Advanced Mobility at the University of Tokyo. Foundations were also laid to position Monash to collaborate with the French National Institute of Transport and Safety (INRETS) in seeking funding as part of the European Commissions 7th framework for transport research and development. While his OSP activities were focused primarily on research, Geoff also delivered an off-campus distributed learning postgraduate unit in Intelligent Transport Systems (CIV5304) while overseas. Geoff attended and spoke at the MoVe 2005 conference in Venice which brings together researchers, politicians, government officials, industry and consulting representatives with an aim of developing mobility management applications in Italy. In January 2006, Geoff attended the US Transportation Board’s 2006 conference where he presented two papers in conjunction with current postgraduate students (Ruimin Li and Rita Seethaler).
Study Trip to Japan
Dr Majid Sarvi travelled to Tokyo to work with Professor Masao Kuwahara over the summer of 2005/2006. The project was entitled "A three dimensional driving simulator combined with a traffic simulation to study driving behaviours". The main aim of this research was to utilize a three dimensional dynamic driving simulator linked with a network traffic micro-simulation to study driving behaviour. Having adequate and accurate understanding of driving behaviour is vital to traffic and transport engineers. One of the most challenging driving tasks occurs when a driver is involved in a dynamic combination of lateral and longitudinal movements (e.g. lane changing and merging manoeuvres). There have been few comprehensive research publications concerned with traffic behaviour and characteristics in these situations. The absence of reliable data with which simulated processes, such as car following, may be compared presents a significant challenge, and one that has become increasingly apparent in the development of models of driving behaviour in these situations over the last few years. Obtaining such data and the associated increase in model validity that this would allow is increasing in importance in order to assess the effectiveness of new, advanced telematic systems which are designed to improve traffic flow and safety. One source of such data to assist in this process is the use of laboratory based simulators. In these experiments, the driver is placed in a fully controlled virtual environment where his reactions to external stimuli can be accurately measured in a systematic manner.

Developing Collaborative Research Links
In 2006, ITS, Monash has developed closer research links with the University of Tokyo. In a special ceremony held as part of the ‘New Frontiers in Transport Systems’ seminar a Memorandum of Understanding was signed between ITS (Monash) and the Collaborative Research Center for Advanced Mobility at the University of Tokyo. The MOU was signed by Assoc. Prof. Geoff Rose and Prof Masao Kuwahara (See Figure 17).
Public Transport Design Research Initiative
In 2005 ITS (Monash) joined with the Industrial Design group at Monash Caulfield to develop a design research initiative focussing on the public transport field. A number of significant activities followed in 2006 including:

Volgren Monash PhD Research Scholarship – Australia’s largest bus vehicle manufacturer Volgren has sponsored a 3 year PhD research scholarship at Monash University to study innovative vehicle designs for the bus industry. The project includes funding for a full time research student to be supervised by the Monash design school in association with ITS (Monash).

2007 Victorian Premiers Award For Design – A design for a narrower Melbourne tram (See Figure 18), made from aluminium, has won two Premier's Design Awards for a pair of Monash University Art and Design students. Their design of a narrow tram that runs on a single track earned Mr Ben Last and Mr Jess Cameron-Wootten the Premier's Student Design Award and Student Product Design Prize.

Figure 18: The narrow tram design that earned two awards for Monash students Mr Jess Cameron-Wootten and Mr Ben Last at the Premier's Design Awards

2007 – ALSTROM Design Competition ‘Light Rail 2020’ - ALSTOM Australia Limited in association with Yarra Trams and United Group Ltd developed a design prize for light rail vehicles which would reflect the objectives of the Victorian Government’s 2020 urban strategy. The event was open to design schools throughout Australia. First prize was an all expenses paid trip to work at ALSTROM's design school in Paris France. Monash University students Chris Chan, Casey Phua and Yu-Chen Pan won first prize for their design YOKOPANO (see Figure 19). In addition Monash University students won third prize in the competition.
Figure 19: YOKOPANO tram design by Monash University Students Chris Chan, Casey Phua and Yu-Chen Pan Won First Prize For ALSTOM Light Rail 2020 Competition

Staff Industry Award
Professor Currie was presented with the Bus Association of Victoria’s Industry Contribution Award at the 2006 Bus Maintenance and Expo Conference at the Moonee Valley Racecourse (Figure 12).

Figure 12: 2006 Bus Industry Expo at which Professor Currie was Awarded the BAV Industry Contribution Award
COMMUNITY AND PROFESSIONAL SERVICE ACTIVITIES

Sixth Annual Ogden Transport Lecture
The Ogden Transport Lecture was initiated in 2001 by the Institute of Transport Studies (ITS) to recognise Professor Ken Ogden’s role in founding the transport program at Monash in 1969. The 2006 Ogden Lecture was held on 17 August at the theatrette in the State Library of Victoria in Melbourne. The keynote address was given by Professor Nigel Wilson from the Department of Civil Engineering at Massachusetts Institute of Technology. Professor Wilson address was titled ‘Realistic Public Transport Futures in an Uncertain World’ and considered opportunities and challenges for public transport in western developed countries. Drawing on a range of international contexts, the lecture identified common themes including the challenges of urban congestion and how transit systems must develop to realise the opportunities presented by these developments.

International Positions

- Fellow, Chartered Institute of Logistics and Transport, United Kingdom (Clements, Young)
- Fellow, Institute of Transportation Engineers, U.S.A. (Young)
- International panel member, Transport Cooperative Research Program Project H-32 ‘Determining elements needed to create high ridership transit systems’ (Currie)
- Transportation Research Board Committee AP050 ‘Bus transit systems’ – Full Member (Currie)
- Transportation Research Board Committee AP075 ‘Light Rail transit systems’ – Full Member (Currie)
- Transportation Research Board Committee AP025 ‘Public transportation planning and development’ – International Friend of the Committee (Currie)
- Transportation Research Board Committee ‘Transit capacity and quality of service’ - International Friend of the Committee (Currie)
- Union Internationale des Transports Publics (UITP) – Academic Network Member (Currie)
- Member, Transportation Research Board (Sarvi)

Australian Positions

- Member, Institute of Transportation Engineers (ITE) Australia and New Zealand Section (Sarvi, Rose)
- Member, Australian Institute of Traffic Planning and Management (AITPM) (Rose)
- Member, Monash University Car Parking Policy Committee (Rose)
- Member, Monash University Transport Planning Committee (Rose)
- Member, Monash University Faculty of Engineering Senior Lecturer Promotions Committee (Rose)
- Member, Transport Reference Group, Victorian State of the Environment Report, Commissioner for Sustainability (Rose).
- Fellow, Institute of Transportation Engineers (ITE) Australia and New Zealand Section (Young)
• Member, Advisory Committee, NRTC Committee on Performance Based Standards (Young)
• Member, Monash University Faculty of Engineering Board, Steering Committee (Young)
• Chair, Monash University Department of Civil Engineering Management Committee (Young)
• Chair, Monash University Faculty of Engineering Graduate and Further Education Committee (Young).
• Deputy Chair, Monash University Faculty of Engineering Education Committee (Young)
• Member, Monash University Education Committee (Young)
• Treasurer, AITPM Victorian Committee (Young)
• Academic member, Victorian Road Based Public Transport Advisory Committee (Currie)
• Steering committee member, Victorian Auditor Generals Office (performance audit of rail franchising arrangements) (Currie)
• Member, Institute of Transportation Engineers (ITE) Australia and New Zealand Section (Sarvi, Rose)
• Student Chapter Coordinator, Institute of Transportation Engineers (ITE) Australia and New Zealand Section (Sarvi)
• Member, Institution of Engineers Australia Victorian Division Transport Branch Committee (Sarvi)
• Member, Chartered Institute of Logistics and Transport (de Alwis)
• Member, Chartered Institute of Logistics and Transport (Victorian section), General Committee and Passenger Transport Group Committee (Clements)

Editorial Positions
• Advisory Board of the journal Transportation (Young)
• Road and Transport Research Journal Editorial Board (Currie)
• Member of the International Editorial Advisory Board of the International Journal of Logisitics: Research and Applications (Clements)

Reviews of Papers
• Road and Transport Research, the ATRF Conference, the Thinking on Two Wheels Conference, US Transportation Research Board, ASCE Journal of Transportation Eneering and the International Symposium on Transportation and Traffic Theory (Rose).
• Transport Reviews, ATRF, AITPM, TRB, Road and Transport Research, Australian Planner, Applied GIS, Australian Road Research Board (Currie)
• ARRB journal, the International Symposium on Transportation and Traffic Theory, ASCE Journal, IEEE Journal on Intelligent Transport, 2nd International Symposium on Simulation (Sarvi)
Conference, Seminar and Forum Presentations and Attendance

- Organiser, National Conference on Transport Social Exclusion and Well Being, Melbourne 5th-6th April 2006 (Currie)
- Victorian Roads Based Public Transport Advisory Council – Public Forums – Geelong (Currie)
- City of Newcastle, NSW Presentation on the Independent Review of the NSW State Government Decision to Close the Newcastle Branch Line’ Currie February 2006
- 2006 Monash Ogden Transport Policy Lecture – N Wilson MIT August (Currie, Rose)
- ‘Bus Rapid Transit in Australasia’ – Presentation to the Centre for Urban Transport Research at the University of Southern Florida, January 2006 (Currie)
- ‘Modelling Demand Responsive Transit with Litres II’ Presentation to the Transport Operations Research Group, University of Newcastle Upon Tyne, UK February 2006 (Currie)
- ‘Research Perspectives on Light Rail for Sydney’ Presentation to the Institute of Transport and Logistics, University of Sydney, March 2006 (Currie)

Overseas and Interstate Visits

- Delft Technical University, The Netherlands (Rose)
- INRETS, Lyon and Paris Laboratories. (Rose)
- University of Maryland (Rose)
- University of Central Florida (Rose)
- Centre for Urban Transport Research at the University of Southern Florida, January 2006 (Currie)
- Transport Operations Research Group, University of Newcastle Upon Tyne, UK February 2006 (Currie)
- PTP Barcelona Spain, February 2006 (Currie)
- Transportation Research Board Annual Meeting January 2006 (Currie, Rose)
- Institute of Transport and Logistics, University of Sydney, March 2006 (Rose)
- AusRAIL 2006 (Currie)
- 2nd symposium on simulations, Lausanne, Switzerland (Sarvi)
- Monash South Africa (Rose)

Other activities

- Reviewer – City of Melbourne – issues consultation papers on transport (Rose, Young and Currie)
- Reviewer – Department of Infrastructure, Central City Access Model. (Young)
- Technical advisor/reviewer – ‘NSW Decision to Maintain Rail Services in Newcastle NSW (Feb 2006) (Currie)
• Radio Adelaide – Commentary on debate on Glenelg Tram Extension Jan 2006 (Currie)
• Free Public Transport – The Sunday Age 5-03-06 (Currie)
• Free Public Transport – Darryn Hinch Show 06-03-06 (Currie)
• Myki Smart Card – John Fayn ABC Nov 2006 (Currie)
• Party electoral commitments in transport – Age Nov 2006 (Currie)
CENTRE MANAGEMENT ACTIVITIES

ITS (Monash) Advisory Committee

The ITS (Monash) Advisory Committee met in September. The committee decided to appoint the Chair of the Advisory Committee for a two year period and that role in 2006-2007 will be filled by Mr John Stanley from the Bus Association of Victoria. The retirements of Dr Anthony Ockwell from the Federal Department of Transport & Regional Services (DoTARs) and Mr Stuart Hicks from the National Transport Commission left two vacancies on the advisory committee. Mr Michael Taylor, Secretary of the Federal Department of Transport & Regional Services (DoTARs) accepted an invitation to join the committee from 2007. The advisory committee members undertook reviews of the units in the postgraduate program and provided valuable feedback which assisted with the annual updating of the notes. The advisory committee is working with ITS (Monash) staff to initiate a number of strategic initiatives which will be announced in 2007.

External members of the ITS (Monash) Advisory Committee in 2006 were:

<table>
<thead>
<tr>
<th>Name</th>
<th>Position</th>
<th>Organisation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mr Bernie Carolan</td>
<td>Chief Executive Officer</td>
<td>Metlink</td>
</tr>
<tr>
<td>Ms Charmaine Dunstan</td>
<td>Director</td>
<td>Traffix Group Pty Ltd</td>
</tr>
<tr>
<td>Professor David Hensher</td>
<td>Director</td>
<td>Institute of Transport &amp; Logistics Studies (University of Sydney)</td>
</tr>
<tr>
<td>Mr Peter Hunkin</td>
<td>Business Centre Manager, Traffic Division</td>
<td>Hyder Consulting (Aust) Pty Ltd</td>
</tr>
<tr>
<td>Dr Michael Kennedy</td>
<td>Chief Executive Officer</td>
<td>Mornington Peninsula Shire</td>
</tr>
<tr>
<td>Dr Mary Lydon</td>
<td>General Manager, R &amp; I</td>
<td>ARRB Transport Research</td>
</tr>
<tr>
<td>Mr William McDougall</td>
<td>Melbourne Traffic &amp; Transport Team Leader</td>
<td>Sinclair Knight Merz</td>
</tr>
<tr>
<td>Dr Ken Ogden</td>
<td>General Manager, Public Policy</td>
<td>RACV</td>
</tr>
<tr>
<td>Ms Kate Partenio</td>
<td>Director</td>
<td>GTA Consultants</td>
</tr>
<tr>
<td>Dr Tim Patton</td>
<td>Manager, Planning &amp; Policy Division</td>
<td>Department of Infrastructure</td>
</tr>
<tr>
<td>Mr Ian Pitcher</td>
<td>Director, Victoria Division</td>
<td>Maunsell Consulting</td>
</tr>
<tr>
<td>Mr John Stanley</td>
<td>Executive Director</td>
<td>Bus Association Victoria</td>
</tr>
<tr>
<td>Mr Jim Stevenson</td>
<td>Special advisor</td>
<td>Department of Infrastructure and National Transport Commission</td>
</tr>
<tr>
<td>Mr Ted Vincent</td>
<td>General Manager, Traffic &amp; Transport Integration</td>
<td>VicRoads</td>
</tr>
</tbody>
</table>
APPENDIX A - STAFF

Geoff Rose, BEng Q/I, MSc PhD Northwestern, MIEAust CPEng
Associate Professor, Department of Civil Engineering
Director, ITS (Monash)

Geoff's professional interests cover intelligent transport systems and sustainable transport, specifically travel demand management, travel behaviour change and non-motorised transport. His experience spans government, consulting and academia. He is Director of the postgraduate program in transport and traffic and is the author of four units currently offered in the program: Intelligent transport systems, Traffic engineering fundamentals, Transport network models and Transport Planning and Policy. Active research projects relate to travel behaviour change programs, understanding use of off-road bicycle facilities, appraisal and evaluation of travel demand management initiatives and measurement and modeling of motorway travel time variability.

William Young, BE (Hons I) UNSW, GradDipMgt Deakin, MBA Deakin, MSc, PhD, FIEAust, FCIT, FITE, MACRS
Head, Department of Civil Engineering, Monash University

Professor William Young is Chair of Civil Engineering, Monash University. He has a distinguished professional and academic career, having worked at Monash University for 29 years and prior to joining Monash in the transport industry in England, Germany and several states of Australia for four years. He has also held visiting positions at Oxford, Nanyang, Karlsruhe, Michigan State and Hong Kong Universities, and with the Australian Bureau of Transport and Communication Economics. He received his BE (with honours) degree from the University of New South Wales (1970), his Graduate Diploma in Management and MBA from Deakin University (1997, 1999), and his Master of Science (1990) and PhD (1982) from Monash University. Professor Young has wide-ranging interests and has researched, consulted and published widely in the areas of land-use/transport/environment interaction, parking, engineering management and education. He has worked on several international research projects with teams from Sweden, Hong Kong, Japan, the UK, Germany and Indonesia, and was an Associate Editor of the international journal Transportation for 12 years. He has published over 300 papers and co-authored four books on transportation. He has been awarded a Chartered Institute of Transport Excellence Award, Bureau of Transport and Communication Fellowship, Alexander Von Humboldt Fellowship, and Monash Postgraduate Award. He has 29 years experience in teaching at an undergraduate and postgraduate level, and has also developed and run many distance education programs, short courses and workshops for industry. Professor Young has held a number of senior administrative positions at Monash, including: Head of the Department of Civil Engineering (1999-date), Head of the Caulfield Division of the Department of Civil Engineering (1995-1997), Head of the Institute of Transport Studies (Monash) (1995-1998), Head of the Monash Transport Group (1994,1995,1996), Director of Graduate and Further Education in the Faculty of Engineering (2001-date) and Chairperson of the Monash University Advisory Committee on People with Disabilities (1997-2002). He is a Fellow of the Institution of Engineers, Australia (IEAust), the Institute of Transportation Engineers and the Chartered Institute of Transport, and a Member of the Australian College of Road Safety. He has been Chair of the Victorian Transport Committee (IEAust), the National Committee of Transport (IEAust), and the Institution of Transportation Engineers Australia.
Graham Currie, BSc (Hons) Huddersfield, MSc Cranfield
Professor of Public Transport, Department of Civil Engineering

Professor Currie has over 25 years experience as a transit planner and researcher. He has worked for some of the worlds leading public transport operators including London Transport. He is an internationally recognised advisor on public transport planning and has undertaken research projects in Europe, Asia, North America and throughout Australasia. He is a World Bank accredited consultant and has developed and managed training programs in public transport planning for them in Asia. Professor Currie is a member of the US Transportation Research Board committee on Bus Transit Systems and also the TRB committee on Light Rail Transit. He is a member of the UITP (International Association of Public Transport) academic network and the Victorian Roads Based Public Transport Advisory Council in Australia. Prof Currie has led numerous research projects in public transport in all states and territories of Australia as well as assignments in Europe, Asia and North America. His research interests include bus rapid transit, behavioural factors in transit use, improving streetcar operations, transit signal priority, social perspectives on transit planning, market futures in transit, demand responsive transit, transit interchange design, schedule coordination optimisation and planning transit systems for major special events.

Majid Sarvi, BEng MEng Tehran, PhD Tokyo
Lecturer, Department of Civil Engineering

Majid’s masters degree was in highway and transportation engineering. He worked at Tokyo University on the subject of traffic and transportation with emphasis on human factors and freeway operation and obtained his PhD there. He worked as a research fellow at Tokyo University and was the Chief Engineer at the i-transport laboratory in Tokyo. Majid has also worked as the chief researcher of the ITS research group of the Social System Research Institute and as a transport analyst with the Hong Kong Transport Department. Majid’s research interests include traffic operations, traffic flow theory, transport modeling, micro simulation programming, intelligent transport systems, public transit, application of GPS to transport studies, and highway operations. Majid joined ITS as a Research Fellow and was appointed to the position of Lecturer in Civil Engineering in February 2004.

John Clements, Bcom DipEd Mec Madmin FCILT
Program Director, Transport Management Course in Bus and Coach Operations

John joined ITS (Monash) in July 2000. Prior to that he was Acting Head of the School of Marketing at RMIT University, and had previously been Head of the Department of Marketing, Logistics and Property and a Principal Lecturer responsible for the Transport and Logistics Management Group at RMIT. John is a Fellow of the Chartered Institute of Logistics and Transport and actively involved in the CILT (Victorian Section) General Committee and is Chair of the Passenger Transport Group. His major interests are in transport economics, policy and management and he is the author of the postgraduate unit Transport Economics which is offered by distance education as part of the ITS (Monash) Masters degree program in transport and traffic. He has professional and consulting experience in the public sector, including the Victorian Ministry of Transport, the public transport operating authorities and water resource boards. John is a member of the editorial advisory board of the International Journal of Logistics: Research and Applications. He has undertaken quality assurance auditing with Open Learning Australia.
Astrid De Alwis, BA Melb, GradDipTr&DistMgt RMITU, MLogMgt, MCILT
Assistant Program Director, Transport Management Course in Bus and Coach Operations

Astrid is a logistician with a transport background. Initially in freight and currently in passenger transport, she has taught, written and/or practised transport for more than fourteen years. Working as a transport consultant to several commercial transport organisations, she has produced some key industry publications. Astrid’s chief strength lies in her varied and cross-disciplinary educational and experiential background. Having worked in government, industry and academia, and on local and international projects, Astrid brings to ITS (Monash) a broad blend of skills and aptitudes.

While assisting with the ongoing development and delivery of the Transport Management Course in Bus and Coach Operations, Astrid is also pursuing a consulting interest in business systems and business development.

Imran Muhammed, BSc (CRP), MSc (CRP) UET, MSc (UP) Hong Kong, PhD Melb, MCILT, MISoCaRP
Research Fellow

Imran has received his PhD from the University of Melbourne. The focus of his research was to identify and examine the institutional barriers that are hindering the development, application and implementation of sustainable urban transport policies in the developing countries. Imran trained as an urban transport planner by completing his master degrees from the University of Hong Kong and the University of Engineering and Technology, Lahore. Prior joining to ITS in August 2006, Imran worked in Australia, Hong Kong and Pakistan as a researcher and consultant in transport planning for over 10 years. His research interests include urban transport planning and policies for sustainable cities.

Zed Janis Senbergs, BSc (Hon) RMITU , BA Melb
Research Assistant

Zed came to ITS with experience in cartography/GIS and spatial research. Prior to joining ITS he was employed in cartographic publishing and had earlier research experience at the School of Mathematical and Geospatial Sciences at RMIT University amongst other things. He has degrees in multimedia cartography, history and political science.
Ali, Zavabeti
Research Assistant

Ali joined the Institute of Transport Studies in 2006 as a research assistant primarily working on the development of the Institute's instrumented vehicle. Prior to this he received a Bachelor of Telecommunications Engineering with honours from Monash University in 2006. He has intention to pursue a MEngSc (Res) under the supervision of Dr Majid Sarvi and Associate Professor Geoffrey Rose focussing on driver behaviour prediction utilising hidden Markov, dynamic Bayesian models and neural networks.

Brenda O'Keefe
Administration Manager

Brenda is responsible for managing administrative support at ITS (Monash). This includes administering all aspects of ITS (Monash)'s industry distance education programs in the Transport Management Course in Bus and Coach Operations and the Education Program in Parking Management. She handles all general course enquiries, student enrolment and record keeping as well as all written communications with students throughout the semester. Brenda is also heavily involved with the role of administering all aspects of the Department of Civil Engineering's off-campus learning postgraduate programs in Transport and Traffic and also the Infrastructure Engineering and Management program. This also includes handling all general course enquiries, processing enrolments, re-enrolments, withdrawals and completions and carrying out extensive liaison with the Off-Campus Unit at Gippsland, other areas within the university system and the Faculty of Engineering's Postgraduate Manager. In her administrative support role, Brenda manages the production of all advertising and study guide material (which includes extensive liaison with printers and designers), and supports all other ITS (Monash) activities including seminars, workshops and public lectures. Brenda also undertakes website and MUSO development and maintenance for ITS (Monash) as well as for the Department of Civil Engineering's postgraduate programs.

Julia Arnold
Administrative Officer (Finance)

Julia was working one day a week to provide income and expenditure reports, budgets, projections and other financial accounting services, as well as assisting with reports and other large administrative tasks. Early in 2006 resigned to pursue an opportunity to work in the education sector in regional Victoria.
Adjunct faculty

Rahmi Akçelik, CivEng ITU, PhD Leeds, Fellow IEAust, Fellow ITE
Director, Akcelik and Associates Pty Ltd

Dr Akçelik is an Honorary Associate in the Department of Civil Engineering at Monash University, and Director of Akçelik and Associates Pty Ltd. He is a leading scientist and software developer in the area of traffic management, with over 250 technical publications in his area of expertise. His research and software development company specialises in the areas of road traffic operations, traffic engineering, management and control. Dr Akçelik is member of various US Transportation Research Board (TRB) Committees. Awards received by Dr Akçelik include the 1999 Clunies Ross National Science and Technology award for outstanding contribution to the application of science and technology in Australia, and the Institute of Transportation Engineers Australia and New Zealand Section Certificate of Commendation in recognition of an outstanding contribution to the advancement of the profession, and the Institute of Transportation Engineers (USA) 1986 Transportation Energy Conservation Award for research into energy savings from urban traffic management.

Rita Seethaler, MEc Berne

Rita graduated with a Master of Economics and Political Science from the University of Berne, Switzerland, in 1994. She has worked for the Swiss Federal Office of Statistics and for the Bureau of Transport Studies (Federal Department for Environment, Transport, Energy and Communications), Berne. She is presently a Director of the Urban Transport Institute, Victoria and an Associate of the Institute of Transport Studies (Monash University). She is the author of the postgraduate unit Infrastructure project and policy evaluation, which is offered by distance education as part of the postgraduate program in infrastructure engineering and management at ITS (Monash). Rita is currently undertaking a PhD with ITS (Monash).

Tony Richardson, BE (Hons) MEngSc UNSW PhD

Tony has wide experience in academia, having worked at Monash University, RMIT, the University of Melbourne, the University of Sydney and Cornell University in the USA. He has also worked for the Australian Road Research Board, the Victorian Ministry of Transport and in his own consulting practice. As well as being an Adjunct Professor at Monash, Tony is also a Director of the Urban Transport Institute, Victoria. He is the author of the postgraduate unit Infrastructure project management which is offered by distance education as part of the postgraduate program in infrastructure engineering and management at ITS-Monash.

Visiting research scholars

Associate Professor Arvid Arkre, visitor (22 Aug 2005 to 24 June 2006) from Norwegian University of Science and Technology, Department of Civil and Transport Engineering, Trondheim, NORWAY. Arvid’s research interests include: Traffic flow theory; Traffic management; Traffic signals; Capacity and level of service for roads and different types of junctions; Driver behavior and efficient traffic flow; Traffic survey methods and equipment; Traffic simulation and modelling; Queueing theory and statistical modelling; Computer models and programming; Intelligent transport systems; Road traffic accident investigation.
PhD students

Daniel Csikos, B.Sc (Aust Env Stud)(Hons I) Griffith
Daniel graduated with a Bachelor of Science in Australian Environmental Studies from Griffith University, Brisbane, in 1997. He began work for Melbourne's public transport industry in 2000, for Yarra Trams. Roles included operations analysis, scheduling and market analysis. Daniel was awarded a joint Metlink-Monash PhD scholarship.

Mahmoud Mesbah BSc (Civil), University of Tehran, MSc (Transportation Planning), Iran University of Science & Technology
Mahmoud completed his BSc in Civil Engineering at University of Tehran and graduated with a MSc in Transportation Planning from Iran University of Science & Technology. His previous research included approaches for reliability assessment of transport networks. Mahmoud was awarded a Monash Graduate Scholarship in 2006 when he commenced his research at ITS (Monash). Mahmoud is working on optimization of transit priority systems to be applied to the transport network.

Mark Karpovich BE MEng Sci
Mark has more than 20 years’ experience in infrastructure and transport engineering projects in Hong Kong and Australia. His present field of study is transport and infrastructure projects with western technology financed in China. This research aims to investigate success factor influence by comparing conventional and joint venture style projects.

Md. Aftabuzzaman, BE (Civil) (Hons), Bangladesh University of Engineering and Technology, M Eng (Transportation Planning), The University of Tokyo
Aftabuzzaman has worked as a lecturer of Bangladesh University of Engineering & Technology. His previous research interests include travel demand forecasting, mode choice modelling, traffic performance measurement and parking demand and supply analysis. He has long been involved in the activities for encouragement of walking, cycling and public transport use. Aftabuzzaman has recently started his PhD study with a Monash Graduate Scholarship. His PhD study focuses on public transport performance measures of road traffic congestion relief.

Md. Iqbal Kabir, BE (Civil), Bangladesh University of Engineering and Technology
Iqbal has completed his Bachelor of Science in Civil Engineering from Bangladesh University of Engineering and Technology, Dhaka, Bangladesh. He is working as an Executive engineer in Dhaka City Corporation, the capital city council. As part of the Master of Engineering Science Degree he commenced in June 2005, he is modelling various aspects of impacts of land use pattern changes on transport systems of Melbourne Metropolitan area with an integrated land use-transport interaction model TRANUS. With that model, he is also examining impact of transport policy changes (such as construction of new large road infrastructure, introduction of new toll road etc) on land use patterns.

Mike Shackleton
Mike is a Manager in transport operation at ARRB Group in Melbourne. His research aims to build a model for management of a public-good transport related research institutions.

Richard Yeo BE (Hons) M Eng (Res) RMIT
Richard has worked with Maunsell Consultants and VicRoads and is currently a Principal Engineer (Pavements) at ARRB. His main research interests are in the areas of construction quality, pavement performance, accelerated pavement testing, stabilisation and pavement materials characterisation. He is a member of the Austroads Pavement Technology Review Panel and is currently the manager of the Australian Accelerated Loading Facility (ALF) program. Richard is leading the research associated with investigating the impact of heavy vehicles on the pavement infrastructure. This is one of the largest research projects currently being conducted by ARRB, in terms of both scope and funding.
Rita Seethaler, MEC Berne

Rita graduated with a Master of Economics and Political Science from the University of Berne, Switzerland, in 1994 and is presently a Director of the Urban Transport Institute, Victoria and an Associate of the Institute of Transport Studies (Monash University). She was awarded a PhD scholarship by the Victorian Minister for Transport to develop evaluation approaches for “total transport” strategies. Rita is currently looking at this concept from the perspective of developing and measuring the impact of psychological persuasion techniques on peoples’ travel choices.

Roger Toleman

Roger has an extensive experience in transport planning and policy. He was Deputy Secretary, Strategic Directions at the Ministry of Transport in New Zealand. Roger has been involved in a wide variety of strategic initiatives and policy development in transport planning and responsible for the Ministry's policy input into the National Land Transport Strategy. Roger’s research is exploring the relationship between toll roads and sustainable transport.

Ruimin Li, BE (Highway and Railway), Inner Mongolia Polytechnic University, M Eng (Transportation), SEU China

Ruimin has worked as a professional engineer in Beijing in the areas of highway and intersection design. Previous research interests included pavement management and the evaluation of paving on steel decking. Ruimin was awarded a Monash Graduate Scholarship for her PhD study, which focuses on the long-term travel time variability prediction. Based on historical travel time data and weather forecasting information, the model she is developing would be able to provide estimated of travel time variability, such as the 90th percentile travel times, up to a few days before a journey commences.

Sara Moridpour BE (Civil), Master (Transport Planning and Engineering), Sharif University of Technology, Tehran, Iran

Sara has worked on sensitivity of traffic equilibrium respect to some changes in the accuracy of network parameters. Her previous research interests include trip production and attraction models, travel time and volume delay functions, traffic assignment models and efficient methods for traffic surveys like cordon line origin-destination surveys. She also has been involved in the establishment of drivers’ working hour standards in Iran. Sara has recently started her PhD study on a Civil Engineering Departmental Scholarship. Her PhD study focuses on lane changing behavior of heavy vehicles.

Tan Yan Weng, BE MEngSc MCILT MIE S’pore MREAAA

Yan Weng is an Associate Professor in the School of Civil and Environmental Engineering at Nanyang Technological University, Singapore. His current PhD research is in the area of parking systems design, with particular emphasis on developing an interactive stated preference approach to collect information on parking behaviour in multi-use facilities.

Tim Martin

Tim is a principal research engineer with ARRB Transport Research Ltd, and commenced his PhD in April 2001. He is working on the components of uncertainty in predicting pavement performance at a road network and road program level.
APPENDIX B – PUBLICATIONS

Books and Book Chapters


Journal articles

Journal articles (in press)


Conference papers (presented/published)