



Planning and Transport Research Centre

ANNUAL REVIEW 2003



The Planning and Transport Research Centre (PATREC) is a collaboration between the four public universities of Western Australia, Curtin University of Technology, Edith Cowan University, Murdoch University and The University of Western Australia. It also receives financial support from the Government of Western Australia (through the Department of Planning and Infrastructure and Main Roads WA).

The Planning and Transport Research Centre (PATREC)

is a unique collaborative 'knowledge management network' of four universities. Based in Perth Western Australia and established in May 2003, it offers high quality post-graduate education and research programs in transport and logistics.

PATREC's 'founding sponsors' are Curtin University of Technology, Edith Cowan University, Murdoch University, the University of Western Australia, the Western Australian Department of Planning and Infrastructure and Main Roads WA.

Its role is to build professional and academic capability by offering high-level professional education programs and expanding the number and quality of researchers in its specialist fields. PATREC's strong governance structure involving universities, founding industry partners and an independent chairman, ensures independence and a high level of attention to quality outcomes.

PATREC brings together people with very strong national and international experience in research, industry and government, so its programs are highly relevant to contemporary public policy, planning and business issues. Able to use resources from all four public universities in the State, it can address a wide range of research issues. Academic resources can be supplemented by other resources from industry.

PATREC associates with national and international stature include Stuart Hicks (Chairman of the National Transport Commission and former WA Director General of Transport), Greg Martin (member of the Australia's intergovernmental Standing Committee on Transport, the Australian Logistics Council and current WA Director General of Planning and Infrastructure), Professor Fred Affleck (Professor of Transport Studies and former General Manager in the National Rail Corporation Ltd, former CEO of the Australasian Railway Association Inc, and advisor to the Australian Transport Council and the Commonwealth Grants Commission), Professor John Taplin (Professor of Information Management and Marketing, former WA Director General of Transport and Deputy Secretary of Australia's Department of Transport), Assistant Professor Jeffrey Kenworthy of Murdoch's Institute of Sustainability and Technology Policy, Professor Guy Callender (Professor of Strategic Procurement) and Professor Elizabeth Chang (Professor of Logistics).

PATREC's strongest areas of educational and research focus are integrated transport and land use planning, transport economics, logistics management and business logistics systems and tools, transport modelling and data management, transport sustainability, and transport safety and risk management. In a number of these areas, PATREC has created long-term industry-supported post-doctoral research programs and PhD-level degree programs. In 2004 PATREC will also begin offering a new professional Masters Degree in Transport Studies. Students can enrol in any of the four universities and will undertake significant research as part of their degree.

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2003 - PATREC's first seven months

2003, the inaugural year of the new Planning and Transport Research Centre, has been busy and productive. This report covers the period from May to December 2003.

Key achievements during PATREC's the shortened 2003 year were:

- Commencement of operations on 5 May 2003
- Research and consulting supported by grant income of \$513,000
- Awarding our first five PATREC Doctoral Scholarships (for PhD study)
- Completion of most preparatory work to offer the Master of Transport collaborative degree from the second semester of 2004.

The research program will continue to expand in size and scope. The management and Board of PATREC believe that maintaining high standards of research quality, reporting and relevance are vitally important to building a strong future for the Centre. We will seek to expand the scope of research, the resources available through the Centre to conduct research, and the range of 'industry' sponsors willing to provide research grants. We will also expand our network of relationships with other bodies with similar interest and obtain funding from other sources, in particular the Australian Research Council.

The university environment is best suited to medium-to-long term research, in which there is time to accumulate data, create innovative analytical frameworks, conduct in-depth analysis and develop sound findings and principles, leading where possible to original or innovative outcomes. It is less suited to short-term deadline-driven research and consulting, although this can be done efficiently, especially where there are opportunities to build on the outcomes from longer-term research. There is a significant demand for both, and PATREC will seek to achieve a balance between the two.

Gaining approval from all of PATREC's university sponsors for the proposed Master of Transport Studies degree has been a major objective since our formation. Agreement on all aspects had not been reached by year end, but this should be achieved early in 2004. The aim in offering the degree is to provide an opportunity for high quality professional education in skills and knowledge relevant to public and private sectors. During 2004 it is also our intention to begin offering 'on demand' short courses for public and private sectors in transport related topics.

Communicating the results of our research beyond its immediate consumers – grant making bodies – will continue to be done by means of occasional seminars, workshops and publications. It is planned that during 2004 also to begin publishing a regular PATREC newsletter and establish a more informative and attractive website than the rudimentary start-up site now on line.

Thanks are due in this first year of PATREC to the Chairman and other members of the Board for their strong support during this formative period. Also deserving special mention are the members of the Academic Advisory Committee, all of whom have given very strong and continuous support to the Director throughout this first short year.



Professor Fred Affleck
Director

29 February 2004

Purpose and objectives of PATREC

PATREC was established to provide broad-based professional education in transport, and to combine the resources of its four 'founding sponsor' universities to enhance their capability for quality independent academic research. In its educational role, the main emphasis at this early stage will be on developing and sustaining vital analytical skills and knowledge required for integrated transport and land use planning and freight policy formulation in the public sector.

PATREC will offer a Masters degree in Transport Studies (with options to follow pathways to the degree via Certificate and Diploma qualifications), and on-demand short courses in transport topics. Academic staff from the four universities will be supplemented by experienced professionals and other practitioners from the industry.

To provide research services to its sponsors and others in the public and private sectors PATREC will build its research capability on the strong foundations of academic staff in the four universities, and will add to these expert specialist resources from the private sector. Where appropriate, these practising professionals will be invited to participate more directly in PATREC by appointment as 'adjunct' academic staff.

Establishment of PATREC

During 2002 a small group of interested people in the public, private and academic sectors in Perth came together to establish a university-based research and teaching capability in Western Australia. A business plan was developed and industry sponsors were invited to provide financial and 'moral' support. All four public universities agreed to be founding sponsors through a Memorandum of Understanding signed in December 2002. The Departments of Planning and Infrastructure and Main Roads in Western Australia also agreed to be founding sponsors.

The six 'founding sponsors' have generously agreed to support the establishment and operation of PATREC with annual subscriptions totalling \$320,000, made up as follows:

Curtin University of Technology	\$60,000
Department for Planning and Infrastructure	\$100,000
Edith Cowan University	\$7,500
Main Roads WA	\$60,000
Murdoch University	\$60,000
The University of Western Australia	\$60,000

PATREC commenced operation on 5 May 2003 with appointment of its inaugural Director. It was agreed that initially the Director of PATREC would operate from an office at Murdoch University, and after two years would transfer to accommodation at Curtin University.

Collaborative knowledge management networking

PATREC is a collaborative 'knowledge management network', and does not directly employ academic staff. It has created a network to promote collaboration and interaction between academic teaching and research people, who share skills, knowledge and intellectual property where appropriate with each other and with industry partners. Where there are shared interests, we also work closely with academic researchers in other universities.

Broadly, researchers associated with PATREC are of three kinds: Full-time academic staff who combine teaching and research at our 'founding sponsor' universities; full-time academic staff who devote all their time to research and are generally attached to a specialised research institute at one of our 'founding sponsor' universities; and part-time 'adjunct' academic staff who are

appointed by one of the universities to undertake research (and often also teaching), whose appointment is based on extensive industry or other experience and expertise.

Transport is a very diverse academic field, but the linkages are strong through a broad commonality of policy concerns and a skill base with many shared elements. It has strong links into studies of interaction between transport infrastructure and land use, travel behaviour, sustainability studies, urban land use and regional development planning. This broad web of knowledge, skills and policy interests provides the basic structure for PATREC's Master's degree course, and for collaboration on many research projects.

The major focus for PATREC's research program is the policy and social sciences and business and public management, rather than engineering.

Virtually all PATREC post-graduate students and post-graduate and post-doctoral research fellows will conduct their studies within faculties or research institutes located within one of our four founding sponsor universities. Often they will work in partnership with industry sponsors. All will have ties with PATREC for funding, capacity building and on-going collaboration. It will be a major objective of PATREC management and Board to foster and support this collaboration and capacity building.

PATREC governance

The Planning and Transport Research Centre is an unincorporated body established by a *Memorandum of Understanding* between four universities: Curtin University of Technology, Edith Cowan University, Murdoch University and The University of Western Australia.

Advisory Board

PATREC is governed by an Advisory Board representing its sponsoring universities and the Government of Western Australia. The Board has an independent chairman and meets three times per year. At 19 February 2004 its members were:

Mr Stuart Hicks	Chairman
Prof Barney Glover	Representing Curtin University of Technology
Prof John Wood	Representing Edith Cowan University
Prof Andris Stelbovics	Representing Murdoch University
Dr Paul McLeod	Representing the University of Western Australia
Mr Greg Martin	Representing the Government of Western Australia

Mr Stuart Hicks, BEc, FAIM, FCILT, FAICD, MIMC, is Chairman of the National Transport Commission and the principal of Stuart Hicks Management Pty Ltd. He is also Chairman of the Advisory Board for the Institute for Research into International Competitiveness (IRIC) at Curtin University. He is a former Director General of Transport in Western Australia.

Professor Barney Glover, BSc (Hons), Dip Ed, MSc, PhD, is Pro Vice-Chancellor Research Development at Curtin University of Technology, and Chair of the Professional Development Committee of the Australasian Research Management Society. When unable to attend, he is represented by Dr Rodney Thiele, Acting Director of Research and Development.

Professor John Wood, BEc (Hons), DPhil (Oxon), is Deputy Vice-Chancellor Students, Advancement and International at Edith Cowan University. When unable to attend, he is represented by Prof W Loudon, Pro Vice-Chancellor Research.

Professor Andris Stelbovics, BSc (Hons), PhD, FAIP, is Pro Vice-Chancellor Research and Development at Murdoch University. When unable to attend, he is represented by Professor

Valerie Alder, Executive Research Strategist; Prof Alder represented Murdoch University during the planning of PATREC.

Dr Paul McLeod, BEng, PhD, is the Dean of the Faculty of Economics and Commerce (UWA Business School) at the University of Western Australia. When unable to attend, he is represented by Prof John Taplin, Chairman of the UWA Transport Discipline.

Mr Greg Martin, BEng (Hons), BCom, MS, Grad Dip (Urban Systems), FIE (Aust), FAIPM, FCILT, FAIM, MAICD, MPMI, is the Director General of Planning and Infrastructure in Western Australia, and was formerly WA Commissioner of Main Roads.

PATREC management

The Director of the Planning and Transport Research Centre is Professor Fred Affleck, BA (Hons) (Brit Col), PhD (London), FAICD, FCILT. Dr Affleck has worked in a several areas of transport – rail, port access, roads and road transport, urban public transport and aviation. He has held government, management and consulting roles in Australia and Canada since 1969, among these as Advisor to the Commonwealth Grants Commission on railways and public transport (1978-1985) and General Manager Corporate Affairs in the National Rail Corporation Ltd (1992-2000). He has a PhD in economic history from University College London.

Academic Advisory Committee

The Academic Advisory Committee of PATREC advises the Director on academic matters, including admission to degree courses, selection of scholarships awardees and other relevant issues. It meets as required.

The members of the Academic Advisory Committee are Ms Carey Curtis (Senior Lecturer, School of Urban Planning, Faculty of Built Environment and Design, Curtin University), Mr John Georgiades (Faculty of Business and Public Management, Edith Cowan University), Assoc Prof Jeffrey Kenworthy (Institute of Sustainability and Technology Policy, Murdoch University), and Prof John Taplin (School of Information Management and Marketing, Faculty of Economics and Commerce, University of Western Australia).

The Committee will be formally reconstituted as the PATREC Academic Advisory Board when the Memorandum of Understanding for the Master of Transport Studies degree program has been executed by all parties (see below).

Master of Transport Studies (MTransSt)

A Masters degree by coursework, the Master of Transport Studies (MTransSt), will be offered through PATREC for either full-time or part-time study, beginning in mid-2004. The degree program of 18 months' duration full time (up to 5 years part-time) will be offered jointly by the four participating universities. Students successfully completing the course will be awarded the degree by the university where they formally enrol, but the participation of the other three will be acknowledged on the degree testamur. A more complete academic 'pathway' to the degree, including Certificate and Diploma level qualifications will also be offered.

Planning for the new degree program commenced during 2002 and was largely completed during 2003. By 31 December 2003 all participating universities had formally approved the proposed course syllabus, and negotiations were continuing on a legal agreement between them (a Memorandum of Understanding) relating to all matters connected with the degree. It is expected this will be finalised and executed early in 2004.

The course syllabus will require students receiving the Masters degree to have completed eight units of coursework and a major research assignment:

There will five mandatory 'core' units of required study:

- Cities and Sustainability (Murdoch University)
- Planning for Accessibility (Curtin University)
- Transport Assessment and Evaluation (Edith Cowan University)
- Transport Systems and Policy (University of Western Australia)
- Research methods (to be taken at the university where the student enrolls)

Students will be required to complete three 'elective' units chosen from the following:

- Integrated Plan Making (Curtin University)
- Advanced Transport Modelling (University of Western Australia)
- Transport Safety (University of Western Australia)
- Risk Management (Murdoch University)
- Logistics and Supply Chain Management (University of Western Australia)
- Global Distribution and Transportation (Curtin University)
- Principles of Enterprise Logistics Management (Curtin University)
- Contemporary Issues in Aviation Management (Murdoch University)
- Business Strategy (Edith Cowan University)
- Managing Change (Edith Cowan University)

In addition, one semester (or its equivalent for part-time students) will be devoted to a significant piece of supervised research.

Doctoral scholarships in transport and logistics

During 2003 PATREC advertised for applications for scholarships for students in PhD programs in transport and logistics in Curtin University, Murdoch University and The University of Western Australia. From the applications, five scholarships were offered and accepted:

- Mr Farookh Hussain**, Information Systems Department, Curtin Business School, supervisor Prof Elizabeth Chang
- Mr Vidyasagar Potdar**, Information Systems Department, Curtin Business School, supervisor Prof Elizabeth Chang
- Mr Luke Stange**, Institute of Sustainability and Technology Policy, Murdoch University, supervisor Assoc Prof Jeffrey Kenworthy
- Mr. Sharif Siddique**, Information Management and Marketing Department, Faculty of Economics & Commerce, University of WA, supervisor Prof John Taplin
- Ms Hui Yu**, Information Management and Marketing Department, Faculty of Economics and Commerce, University of Western Australia, supervisor Prof John Taplin.

Some of these students have also received University Scholarships; in these cases, PATREC has offered top-up awards.

Post-doctoral and post-graduate research fellowships

During 2003 agreement was reached with the Marine Safety Branch of the WA Department of Planning and Infrastructure to establish a post-doctoral fellowship in marine safety, which will be located within the Injury Research Centre of the Department of Population Health in the University of Western Australia. An appointment will be made early in 2004.

Discussions are at an advanced stage with other industry partners to establish at least one further post-doctoral fellowship. PATREC will also be appointing a small number of post-graduate research fellows from its own resources.

Associated academic staff

PATREC does not directly employ academic staff, other than the Director. Academic staff who will be teaching units in the Master of Transport Studies course, supervising post-graduate research and contributing to the Centre's research program are employed by the four founding sponsor universities. From time to time others from outside the universities are invited to participate in teaching and research activities, in order to widen the resource pool available.

Teaching and research people who are currently associated with PATREC are shown in the table on the next page.

Affiliations with other research organisations

PATREC has formed working relationships with a number of other research institutions including the Injury Research Centre in the School of Population Health of the University of Western Australia, the Institute for Research into International Competitiveness in Curtin University, and the Cooperative Research Centre in Railway Technology. Further opportunities for similar affiliations will be pursued during 2004, and where appropriate relationships will be formalised by Memoranda of Understanding. PATREC has become a Supporting Participant in the Rail CRC and will work to develop a closer working relationship during 2004.

PATREC's Director is a member of the National Council of the Australasian Railway Association Inc., and a member of the WA Committee of the Chartered Institute of Transport and Logistics.

Research and publications

During 2003 PATREC began a program of research, receiving grants from several organisations in Western Australia and interstate. During 2003, PATREC secured research funding from industry and government bodies totalling \$512,827. The table below summarises.

Project Title	Grant Body	Grant (d)
Universities TravelSmart Resource Kit	Australian Greenhouse Office	\$34,007
Rail Freight Policy Options	WA DPI (<i>Note a</i>)	\$33,564
Short History of the WAGR	WA Public Transport Auth'y	\$15,000
Report on Grain Rail Network Options (<i>Note c</i>)	NSW Grain Logistics Advisory Committee	\$10,560
TBL Benefit-Cost Study of Perth-Mandurah Railway	WA Public Transport Auth'y	\$50,000
Policy Advice on Rail Policy (<i>Note b</i>)	WA DPI (<i>Note a</i>)	\$30,000
Economic Value of Departmental Functions	WA DPI (<i>Note a</i>)	\$20,000
ISO Pallet standardisation: Case Study	Integrated Logistics Network	\$7,000
Transport data management	WA DPI (<i>Note a</i>)	\$4,000
Marine Safety (3-yr Post-Doctoral Fellowship)	WA DPI (<i>Note a</i>)	\$308,696
TOTAL		\$512,827

Note a: WA Department for Planning and Infrastructure.

Note b: Time-and-fees based engagement with a maximum of \$30,000 over 12 months.

Note c: Consulting engagement for F.N. Affleck conducted through PATREC.

Note d: Excludes GST.

PATREC associated academic staff, 2003

UNIVERSITY	CURTIN	EDITH COWAN	MURDOCH	UNIVERSITY OF WA
Business & Economics	Dr Martin West , Deputy Head of School, Information Systems	John Georgiades , Adjunct Associate Lecturer, Faculty of Business and Public Management Adjunct Assoc Prof Peter Lawrence , Faculty of Business and Public Management	Assoc Prof Malcolm Tull , Department of Economics, Murdoch Business School	Prof Jim Everett , Department of Information and Marketing, School of Economics and Commerce Dr Paul McLeod , Dean of Economics and Commerce Prof John Taplin , School of Information Management, School of Economics and Commerce
Transport & environment			Dr Craig Townsend , Associate Research Fellow, Planning and Transport Research Centre (recently appointed Assoc Professor at Concordia University, Montreal)	Mr. Sharif Siddique , Associate Lecturer in Information Management, School of Economics and Commerce, University of Western Australia
Information systems	Dr Martin West , Deputy Head of School, Information Systems, Curtin Business School			Dr Min Qiu , Senior Lecturer, Dept of Information and Marketing, School of Economics and Commerce Mr Brett Smith , Associate Lecturer in Information Management Prof John Taplin , Professor of Information Management, Department of Information and Marketing
Safety				Dr Rina Cercarelli , Acting Director, Injury Research Centre, School of Population Health Delia Hendrie , Lecturer in Health Economics, Injury Research Centre
Land use interaction	Carey Curtis , Senior Lecturer in Urban Planning, School of Urban Planning, Faculty of Built Environment and Design Carlindi Holling , Research Assistant, School of Urban Planning, Faculty of Built Environment and Design		Assoc Prof Jeffrey Kenworthy , Institute of Sustainability and Technology Policy Dr Craig Townsend , Associate Research Fellow, Planning and Transport Research Centre	Dr Paul McLeod , Dean of Economics and Commerce, University of Western Australia
Logistics	Prof Guy Callender , Chair of Strategic Procurement, Curtin Business School Prof Elizabeth Chang , Prof of Information Systems, Curtin Business School Diane Jamieson , Senior Research Fellow, Institute for Research into International Competitiveness			

Appendices A to C at the rear of this report contain information on grant-aided research, publications and seminars.

Administration

The Centre has employed Mr John Davis, who is a part-time PhD candidate at Murdoch University, to assist with administration, and this has been indispensable.

During 2003, work was brought close to completion to design and construct a website for the Centre. This work was undertaken by Ms Clare Yu, who has since been awarded a PhD scholarship by PATREC. A feature of this site which should attract additional visitations is a database of research papers presented at all conferences of the Australian Transport Research Forum, which commenced in 1975. This will be a resource of substantial value to the community of Australian transport researchers.

APPENDIX A: Research projects completed in 2003

PROJECT TITLE:	Universities TravelSmart Resource Kit		
GRANT ORGANISATION:	Australian Greenhouse Office (AGO)		
AMOUNT OF GRANT Excl GST:	\$34,007		
BROAD RESEARCH TYPE:	Pure Basic Research	<input type="checkbox"/>	Applied Research <input checked="" type="checkbox"/>
	Strategic Basic Research	<input type="checkbox"/>	Experimental Development <input type="checkbox"/>
RFCD CODE:	350499	SEO CODE:	760101
		AOU:	PATREC
CHIEF INVESTIGATOR:	Carey Curtis, Senior Lecturer, School of Urban Planning, Faculty of BEAD (Built Environment, Arts and Design), Curtin University		
OTHER PERSONNEL :	Professor Fred Affleck, Director, PATREC Carlindi Holling, Research Assistant, School of Urban Planning, Faculty of BEAD (Built Environment, Arts and Design), Curtin University		
PROJECT SUMMARY:	The purpose of this project was to provide the research basis and the verbal and graphical content for a section of the AGO's TravelSmart website. It provides a toolkit for understanding issues relating to demand for TravelSmart individual marketing in a university campus setting, finding the champions to assist with mounting a program, taking action and getting outcomes. It contains guidelines for benefit-cost evaluation of proposed initiatives, and a number of case studies.		
PUBLICATIONS:	http://www.travelsmart.gov.au/universities/index.html		

PROJECT TITLE:	Rail Freight Policy Options		
GRANT ORGANISATION:	WA Department for Planning and Infrastructure		
AMOUNT OF GRANT Excl GST:	33,564		
BROAD RESEARCH TYPE:	Pure Basic Research	<input type="checkbox"/>	Applied Research <input checked="" type="checkbox"/>
	Strategic Basic Research	<input type="checkbox"/>	Experimental Development <input type="checkbox"/>
RFCD CODE:	340211	SEO CODE:	690103
		AOU:	PATREC
CHIEF INVESTIGATOR:	Prof Fred Affleck, Director, PATREC		
OTHER PERSONNEL :	Prof John Taplin, Faculty of Economics & Commerce, University of WA Zeba Mohammed, Research Asst, Faculty of Econ & Commerce, UWA		
PROJECT SUMMARY:	The aim of this research was to investigate the range of policies used to assist small and medium size rail entities to overcome market failures inhibiting business expansion and achievement of economic, social, environmental and public safety objectives. It examined a range of such programs providing soft loans and/or grants to sustain infrastructure, by assisting new capital investment and maintenance. The final report contained an outline of best practice for these programs including project and program evaluation and risk management strategies.		
PUBLICATIONS:	Planning and Transport Research Centre, <i>Investigation of Rail Freight Assistance Policies</i> , for the WA Department of Planning and Infrastructure, October 2003 (49 pp).		

PROJECT TITLE:	Triple Bottom Line Study of Perth-Mandurah Railway		
GRANT ORGANISATION:	WA Public Transport Authority		
AMOUNT OF GRANT	Excl GST:	\$50,000	
BROAD RESEARCH TYPE:	Pure Basic Research	<input type="checkbox"/>	Applied Research
	Strategic Basic Research	<input type="checkbox"/>	Experimental Development
RFCD CODE:	<input type="text" value="340211/ 340214"/>	SEO CODE:	<input type="text" value="690103"/>
		AOU:	<input type="text" value="PATREC"/>
CHIEF INVESTIGATOR:	Prof Fred Affleck, Director, PATREC		
OTHER PERSONNEL :	Adjunct Assoc Prof Peter Lawrence, Faculty of Business & Public Management, Edith Cowan University John Georgiades, Adjunct Assoc Lecturer, Faculty of Business & Public Management, Edith Cowan University Prof John Taplin, Faculty of Economics & Commerce, University of WA Assoc Prof Craig Townsend, Concordia University Carlindi Holling, Research Assistant, School of Urban Planning, Faculty of BEAD (Built Environment, Arts and Design), Curtin University		
PROJECT SUMMARY:	This significant independent research project examined the \$1,276 million 'south west metropolitan railway' currently under construction in the Perth metro area to provide a new rail based transit corridor joining the Perth central area with Rockingham and Mandurah, rapidly growing outer suburbs. It examined the economic feasibility of the project, its probable environmental effects and their value, and the scope for 'transit oriented development' around the station precincts which it will help to create. Using a project horizon of 2041, the study found that the project would yield a rate of return of 16.5% and a benefit-cost ratio of between 3:1 and 6:1 depending on the approach taken to discounting costs and benefits.		
PUBLICATIONS:	Planning and Transport Research Centre, <i>Perth's South West Metropolitan Railway: Balancing benefits and costs</i> , for the WA Public Transport Authority, February 2004 (29 pp).		

APPENDIX B: Research seminars

PATREC commenced a program of occasional seminars to make more widely known the outcomes from its research. During 2003, three academic seminars were conducted by PATREC or in association with PATREC through its affiliated Universities:

- “Comparison of Greenhouse Gas Emissions by Australian Intermodal Rail and Road Transport”, presented by Prof Fred Affleck (October 2003).
- “Options for Government Support of Private Sector Railways: Policy Scanning”, presented by Prof Fred Affleck and Prof John Taplin (December 2003); this also presented by Prof Affleck to the WA Rail Advisory Council (February 2004).
- “Extension of the Relationship between the Choice Modelling Paradigm and Neo-Classical Demand Theory in a Travel Behaviour Context”, presented by Mr Brett Smith (PhD candidate in the School of Economics & Commerce, University of Western Australia (October 2003).

APPENDIX C: Publications

Selected publications by associates of PATREC during the year were:

F. N. Affleck, “Rail Freight Security”, *Conference on Safeguarding Australia: Frontline Issues*, Australian Defence Academy, Canberra (July 2003).

Planning and Transport Research Centre, *Perth’s South West Metropolitan Railway: Balancing benefits and costs*, for the WA Public Transport Authority, February 2004 (29 pp).

Planning and Transport Research Centre, *Investigation of Rail Freight Assistance Policies*, for the WA Department of Planning and Infrastructure, October 2003 (49 pp).

Universities TravelSmart Resource Kit, on the Australian Greenhouse Office Website, at <http://www.travelsmart.gov.au/universities/index.html>

John Taplin, “A simple demand model to project consumption impacts of rising petrol prices”, *25th Conference of Australian Institutes of Transport Research*, Adelaide, December 2003.

Sharif Siddique, “Estimating the relationship between traffic and air pollution”, *25th Conference of Australian Institutes of Transport Research*, Adelaide, December 2003.