



TransPosition is the trading name of Peter Davidson Consulting, which has operated since 1993, with a special focus on the analytical side of transport, software development and land use planning. With a client list that includes a range of local governments, state agencies, national organisations and private developers; TransPosition has a depth and breadth of experience that makes it particularly well suited to integrated, multi-faceted or innovative projects.

Core Competencies

- ◆ Integrated transport planning and project evaluation
- ◆ Transport modelling
- ◆ Strategic planning for public transport
- ◆ Toll road analysis
- ◆ Accessibility analysis
- ◆ Statistical and economic analysis
- ◆ Land use projections
- ◆ GIS and technical software development

Past Performance

- ◆ Sydney Motorways Corporation Bid (Traffic modelling), Pacific Partnerships, 2017-2018
- ◆ Queens Wharf Development Bid Review (Traffic), Department of State Development, Infrastructure and Planning Queensland, 2014-2015
- ◆ Surat Basin Transport Strategy, Queensland Transport and Main Roads, 2015
- ◆ Queensland Motorways Bid, Abertis Infraestructuras et al, 2014
- ◆ Toowoomba Second Range Crossing Business Case, Projects Queensland, 2013
- ◆ Clem 7 Bid Assessment, UBS, 2013
- ◆ Toowoomba Sub Regional Transport Study, Stage 1 and 2, Queensland Transport and Main Roads (TMR), 2012-2013
- ◆ Toowoomba Bypass Business Case Review, TMR, 2011
- ◆ Review of New England Highway Upgrade, TMR, 2011
- ◆ TransApex Strategic Advice, Queensland Transport, 2006-2008
- ◆ Brisbane Urban Growth Model, Brisbane City Council (BCC), 2007-2011
- ◆ Toowoomba Regional Transport Study, TRC, 2009
- ◆ Caboolture Shire Planning/Modelling Advice, 2004-2008
- ◆ Caboolture Priority Infrastructure Plan and Local Growth Management Strategy, CSC then MBRC, 2005-2008
- ◆ LUPTAI Development, Queensland Transport, 2007-2008
- ◆ Caboolture Shire Traffic Forecasting Model, CSC, 1999-2000

Key Personnel



Peter Davidson

Peter Davidson has worked in the transportation planning field for over twenty years, starting at Main Roads in Queensland, then joining a private consultancy before forming his own company in 1993. He has had broad experience with transport planning, and has worked on all stages of transport model development; from data collection and software design through to option testing and evaluation. He has been the primary developer of a number of major models and has broad skills in two key fields - transportation planning and information technology.

Peter has an extensive background in urban model design, calibration, application and software and has demonstrated an ability to develop world-class practical models within the constraints of time and data availability. Recently Peter has developed a new approach to multi-modal transport modelling based on the application of Monte-Carlo simulation to detailed transport/land use systems. The approach, which he called the 4S model (Segmented Stochastic Slice Simulation), gives unprecedented detail and behavioural breadth. The model is particularly useful for considering pricing issues, including toll roads, and has been used in a range of studies across Queensland.

Peter has had a focus on issues of tolls and pricing; he worked for the Queensland Government on reviewing the Business Case for a number of the TransApex projects (Clem 7, Airport Link, Go-Between Bridge) as well as helping to draft the conditions imposed by the state in granting tolling powers to the Brisbane City Council.

He recently prepared the Business Case for the proposed Toowoomba Bypass, including a detailed analysis of tolling issues and financial and economic assessments. He has also advised bidders on a number of large commercial transactions, including the sale Queensland Motorways, Sydney Motorway Corporation (WestConnex) and Clem 7 (by the receiver).

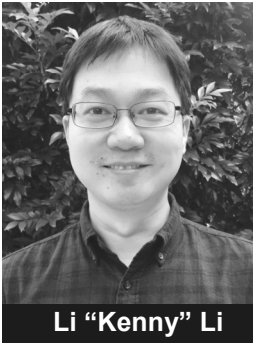
Peter's range of engineering, planning and information technology skills allow him to combine innovation, judgment and efficient implementation to deliver affordable high quality solutions. He is very experienced working as part of a multi-disciplinary team, often with severe time constraints, and ensures the model out-

Morgan Weston has a PhD in experimental quantum physics, and a Bachelor of Photonics and Nanoscience with First Class Honours from Griffith University. Her experimental physics research focused on quantum optics, quantum information science, quantum computation, and quantum communication science. It included advanced quantitative techniques including numerical simulations of experimental conditions; automated data collection and analysis; and extensive error analysis. She has proven programming ability through development and maintenance of optimised code for automated data collection and for the analysis of high volume, high frequency data.



Morgan Weston

She has been the first author of a number of internationally peer reviewed academic articles, and has a proven ability to deliver complex technical concepts to a range of audiences in a clear and concise manner. Morgan has exceptional mathematical and analytical capabilities, enhanced by a high level of competence in software development and statistical modelling. Her ability to undertake statistical analysis, process data, and understand and manipulate complex probability distributions make her very well equipped to assist in the development and application of the 4S model. Her strong communication and organisational skills allow her to make significant contributions to the effective delivery projects.



Li "Kenny" Li

Li Li finished his PhD in 2017 at Griffith university, focusing on theoretical quantum physics. His main project was to study the dynamics of open quantum systems and resolved a long-argued issue of how to characterize the memory effect in those systems.

Through his academic experience, Kenny has built solid mathematical skills, especially in analysis; probability theory and statistics; and information theory. Kenny has extensive experience designing and building various data analysis tools. These have allowed him to develop practical models of complicated problems with concrete understanding of their theoretical basis. Kenny started his career as a transport analyst in Transposition in 2018. His main role is to develop better tools for analysing model outputs and improve the statistical basis of

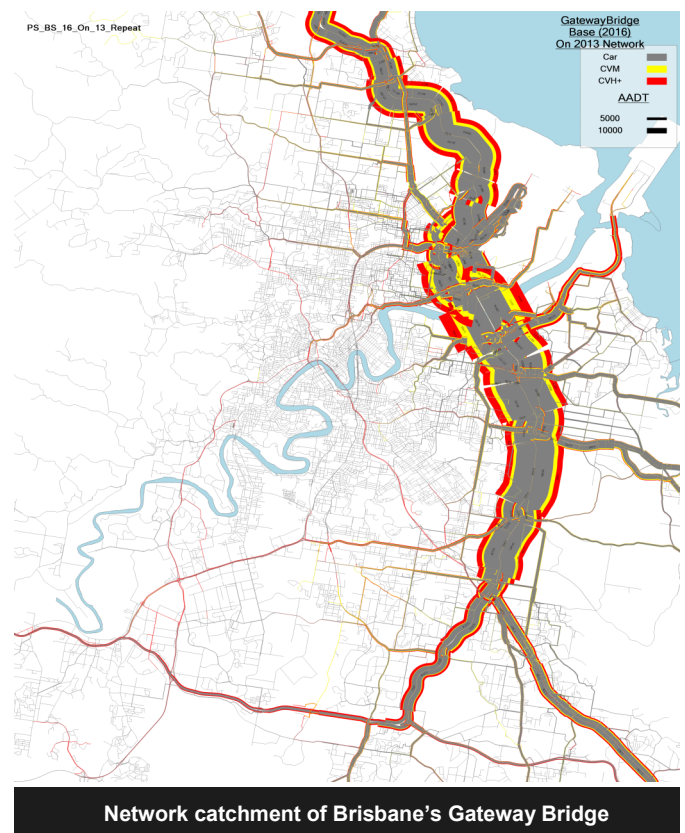
Thomas McCarthy has recently graduated from the University of Queensland with a Bachelor of Psychological Science with First Class Honours. He uses his data analysis skills to understand traffic demand movements throughout the model by creating meaningful plots and other data analysis tools. Thomas also focuses on model calibration by comparing the model outputs to data from the household travel survey and traffic counts. He has particular interest in the psychology of transport decisions and understanding people's behaviour in different transport situations (e.g. how people will respond to automated vehicles).



Thomas McCarthy

Key Achievements

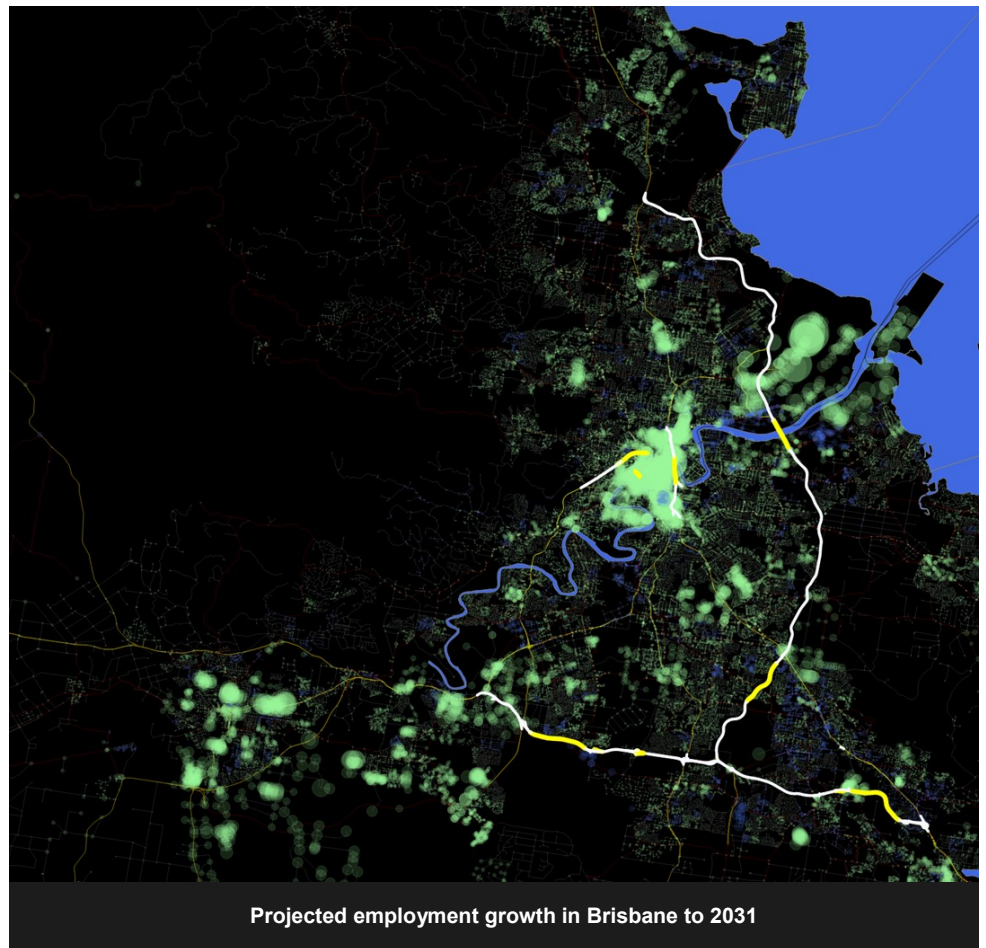
- ◆ Contributed to the planning of over \$9 billion worth of transport infrastructure
- ◆ Worked on due diligence for some of the world's largest toll road transactions (sale of Queensland Motorways Limited and Sydney Motorways Corporation)
- ◆ Responsible for all traffic and transport issues in the successful business case for the Toowoomba Second Range Crossing
- ◆ Developed a new modelling approach that overcomes many of the deficiencies of the traditional four-step model
- ◆ Developed a detailed transport model for the whole of Queensland
- ◆ Awarded best paper in the Transport and Land Use Modelling section at the AITPM National Conference 2015: "Modelling Autonomous Vehicles - What could this mean for the future of transport?"
- ◆ Interviewed on ABC National radio on toll road issues



Network catchment of Brisbane's Gateway Bridge

Contact Us

TransPosition
70 Moola Rd, Ashgrove
Qld 4060
Phone: +61 409 798466
peter@transposition.com.au
Website:
www.transposition.com.au



Recent Published Papers

- ◆ *“One City Many Perspectives – How well does the city serve the varying needs of its residents”, AITPM 2019*
- ◆ *“What goes on inside a zone? The secrets of intrazonal modelling”, AITPM 2019*
- ◆ *“Autonomous Vehicles – What Could This Mean For The Future Of Transport?”, AITPM 2015*
- ◆ *“Integrated Approach to Urban/Non Urban Freight and Land-side Port Demand”, AITPM 2015*
- ◆ *“A new approach to transport modelling – the Stochastic Slice Simulation (4S) model and its recent applications”, ATRF 2011*
- ◆ *“Modelling toll roads – Where have we gone wrong?”, ATRF 2011*

Referees

- ◆ Jaron Yuen, Executive Director, Investment Finance, UBS Global Asset Management, (02) 9324 3164, jaron.yuen@ubs.com
- ◆ Wilfred Mak, Projects Queensland, Queensland Treasury and Trade (07) 3035 1847, wilfred.mak@projectsqueensland.qld.gov.au
- ◆ Don Seiler, Program Manager, Partnerships & Planning Program, Department of Transport and Main Roads, (07) 45297021,