

Modular Urban Land Use and Transport Tool (MULUTT)

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1. The Strategic Institutional Context for Urban Transport Planning

- Broadening acknowledgement that institutional structures – including technocratic structures – impede inclusion of sustainable objectives in transport assessment
- Ongoing (if eroding) academic and institutional dominance of engineering and economics disciplines
- Relative weakness of land-use and transport planners within key public and private institutions
- Limited consideration – especially technical assessment – of broader issues of sustainability in transport decisions (but shifts in planning: BASIX system in NSW)
- Institutional critique reasonably well established if struggling to bear fruit (eg Low, Gleeson & Curtis; Flyvbjerg et al; Mees),
- Technical critique not yet fully elaborated, especially in terms of forwarding alternative techniques and models for assessing transport need

2. Guiding Premise: Transport Assessment is a Closed Practice

- Institutional strength of engineering and economics dependent on control of an opaque assessment process (especially transport modelling, but incl. project appraisal, impact assessment)
- Highly socio-technical (data, projections, computers, algorithms that simulate/predict human social behaviour)
- Frequent failure of that socio-technical form to grasp/predict social need and/or environmental considerations OR to produce transport interventions that meet their own goals (Flyvbjerg)
- Need to open the assessment process to broader disciplinary and public scrutiny: new technical and deliberative assessment
- Opportunity to reconfigure transport assessment to better match public and sustainability objectives in transport planning AND to produce interventions that that satisfy or maximise their own goals

3. In MULUTT's Sights: Conventional Four Step Transport Model

1. Trip generation (land-use activities that 'generate' travel)
2. Trip distribution (travel between land-use activities, 'gravity' model)
3. Mode assignment (ascribing travel task to modes)
4. Traffic assignment (ascribing traffic flows to routes)
[Assess route capacity] (congestion)

4. Specific Criticisms of Current Transport Models

- Origins are traffic/roads focused, rather than travel focussed
- Oriented towards supporting private motor vehicle demand thus generates plans that support this mode
- Provide limited support for sustainable travel demand (PT, walking, cycling) e.g. through transfer penalties in PT assignment
- Singular metric – ‘travel time savings’ – punishes sustainable modes
- Static: often lack feedback for mode shifts with rising traffic congestion
- Poor simulation of actual travel behaviour (e.g. trip purpose, trip chaining)
- Gross spatial zones – underestimate short intra-zone (i.e. walking, cycling) trips
- Limited attention to pricing – e.g. fuel, carbon, marginal vs total costs (except when tolls considered)
- Flexible projections of population and jobs can produce widely varying outcomes
- Limited capacity to test alternative land use development scenarios

5. MULUTT: Modular Urban Land Use & Transport

- Continuing development of thinking in URP over past 4 years: coupling this to, and supporting, the GAMUT program
- To deconstruct and reconstruct conventional 4-Step Transport Model for use in sustainable (realistic?) transport assessment.
- Draws together ongoing URP transport research and thinking on:
 - strategic transport assessment
 - transport disadvantage
 - accessibility
 - oil vulnerability
 - energy use
 - emissions impacts
- Combine transport model with broader social, economic, environmental concerns and planning objectives. Modules to augment standard models.

6. Methods

Task 1

- Conceptual and methodological review of transport modelling procedures. Assessment of current extent of inclusion of sustainability attentiveness.

Task 2

- *Breaking open the black box.* Obtaining working conventional transport model and opening it up to scrutiny. Testing for inclusion of social and sustainability objectives and criteria.

Task 3

- Reconstructing the black box. Reconfiguring working conventional transport model for sustainability assessment.

Task 4

- Testing reconfigured transport model relative to conventional transport model. Identifying differences and impacts on assessed travel patterns.

6. Methods cont.

Task 5

- Constructing modular packages for assessment of further transport questions:
 - strategic transport assessment
 - transport disadvantage
 - accessibility
 - oil vulnerability
 - energy use
 - emissions impacts

Task 6

- Demonstrating transport model and articulating to policy and planning community and processes. Reporting outcomes of project to scholarly audience. Advocating use of model to public and practitioners.

7. 2006 Progress

- URP obtained TransCad transport modelling licence (\$10,000)
- Enhancement of GIS and general computational capacity
- Agreement with BCC to obtain Brisbane Strategic Transport Model
- Strengthening of strategic partnership with GCCC; award of ARC Linkage
- Strengthening of strategic partnerships with Qld Transport: LUPTAI model work; SEQ transport system vulnerability project; Portfolio University Group
- Improved strategic coordination of MULUTT within URP, through formation of GRIST sub program
- Presentation papers at ATRF 2006
- Assembling literature on transport assessment, transport modelling and sustainable planning
- Assembling labour force: 4 RAs trained and in place, RF to be appointed January 2007
- Strategic visit and advice from Prof Bent Flyvbjerg (Nov 2006)

Griffith MULUTT Research Staff

Dr Jago Dodson (URP MULUTT Convenor)

- Dr Dodson is a Research Fellow in the URP and has a research record that spans housing, social theory, transport planning, urban governance and urban management. Dr Dodson is currently working on the issue of 'oil vulnerability' in Australian cities.

Dr Paul Mees (Melb University MULUTT Convenor)

- Dr Mees is a Senior Lecturer in the Urban Planning program at the University of Melbourne. Dr Mees has an exemplary record of research and policy advocacy concerning sustainable transport in Australia and internationally.

Prof. Lex Brown

- Prof Brown is Dean of the Faculty of Environmental Science at Griffith University and has a distinguished background in the modelling of transport systems and their environmental impacts.

Dr Neil Sipe

- Dr Sipe is Head of School of Environmental Planning at Griffith University and has a strong and rapidly expanding research record that spans transport planning, health impact assessment and urban management. Dr Sipe has particular expertise in the use of GIS in urban transport analysis.

Griffith MULUTT Research Staff cont.

Prof Brendan Gleeson (GAMUT MULUTT Director)

- Prof. Gleeson is a distinguished scholar of urbanisation and urban planning in Australia. He is the author of many books and journal articles on urban planning.

Dr Matt Burke

- Dr Burke is a Research Fellow in the Urban Research Program and has strong expertise in transport planning with an emphasis on sustainability assessment and the promotion of sustainable active modes of travel such as walking and cycling.

Dr Tan Yigitcanlar

- Dr Yigitcanlar is a Research Fellow within the URP and has a background in GIS and the use of information technology in planning as well as knowledge cities and transport.

Mr Rick Evans

- Mr Evans is a Senior Research Assistant in the URP. He holds an honours degree in Environmental Planning from Griffith and has contributed heavily to the Land Use and Public Transport Accessibility Index (LUPTAI) URP project funded by Queensland Transport.

MULUTT as Metonym

- **Bad hair** amidst the sleek coiffure of transport modelling
- Transport reality as unlovely, unkempt, unmodish: viz., **social**