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Chris De Gruyter

Travel Plans for New Residential Developments: Insights from Theory and Practice

Doctoral Thesis accepted by
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Supervisor's Foreword

Transport challenges are evident in cities across the world. The combination of the growing world population, compounded by the clear preference for the majority of people to live in cities, is magnifying those challenges. Cities faced with limited physical space for new transport infrastructure are struggling with rising traffic congestion, declining air quality, and a deteriorating quality of life for their residents.

While a 'predict and provide' approach to transport planning was the predominant paradigm for many years, there is now a clear recognition of the role that demand-side strategies can play. One such strategy of increasing interest is the travel plan, a mechanism used for delivering a set of transport measures to manage car use and promote a greater uptake of public transport, walking and cycling.

This book explores the use of travel plans in the context of new residential developments, a topic worthy of much attention but one that was largely uncharted. The book provides coverage of the scale of travel planning practice for new developments, industry perspectives on their development and implementation, and an assessment of their quality and effectiveness. The theoretical foundation for the research draws on implementation theory and planning enforcement theory. Those theories are applied in a practical manner to identify opportunities to enhance the impacts of travel plans for new residential developments.

This book finds that while travel plans can be associated with lower car use at new residential developments, a number of opportunities can be realised to enhance their effectiveness. A valuable contribution is provided through the development of an integrated theory of implementation and enforcement as a framework to guide future travel planning practice.

Another key contribution provided by this book is its exploration of 'self-selection' in the context of travel plans for new residential developments. The phenomenon can occur when residents choose to 'self-select' into a new development with a travel plan because it is consistent with their attitudes and preferences towards more sustainable travel. A better understanding of self-selection issues, as this book provides, is critical in evaluating the effectiveness of residential travel plans.

This book employs a detailed and rigorous methodology for meeting its research objectives and presents a clearly considered set of results and conclusions. It should provide a valuable resource to transport researchers and those professionals involved in the planning of new residential developments.

Victoria, Australia
July 2016

Prof. Geoffrey Rose

Abstract

Continued demand for new housing development is expected to add further pressure to existing transport networks and services in many urbanised areas. Given these challenges and a limited ability to add more capacity to the transport network, it is appropriate to consider the role of demand-side strategies, such as travel plans. Travel plans aim to manage car use among building occupants by providing a package of site-specific initiatives and facilities that support access by more sustainable forms of transport. They can be required through the land use planning and approval process for new and expanded buildings, such as offices, schools and residential developments. However, there is a limited understanding of the effectiveness of travel plans when applied to new residential developments. Furthermore, the implementation of travel plans at new residential developments has not been sufficiently explored.

This thesis aims to assess the effectiveness of travel plans for new residential developments and identify opportunities to enhance their effectiveness. A mixed methods approach comprising five key research components is adopted to achieve this aim, including the application and integration of both implementation theory and planning enforcement theory.

The first component involves a survey of councils to examine the scale of travel planning practice for new urban developments in Victoria, Australia. Results show that half of the councils had previously required a travel plan for a new development, primarily to offset the impact of less car parking space being provided. Around 100 travel plans were found to be required during 2010–2012 alone, yet 80 % of councils had not monitored any of those travel plans.

The second component develops an appreciation for the perspectives of industry actors involved in travel planning for new residential developments through a set of interviews. This shows general support for travel plans at new residential developments, but limited confidence in the ability to implement them successfully. Implementation challenges were found to centre on a lack of enforcement, uncertainty regarding implementation responsibilities, and a general lack of ownership of travel plans when applied to residential settings.

The third component provides an assessment of the quality of travel plans prepared for new residential developments against a best practice framework. This shows considerable scope to improve travel plan quality, particularly in estimating expected travel patterns of future building occupants, specifying how the travel plan will be managed and implemented, and outlining clearer processes for monitoring and review.

The fourth component provides an assessment of the effectiveness of travel plans at new residential developments. A set of multi-modal trip counts reveal that car use at new residential developments with travel plans was 14 percentage points lower than matched control sites. In addition, it provides some preliminary evidence of residents 'self-selecting' into developments with travel plans, with this accounting for a relatively small yet non-trivial proportion of observed differences in travel behaviour.

The fifth and final component views the research findings through the lens of both implementation theory and planning enforcement theory to identify opportunities to enhance the effectiveness of travel plans for new residential developments. Short-term enhancements include greater ownership and engagement of 'implementers', improvements to travel plan quality, provision of guidance material and training, and a more pro-active and facilitative style of enforcement. Long-term enhancements include sound planning requirements, a stronger industry focus for residential travel planning and ensuring an adequate number of technically competent staff are available for enforcement. An integrated theory of implementation and enforcement, with consideration to both top-down and bottom-up styles of implementation, and both facilitative and systematic styles of enforcement, is developed to guide future travel planning practice.

This thesis provides a number of original contributions to knowledge in the field of travel planning for new residential developments. Overall, it is concluded that while travel plans can be effective in reducing car use at new residential developments, a number of opportunities can be realised to enhance their effectiveness. Acting on these opportunities will require sufficient resources and commitment. However, this will ultimately improve the way in which travel plans are developed, implemented and monitored at new residential development into the future, thereby supporting a greater uptake of more sustainable forms of transport.

Parts of this thesis have been published in the following journal articles:

De Gruyter, C, Rose, G & Currie, G (In Press) 'Travel Plans for New Residential Developments: Measuring Self-Selection Effects to Better Understand Travel Behaviour Impacts', *Transportation Research Record: Journal of the Transportation Research Board*, no. 2564 (Accepted for publication 26th February 2016).

De Gruyter, C, Rose, G & Currie, G (2015) 'Understanding Travel Plan Effectiveness for New Residential Developments', *Transportation Research Record: Journal of the Transportation Research Board*, no. 2537, pp. 126–136.

De Gruyter, C, Rose, G & Currie G (2015) 'Enhancing the impact of travel plans for new residential developments: Insights from implementation theory', *Transport Policy*, vol. 40, pp. 24–35.

De Gruyter, C, Rose, G & Currie G (2014) 'Methodology for Evaluating Quality of Travel Plans for New Developments', *Transportation Research Record: Journal of the Transportation Research Board*, no. 2417, pp. 46–57.

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Abbreviations

ACF	Advocacy Coalition Framework
ATE	Average Treatment Effect
ATTrBuTE	Assessment Tool for Travel Plan Reviewing, Building, Testing and Evaluation
AVR	Average Vehicle Ridership
BedZED	Beddington Zero Energy Development
BUG	Bicycle User Group
CBD	Central Business District
CTR	Commute Trip Reduction
EPA	Environment Protection Authority
ESD	Environmentally Sustainable Design
ICC	Intraclass Correlation Coefficient
ITE	Institute of Transportation Engineers
MUHREC	Monash University Human Research Ethics Committee
NHS	National Health Service
OD	Observed Difference
OECD	Organisation for Economic Cooperation and Development
PSM	Propensity Score Matching
QR	Quick Response
RMS	Roads and Maritime Services
RTA	Roads and Traffic Authority
SMART	Specific, Measurable, Achievable, Relevant, Time-based
SSE	Self-Selection Effect
TAFE	Technical and Further Education
TDM	Travel Demand Management
TRO	Trip Reduction Ordinance
UK	United Kingdom
URL	Uniform Resource Locator
US	United States
VISTA	Victorian Integrated Survey of Travel and Activity

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