

Assessing the quality of travel plans for new developments

Chris De Gruyter¹, Geoffrey Rose¹, Graham Currie¹

¹ Institute of Transport Studies, Department of Civil Engineering, Monash University, Victoria, Australia

Email for correspondence: chris.degruyter@monash.edu

Abstract

A travel plan is a strategy that contains a package of site-specific measures that aim to manage car use and encourage the use of more sustainable transport modes. In Australia, there is increasing interest in the use of the land use planning and approvals process to secure travel plans for new developments. While evaluations of travel plans tend to focus on outcomes such as reductions in car use, very little attention has been paid to evaluating the process through which they are developed.

For this study, a total of 31 travel plans for new developments in Victoria were sourced and assessed for their quality. An assessment framework was developed that covered the key elements of travel plans and used a criteria-based scoring system. Results showed that most travel plans were prepared for residential and mixed use developments and contained measures that were focused primarily on information and infrastructure provision. Relevant background information and the selection of measures were generally covered by the travel plans. However, the process for managing their implementation scored relatively low in the assessment in comparison to other elements. This is particularly relevant in the context of new developments where the occupier is usually unknown when preparing the travel plan.

The framework developed provides a useful tool for assessing the relative merits and deficiencies of travel plans prepared for new developments and is recommended for use by councils to improve the quality of travel plans that are submitted through the planning process. Further work is required to test the robustness of the framework and potentially refine the criteria and scoring system based on the collective views of travel planning practitioners.

1. Introduction

Continued demand for new housing and commercial developments is expected to add further pressure to existing transport networks in many urbanised areas. With limited opportunities to add more capacity to the network, Travel Demand Management (TDM) offers the potential to manage existing resources better. TDM encompasses both 'hard' policy measures such as road pricing, as well as 'softer' measures such as travel plans (Wayte 1991).

A travel plan can be defined as a strategy that contains a package of site-specific measures that aim to manage car use and encourage the use of more sustainable transport modes. Other terms for travel plans include site-based mobility management plans, green travel plans, Transport Demand Management (TDM) plans and trip reduction plans (Enoch & Rye 2006). Importantly though, travel plans should not be considered as an instrument in themselves, but rather a mechanism for delivering a suite of mostly transport related measures (Enoch 2012).

Factors contributing to the effectiveness of travel plans have been well documented by the literature (Cairns, Newson & Davis 2010; Enoch 2012; Howlett & Watson 2010). In particular, travel plans that are tailored to the transport needs of their sites and include both 'carrots', such as financial incentives to use public transport, as well as 'sticks', such as car parking charges to discourage car use, have typically experienced greater levels of success (Cairns, Newson & Davis 2010).

In recent years, there has been increasing interest in the use of the land use planning and approvals system to require developers to prepare travel plans for new and expanded buildings, such as offices, schools and residential developments (PBAI 2005; Rye et al. 2011). However, in many cases the preparation of the travel plan is often disjointed from any implementation and monitoring, with different actors typically involved at each stage.

The evaluation of travel plans has focused largely on outcomes to date, such as reductions in car use using before and after travel surveys. While there is of course good reason for doing this (e.g. to assess changes in travel behaviour), little consideration is typically given to evaluating the content of the travel plan document itself and the process proposed for its future delivery (Wake, Thom & Cummings 2010).

It is therefore prudent to take a step back to evaluate the 'quality' of travel plans prior to assessing their outcomes. While this applies to travel plans prepared for existing sites, it is particularly relevant to travel plans that are prepared for new developments where those responsible for implementation may not have been involved in preparing the travel plan. Understanding the level of quality in travel plans can assist in identifying areas for improvement, thereby increasing the likelihood that they will achieve their objectives and be implemented successfully.

The aim of this paper is twofold. The first is to gain an understanding of the content of travel plans prepared for new developments in Victoria, particularly in terms of the measures proposed to encourage more sustainable travel behaviour. The second is to assess the quality of the travel plans in order to identify their relative merits and key areas where there is scope for improvement.

This paper is structured as follows. The next section provides a review of literature relevant to assessing travel plan quality. The method for assessing the quality of travel plans in Victoria is then described which is followed by a set of results that summarise their content and provide a quantitative assessment of their quality. A discussion of the implications of the findings is then provided, followed by some concluding remarks.

2. Research context

This section summarises the diverse literature available on assessing the quality of travel plan documents.

Firstly, and while not directly related to travel plans, Mansfield and Hartell (2012) provide a useful framework for assessing transport sustainability plans at a state level in the US. They state that the tenets of plan quality include a vision statement, comprehensive fact base, consistent goal and policy framework, clear implementation and monitoring procedures, accountability for the interdependence of actions, and open participation in the plan development process. Each of these tenets has relevance in the context of preparing, implementing and monitoring travel plans for new developments. Mansfield and Hartell (2012) also recognise that there is no 'one size fits all' approach to plan development, particularly when addressing complex and multi-faceted issues such as sustainability. This is again relevant to travel plans as it is recognised that their content needs to be tailored to the local context and transport needs of a site.

Transport for London (2011a) developed an online tool called ATTrBuTE (Assessment Tool for Travel plan Reviewing, Building, Testing and Evaluation) to assess the quality of incoming travel plans as part of the planning process. The criteria included in the tool are designed to test the extent to which a travel plan has been prepared in accordance with their guidance on travel planning for new development in London (Transport for London 2011b). A total of 11 categories are included in the tool, with a set of questions/criteria under each category. The categories relate to background information about the development, references to policy, site assessments, objectives and targets, travel plan coordinator, measures, monitoring, securing and enforcement, and funding. The travel plan needs to score above 70% in order to pass the assessment.

Wake, Thom and Cummings (2010) highlight the importance of expanding the evaluation of workplace travel plans to include an assessment, amongst other things, of the quality of travel plans against a good practice benchmark. They recommend that the following elements should be checked when evaluating travel plan documents:

- Description of the **scope** of the plan, including the organisation and workplace/s covered
- Statement of corporate interest and **commitment** and the rationale for taking action
- Clear **objectives** and performance **targets** for the plan
- **Baseline information** on workplace facilities and policies, current travel patterns of the target group (e.g. employees) and the existing transport network and services
- Clear statement of effective and feasible **actions** aimed at meeting the objectives of the plan, including what is to be done, who is responsible and the completion date
- Framework for **implementation, monitoring** and **evaluation**, including who will coordinate and when and how monitoring and evaluation will occur.

In their guidelines on delivering travel plans through the planning process, the UK Department for Transport (2009) recognise that without a robust process for evaluating incoming travel plans, there will be no basis to make a judgement as to whether the travel plan is going to meet its intended outcomes and is therefore fit for purpose. It is also recognised that the methodology used to evaluate the quality of the travel plan should be made publicly available so those preparing travel plans are aware of the components that require particular attention. The guidelines recommend that incoming travel plans should be at least evaluated against whether they cover all elements (e.g. site audit, objectives, targets, measures, monitoring), address site specific issues, and tip the balance in favour of sustainable travel.

Addison & Associates (2008) report on the experience of local authorities in the UK in evaluating travel plans submitted as part of the planning process. Common aspects that are examined when evaluating the quality of travel plans include:

- Evidence of a **site assessment** and **baseline travel pattern** information
- Inclusion of a comprehensive range of **measures** that are both realistic and appropriate to the site
- Use of **SMART targets** (Specific, Measurable, Achievable, Realistic and Time-based)
- **Commitment** to implementation and monitoring with **responsibilities** clearly identified
- Nomination of a **travel plan coordinator** with their contact details provided
- Clear procedures for **monitoring** and **reviewing** the travel plan on a regular basis.

The British Standards Institution (2008) provide a number of useful checks that can be used in assessing the quality of a workplace travel plan for a new development. These include:

- Identification of **aims** and **objectives**
- Establishment of **mode split information** with checks against trip generation data
- Results of a **site audit** carried out
- Specification of output and outcome **targets** over a five year period
- Clear expression of **commitment** to meeting the aims and objectives of the plan
- Set of deliverable and funded **actions** that will deliver the targets and objectives.

In the preparation of travel plan guidelines for new developments in the City of Darebin in Victoria, Australia, PBAI (2005) recognised that it is necessary for the council to take a role at each stage in the evaluation of travel plans. In response to this, they developed a pro-forma so that council staff can ensure the travel plan meets various requirements at the planning permit application stage. In addition to recording characteristics of the development, the pro-forma covers the following aspects: occupant survey, objectives and targets, car parking, travel plan measures, implementation and monitoring mechanisms, and a subjective assessment of whether the travel plan will achieve its targets. In addition, PBAI (2005) report elsewhere in their guidelines that travel plans should contain targets that are SMART (Specific, Measurable, Achievable, Realistic and Time-based), initiatives that include both 'carrots' and 'sticks', and details of the person/s responsible for implementing the travel plan and the time they will allocate to the task.

In a similar vein, Wiltshire County Council (2004) in the UK have developed checklists to evaluate the quality of incoming workplace travel plans and school travel plans as part of the planning process. The checklists cover similar elements including a site description, objectives and targets, travel plan measures (with consideration to all relevant modes), results of a travel survey, monitoring and review mechanisms, travel plan coordinator and associated support (e.g. working group), and marketing.

WS Atkins (2002) designed a software tool for the UK Department for Transport to assess the process and content of workplace travel plan documents. The tool provides a scoring system, with 14 key categories relating to: travel plan format, motivations, organisation and site background, survey details, measures, process, travel plan coordinator, management support, external audit, use of literature, marketing, targets, monitoring, and partnerships.

Table 1 provides a synthesis of the elements covered by the literature that are relevant to assessing the quality of travel plans. The most comprehensive range of elements were covered by Transport for London (2011b). Elements most commonly cited by the literature (by at least nine out of the ten items reviewed) related to:

- Background information on the type of land use/s
- Description of existing transport networks and services
- Estimate of baseline travel patterns
- Objectives that are reflective of the site's characteristics

- Targets that are linked to the objectives
- Roles and responsibilities (both in terms of implementation and monitoring)
- Method, timing and frequency of monitoring and review.

It is worth noting the inherent difficulty in estimating baseline travel patterns at new developments as the occupier is usually unknown at the time of preparing the travel plan. An assessment of the existing transport network and services in conjunction with the use of secondary survey data (such as the census and other household travel survey data) therefore become key to undertaking this task.

Interestingly, 'handover arrangements' (e.g. from developer to occupant) were referenced by only four items of literature, despite this being recognised as a key factor in ensuring effective implementation of the travel plan occurs (Department for Transport 2009; Transport for London 2011b). Fortunately, contact details for the travel plan author, which help to facilitate handover arrangements, are referenced by seven of the literature items reviewed.

Table 1: Synthesis of travel plan elements covered by the literature

Travel plan elements	Literature item (see key below table)										Total cited
	[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	[9]	[10]	
BACKGROUND INFORMATION											
Type of land use/s		✓	✓	✓	✓	✓	✓	✓	✓	✓	9
Development address		✓	✓	✓	✓	✓	✓	✓	✓		8
Number and type of expected users		✓	✓	✓	✓	✓	✓	✓		✓	8
Contact details of travel plan author		✓	✓			✓	✓	✓	✓	✓	7
Development size		✓	✓	✓	✓	✓		✓	✓		7
Number of car parking spaces		✓	✓		✓		✓	✓		✓	6
Reference to relevant policies		✓	✓	✓	✓			✓		✓	6
Benefits of travel plan			✓		✓		✓			✓	4
Development name or site name			✓	✓			✓		✓		4
Development phasing		✓	✓		✓	✓					4
Number of bicycle parking spaces		✓	✓					✓		✓	4
Rationale for travel plan			✓	✓	✓					✓	4
Reference to relevant agreement and/or condition		✓	✓				✓	✓			4
Reference to relevant travel planning guidance		✓	✓							✓	3
Timescales for occupation			✓		✓			✓			3
EXISTING CONDITIONS											
Estimate of baseline travel patterns	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	10
Existing transport networks and services	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	10
Existing travel initiatives available	✓	✓		✓	✓	✓	✓		✓		7
Organisational policies and other initiatives			✓	✓	✓		✓				4
Amenities and facilities in surrounding area			✓			✓				✓	3
OBJECTIVES AND TARGETS											
Objectives reflective of site characteristics		✓	✓	✓	✓	✓	✓	✓	✓	✓	9
Targets linked to objectives	✓	✓	✓	✓	✓	✓		✓	✓	✓	9
Objectives reflective of relevant policy	✓	✓	✓	✓	✓	✓		✓		✓	8
SMART (specific, measurable, achievable, relevant, time-based)			✓	✓		✓	✓		✓	✓	6
TRAVEL PLAN MEASURES											
Alignment with objectives and targets		✓	✓	✓	✓	✓	✓	✓		✓	8
Description of measures			✓	✓	✓	✓	✓	✓	✓	✓	8
Consideration to all transport modes (including deliveries)			✓	✓	✓	✓	✓	✓	✓	✓	8
Reflective of characteristics and needs of site		✓	✓	✓	✓	✓	✓	✓		✓	8
Timescales	✓	✓	✓	✓	✓	✓				✓	7
Marketing and promotion			✓		✓	✓	✓		✓	✓	6
TRAVEL PLAN MANAGEMENT											
Roles and responsibilities	✓	✓	✓	✓	✓	✓		✓	✓	✓	9
Commitment to implementation		✓	✓	✓	✓	✓	✓	✓		✓	8
Travel plan coordinator		✓	✓	✓	✓	✓		✓	✓	✓	8
Budget and funding stream for travel plan coordinator		✓	✓	✓	✓	✓	✓			✓	7
Budget and funding stream for travel plan measures		✓	✓	✓	✓	✓	✓			✓	7
Securing and enforcement	✓	✓	✓		✓	✓		✓	✓		7
Partnerships	✓		✓	✓	✓				✓	✓	6
Time allocated for travel plan coordinator		✓	✓	✓	✓	✓		✓			6
Handover arrangements (e.g. from developer to occupant)			✓		✓	✓			✓		4
MONITORING AND REVIEW											
Frequency	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	10
Method	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	10
Timing	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	10
Roles and responsibilities	✓	✓	✓	✓	✓	✓		✓	✓	✓	9
Budget and funding stream		✓	✓	✓	✓	✓	✓		✓	✓	7
Reporting format			✓	✓	✓	✓	✓		✓	✓	6
Use of results				✓	✓	✓	✓			✓	5
Total elements	13	33	44	33	39	34	28	28	25	35	

Source: Authors' synthesis of travel plan elements covered by literature

- [1] Mansfield and Hartell (2012)
 [2] Transport for London (2011a)
 [3] Transport for London (2011b)
 [4] Wake, Thom and Cummings (2010)

- [5] Department for Transport (2009)
 [6] Addison & Associates (2008)
 [7] British Standards Institution (2008)
 [8] PBAI (2005)

- [9] Wiltshire County Council (2004)
 [10] WS Atkins (2002)

3. Research method

3.1 Development of assessment framework

Taking the findings into account from the literature review (Section 2), a framework was developed to assess the quality of travel plans for new developments in Victoria. Consideration was given to including all relevant criteria while ensuring the framework could still be easily understood and applied.

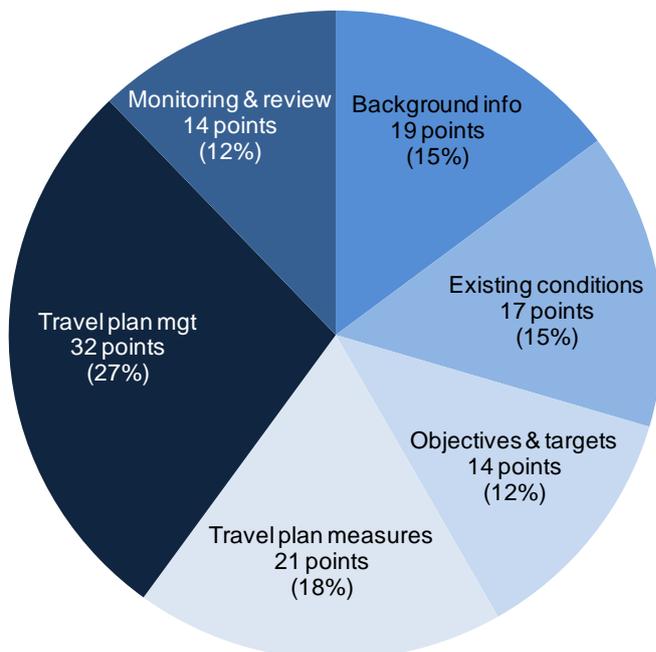
In developing the framework, it was important to ensure that specific characteristics of new developments were taken in account. For example, the framework asks whether an *estimate* of *expected* travel patterns has been made, rather than whether a baseline travel survey was undertaken, as the site’s users are often unknown at the time of preparing the travel plan.

It was also important to ensure that the framework did not contain any criteria that could be open to alternative or creative interpretation. The aim was to develop a framework which would result in little variation in the assessment outcome for a given travel plan when applied by different people. Guidance was therefore provided in the framework on how scores should be assigned to each criterion.

The assessment framework contains six key headings (in line with those presented earlier in Table 1) which are expanded out to a total of 55 specific criteria. A scoring system is provided which incorporates implied weightings for each criterion to reflect their relative importance, as suggested by the research literature. The maximum total score available from the assessment framework is 117 points. The full assessment framework is provided in the Appendix.

Figure 1 shows how the points are allocated across each of the key headings included in the assessment framework. In order to reflect the importance of the process through which the travel plan is managed and delivered, as well as the actual measures proposed in the travel plans, a greater percentage of points are allocated to these components (27% and 18% respectively) compared with other key areas in the assessment framework (12-15% each).

Figure 1: Allocation of points by key headings used in the assessment framework



3.2 Sourcing of travel plans

Copies of travel plans for new developments in Victoria that were prepared in the last five years were sourced from councils, consultants (authors of the travel plans) and the Victorian Department of Transport. As these documents are normally in the public domain during the planning permit application process, no confidentiality issues were experienced.

However, it is recognised that some form of selection bias may be present in the travel plans that were sourced. While less relevant to those travel plans sourced by consultants and the Victorian Department of Transport, some councils that were known to have previously required travel plans expressed difficulty in sourcing copies of these due to the lack of any automated function for searching their internal database for travel plan documentation.

In total, 31 travel plans were sourced which was considered to provide an adequate sample for assessment purposes.

3.3 Review of travel plan content

The content of each travel plan was firstly reviewed. This involved the creation of a database with information on key elements of each travel plan such as development characteristics, planning mechanism used, and the types of measures included in the travel plan.

3.4 Application of assessment framework

Each of the 31 travel plans were then analysed using the assessment framework by assigning a score to each travel plan against each of the criteria. This process took around 30 minutes per travel plan.

4. Results

The results are presented in two main parts. The first part provides a summary of the content of the travel plans while the second part presents the results of the assessment.

4.1 Content Summary

Authorship and document length

All of the travel plans were prepared by consultants, with the exception of a single case (which was prepared by a housing provider/manager). The predominant service/discipline of the travel plan authors is shown in Table 2. Traffic engineering consultancies prepared more than half (58%) of the travel plans. The length of the travel plan documents ranged from 1 page to 38 pages, with an average of 11 pages.

Table 2: Travel plan authorship

Predominant service/discipline of organisational author	Number of travel plans	% of travel plans
Traffic engineering	18	58%
Town planning	5	16%
Architecture	3	10%
Transport planning	2	6%
Environmentally Sustainable Design (ESD)	2	6%
Housing provision/management	1	3%
Total	31	100%

Land use type and location

Table 3 indicates the types of land uses associated with the travel plans. Mixed use developments were most common, although a notable proportion of these were predominantly residential (e.g. three shops on a ground floor with several storeys of apartments above), resulting in most travel plans (58%) being focused on residential uses.

Table 3: Travel plans by land use type

Land use type	Number of travel plans	% of travel plans
Residential	9	29%
Mixed use (predominantly residential) ¹	9	29%
Mixed use	12	39%
Education	1	3%
Total	31	100%

¹ Defined here as residential with other uses of less than 500m²

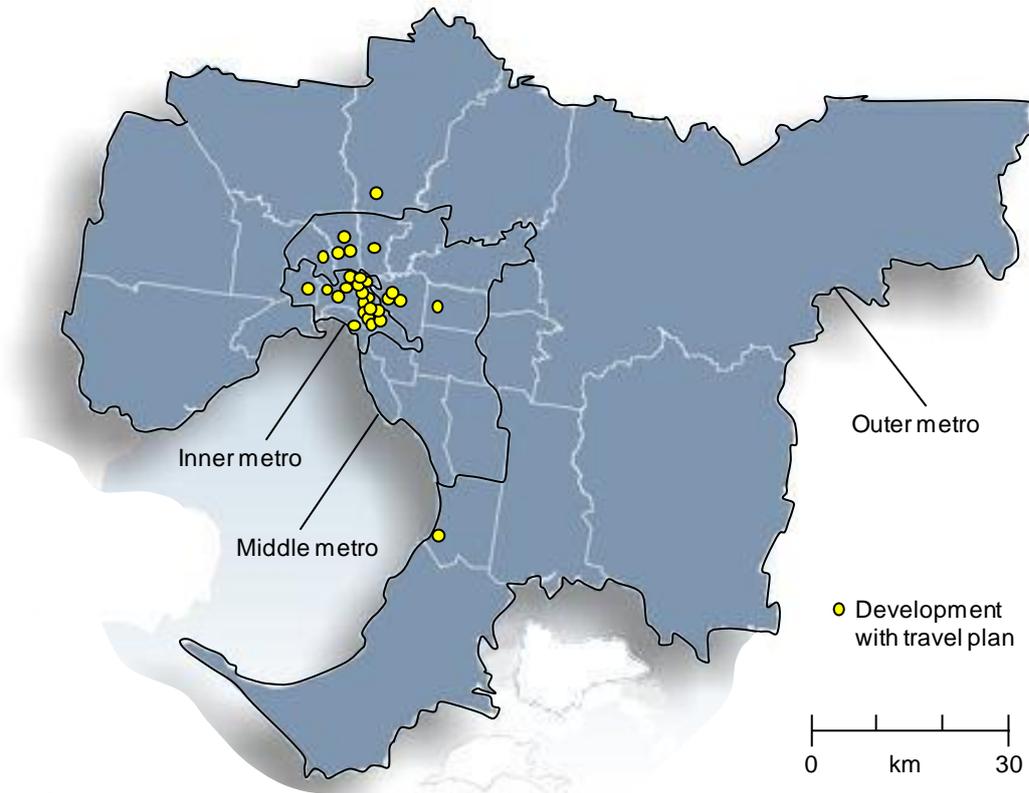
Table 4 shows that more than half (58%) of the travel plans that were sourced were prepared for developments located in inner metropolitan Melbourne (see Figure 2 for a spatial representation). A smaller proportion was located in the middle metropolitan areas of Melbourne (29%) with some minor representation in outer metropolitan Melbourne (6%) and regional Victoria (6%).

Table 4: Travel plans by development location (based only on those sourced)

Development location	Number of travel plans	% of travel plans
Inner metropolitan Melbourne	18	58%
Middle metropolitan Melbourne	9	29%
Outer metropolitan Melbourne	2	6%
Regional Victoria	2	6%
Total	31	100%

While it is not possible to ascertain the exact extent to which the travel plans are representative in terms of their geographical location, a separate ATRF paper by De Gruyter, Rose and Currie (2013) shows that approximately 80% of inner and middle metropolitan councils in Melbourne have required a travel plan for a new development before, compared with only 20% from outer metropolitan Melbourne and regional Victoria. This finding is generally in line with the travel plans that were sourced, with a greater proportion having been prepared for developments in inner and middle metropolitan Melbourne.

Figure 2: Developments in metropolitan Melbourne with travel plans (based on those sourced)



Mechanisms used to require travel plans

Table 5 shows that most travel plans were required through a condition on a planning permit. Formal agreements (known as section 173 agreements in Victoria) were proposed for only two of the travel plans, despite these having the ability to secure payments (e.g. for travel plan implementation and monitoring) and become binding upon future owners (Department of Planning and Community Development 2012a).

Table 5: Mechanisms used to require travel plans

Mechanism used to require travel plan	Number of travel plans	% of travel plans
Condition on planning permit	20	65%
Formal agreement	2	6%
Not specified	9	29%
Total	31	100%

Travel plan measures

Table 6 indicates the type and number of measures contained in the travel plans. On average, a total of around 11 measures were included in the travel plans, with information and infrastructure based measures making up more than half (56%) of the measures.

Table 6: Types of measures included in travel plans

Type of travel plan measure	Number of times type of measure was included across all travel plans	Average number of measures per travel plan	% of measures in travel plans
Information	107	3.5	32%
Infrastructure	80	2.6	24%
Incentive	59	1.9	18%
Program	57	1.8	17%
Other	31	1.0	9%
Total	334	10.8	100%

The most common measures proposed in the travel plans were new resident kits which generally contain local information on sustainable transport options. Maps and free public transport tickets were also common measures that were proposed. In terms of infrastructure based measures, bicycle parking was the most common, despite this been a requirement under the Victorian Planning Provisions for residential developments of four or more storeys (Department of Planning and Community Development 2012b).

4.2 Assessment results

Table 7 provides a summary of the assessment results, in terms of the lowest, highest and average scoring travel plan. A more detailed set of results is provided in the Appendix.

Table 7: Summary of the assessment results

Assessment component	% of maximum possible score		
	Lowest scoring travel plan	Highest scoring travel plan	Average across all travel plans
Background information	58%	74%	62%
Existing conditions	29%	88%	50%
Objectives and targets	0%	93%	53%
Travel plan measures	43%	90%	71%
Travel plan management	3%	31%	19%
Monitoring and review	0%	71%	45%
Total	22%	69%	47%

○ = 0-20% ◐ = 21-40% ◑ = 41-60% ◒ = 61-80% ◓ = 81-100%

The lowest scoring travel plan achieved only 22% of the maximum possible score, with severe deficiencies relating to objectives and targets, travel plan management processes, and monitoring and review mechanisms. While the highest scoring travel plan addressed most of these deficiencies, there was still scope for improving the process for managing the delivery of the travel plan. Furthermore, the highest scoring travel plan achieved only 69% of the maximum possible score. Therefore, if applying the 70% 'pass' criterion used in the ATTrBuTE tool by Transport for London (2011a), none of the Victorian travel plans that were assessed would receive a 'pass'.

Across all of the travel plans, 47% of the maximum possible score is achieved on average. Key strengths of the travel plans include:

- **Provision of background information:** an appropriate amount of information about each development was generally provided, including relevant contact details for follow up purposes.

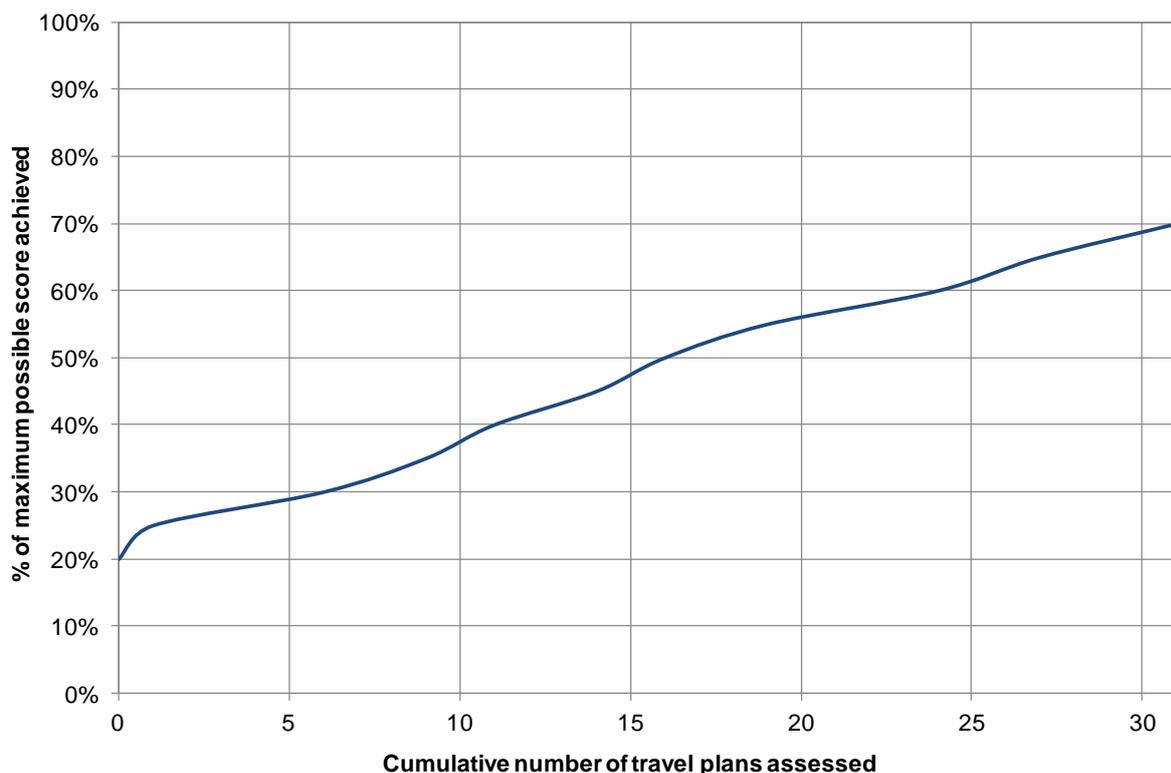
- **Detail provided on site audit:** information relating to existing transport networks and services, plus key transport issues and opportunities, were sufficiently detailed and relevant to each site.
- **Appropriateness of travel plan measures:** measures were mostly tailored to the needs of each site, with sufficient information provided to guide their implementation.

However, key areas identified for improving the quality of travel plans for new developments include:

- **Estimating expected travel patterns:** while future users of a proposed development are often unknown at the time of preparing a travel plan, this does not prohibit an assessment to be made based on the existing transport network and services and the use of existing survey data such as the census (which includes journey to work and car ownership data) or the Victorian Integrated Survey of Travel and Activity, both of which are freely available online.
- **Specifying how the travel plan will be managed:** while the exact details of roles of individuals may be unknown at the time of preparing a travel plan for a new development, this does not preclude the specification of required roles. In addition, a commitment from the developer should be made at this stage, particularly in terms of the funding they will provide towards implementing and monitoring the travel plan.
- **Outlining clear processes for monitoring and review:** clear details on how the travel plan will be monitored and reviewed are required to enable this component to occur effectively. This needs to include details relating to timing, frequency, responsibilities, cost and method. It also needs to specify what type of data will be collected, how it will be reported and how it will be used.

Figure 3 presents a cumulative frequency distribution of the scores achieved across the 31 travel plans. The figure shows that 15 of the 31 travel plans achieved less than 50% of the maximum possible score. Overall, the distribution is relatively linear indicating a fairly even spread of scores.

Figure 3: Cumulative frequency distribution of maximum possible scores achieved



5. Discussion

This research has shown that travel plans for new developments in Victoria are being almost entirely prepared by consultants. While this may be appropriate due to the specific skills required, it may also impact upon the level of buy-in and ownership of the travel plan by the developer. This is particularly relevant since ownership of a travel plan is deemed critical to its success (Howlett & Watson 2010). However, Victoria is certainly not alone in this situation, with Harrison (2003) providing an apt description of this issue in the context of the UK:

“...travel plans are increasingly being drafted for applicants by consultants. While this is welcome, in that a body of knowledge and expertise is being built up by specialists, it carries the risk that no one in the applicant’s organisation has any particular personal commitment to making the plan a success. Indeed the individual who may feel most committed to the travel plan, having drafted and negotiated it, may be the consultant who will have no further connection with the site once planning permission has been granted.” (Harrison 2003, p. 400)

Furthermore, if the travel plans that scored relatively low on the assessment are being approved by councils in their current form, what incentive is there for developers and their consultants to propose a more comprehensive set of travel plans?

The results of the assessment showed that there is considerable scope to improve the quality of travel plans prepared for new developments in Victoria. How the travel plan will be implemented following site occupation is one key area that is worthy of further investigation.

The relatively low scores resulting from the assessment may not be particularly surprising given there is no guidance available on travel planning in Victoria that is specific to new developments, with the exception of that prepared for the City of Darebin (PBAI 2005). It is therefore recommended that as a start, councils consider the use of the assessment framework (or adapt it as they require) to evaluate the quality of travel plans submitted by developers as part of the planning permit application process. The framework should also be provided to developers who are being required to prepare travel plans so that the assessment process is transparent to both parties from the outset.

It is also worth noting the limitations that exist in using the framework. Firstly, while informed by the research literature and adapted to local conditions, the scoring system was developed solely by the authors. In reality, there may be some difference in opinion around the magnitude of some scores. Secondly, the framework has only been applied by the authors and it is therefore unknown how much inter-variability may exist in the final scores if the framework were to be applied by a range of practitioners. Thirdly, as recognised by Mansfield and Hartell (2012), the research method is limited to information contained in the travel plan documents that were reviewed and therefore do not capture undocumented but relevant practices. It is also recognised that the presence of a travel plan itself does not guarantee its implementation. It is therefore quite possible that a developer with a relatively low scoring travel plan may in fact still be implementing measures with some success, while another developer with a higher quality travel plan could potentially not be implementing anything at all.

Despite these limitations, the application of the framework has highlighted a number of key areas for improving the preparation of travel plans, which if taken on board, will contribute towards enhancing the quality and subsequent delivery of travel plans for new developments.

6. Conclusion

This paper has provided an understanding of the content of travel plans prepared for new developments in Victoria and has also made an assessment of their quality to assist in identifying their relative merits and deficiencies.

Results of the assessment showed that greater efforts need to be placed into estimating expected travel patterns of future users, specifying how the travel plan will be managed appropriately, and outlining clearer processes for monitoring and reviewing the travel plan.

There are a number of areas requiring further research that arise from this paper:

- Work is needed to potentially refine the criteria and scoring system in the framework by taking into account the collective views of practitioners involved in travel planning.
- The robustness of the framework needs to be tested by having a number of practitioners apply the framework to a subset of the travel plans that were reviewed. This will assist in determining the extent of inter-variability in the scores that may exist.
- Outcomes of travel plans for new developments, such as reductions in car use, need to be appropriately measured, particularly for residential sites where there is currently very little understanding of their effectiveness (Addison & Associates 2008; Morris et al. 2009).

References

Addison & Associates 2008, *Delivering travel plans through the planning process - Research report*, Department for Transport and Communities and Local Government, London, UK.

British Standards Institution 2008, *PAS 500: 2008 - National specification for workplace travel plans* London, UK.

Cairns, S, Newson, C & Davis, A 2010, 'Understanding successful workplace travel initiatives in the UK', *Transportation Research Part A: Policy and Practice*, vol. 44, no. 7, pp. 473-94.

De Gruyter, C, Rose, G & Currie, G 2013, 'Travel planning practice for new urban developments in Victoria, Australia', paper presented to 36th Australasian Transport Research Forum (ATRF), Brisbane, Australia.

Department for Transport 2009, *Good Practice Guidelines: Delivering Travel Plans through the Planning Process*, Department for Transport, London, UK.

Department of Planning and Community Development 2012a, *Using Victoria's Planning System*, viewed 6 May 2013, <<http://www.dpcd.vic.gov.au/planning/>>.

— 2012b, *Victoria Planning Provisions (VPP)*, viewed 6 May 2013, <<http://planningschemes.dpcd.vic.gov.au/VPPs/>>.

Enoch, M 2012, *Sustainable Transport, Mobility Management and Travel Plans*, Ashgate Publishing Limited, Surrey, England.

Enoch, M & Rye, T 2006, 'Travel plans: Using good practice to inform future policy', in B Jourquin, P Rietveld & K Westin (eds), *Towards better performing transport networks*, Routledge, London, UK, pp. 157-77.

Harrison, J 2003, 'Travel plans and the planning system', *Journal of Planning and Environment Law*, no. April 2003, pp. 397-403.

Howlett, R & Watson, T 2010, 'Travel planning in Victoria - a new strategic approach to sustaining communities', paper presented to 33rd Australasian Transport Research Forum (ATRF), Canberra, Australia.

Mansfield, T & Hartell, A 2012, 'Institutionalizing Sustainability at the State DOT Level: A Quantitative Assessment of Transportation Sustainability Plan Quality', paper presented to Transportation Research Board (TRB) 2012 Annual Meeting, Washington DC.

Morris, D, Enoch, M, Pitfield, D & Ison, S 2009, 'Car-free development through UK community travel plans', *Urban Design and Planning*, vol. 162, no. DPI, pp. 19-27.

PBAI 2005, *Guidelines for the Application and Implementation of Travel Plans for New Development in Darebin*, City of Darebin, Victoria, Australia.

Rye, T, Green, C, Young, E & Ison, S 2011, 'Using the land-use planning process to secure travel plans: an assessment of progress in England to date', *Journal of Transport Geography*, vol. 19, no. 2, pp. 235-43.

Transport for London 2011a, *ATTrBuTE v3 User Guide*, London, UK, viewed 6 May 2013, <<http://www.attrbute.org.uk/>>.

— 2011b, *Travel planning for new development in London - incorporating deliveries and servicing*, Transport for London, UK.

Wake, D, Thom, A & Cummings, R 2010, 'Evaluating Workplace Travel Plans', paper presented to 33rd Australasian Transport Research Forum (ATRF), Canberra, Australia.

Wayte, A 1991, 'Road Demand Management Study - A Synopsis', paper presented to Road Demand Management Seminar, Austroads, Perth, Australia.

Wiltshire County Council 2004, *Development related travel plans in Wiltshire: Good practice guide*.

WS Atkins 2002, *Workplace Travel Plan Evaluation Tool v2.7*, Department for Transport, viewed 6 May 2013, <http://www.imsaho.com/miscellaneous/travel_plan_evaluation_tool.asp>.

Appendix – Assessment Framework

Assessment criterion	Scoring
BACKGROUND INFORMATION	
1. Is relevant background information about the development included? (max 8 points)	
1.1 Is the address of the development provided?	No = 0, yes = 1
1.2 Are the types of land use/s stated (e.g. residential, education, commercial)?	No = 0, yes = 1
1.3 Is the size of the development stated (e.g. no. of residential dwellings)?	No = 0, yes = 1
1.4 Are the type/s of expected users stated (e.g. residents, students, employees)?	No = 0, yes = 1
1.5 Is the number of proposed car parking spaces stated?	No = 0, yes = 1
1.6 Is the number of proposed bicycle parking spaces stated?	No = 0, yes = 1
1.7 Is the number of showers & changing rooms stated? <i>Note: applies to non-residential land use/s only</i>	No = 0, yes = 1 If residential only = 1
1.8 Are the expected date/s of occupation stated?	No = 0, yes = 1
2. Are relevant contact details provided? (max 5 points)	
2.1 Are contact details provided for the travel plan author? <i>(organisation, address, contact name, phone number, email)</i>	No = 0, partially = 1, yes = 2
2.2 Are contact details provided for the development applicant? <i>(organisation, address, contact name, phone number, email)</i>	No = 0, partially = 2, yes = 3
3. Is the rationale for the travel plan clearly stated? (max 6 points)	
3.1 Are reasons/motivations for the travel plan clearly stated?	No = 0, yes = 1
3.2 Is reference made to relevant policies and/or strategies?	No = 0, partially = 1, yes = 2
3.3 Is reference made to a relevant planning condition/agreement?	No = 0, partially = 2, yes = 3
EXISTING CONDITIONS	
4. Has a site audit been undertaken and appropriately documented? (max 9 points)	
4.1 Are the existing transport networks & services (all modes) reported?	No = 0, partially = 2, yes = 4
4.2 Are any existing organisational policies/initiatives specified (if applicable)?	No = 0, yes = 1, N/A = 1
4.3 Are transport issues and opportunities identified?	No = 0, partially = 2, yes = 4
5. Has an estimate of expected travel patterns been made? (max 8 points)	
5.1 Has an assessment been made of the likely travel behaviour of expected users?	No = 0, partially = 2, yes = 4
5.2 Is reference made to trip generation estimates (e.g. from TIA or elsewhere)?	No = 0, yes = 2
5.3 Are secondary data sources used (e.g. Census, VISTA)?	No = 0, yes = 2
OBJECTIVES AND TARGETS	
6. Are a clear set of appropriate objectives identified? (max 6 points)	
6.1 Are the objectives linked to relevant policies and/or strategies?	No = 0, partially = 1, yes = 2
6.2 Are the objectives responsive to issues & opportunities facing the site?	No = 0, partially = 2, yes = 4
7. Are a clear set of appropriate targets identified? (max 8 points)	
7.1 Are targets focused on the outcomes of the travel plan (not process or outputs)?	No = 0, yes = 1
7.2 Are targets linked to the travel plan's objectives?	No = 0, partially = 1, yes = 2
7.3 Are targets informed by existing conditions?	No = 0, partially = 1, yes = 2
7.4 Do the targets contain SMART elements? <i>(Specific, Measurable, Achievable, Relevant, Time-Based)</i>	None = 0, 1-3 elements = 1, 4-5 elements = 2
7.5 Are suitable accompanying indicators identified?	No = 0, yes = 1
TRAVEL PLAN MEASURES	
8. Is a package of suitable measures proposed? (max 13 points)	
8.1 Are the measures aligned with the objectives and targets identified?	No = 0, partially = 2, yes = 3
8.2 Is consideration given to all relevant modes (incl. trip substitution)?	No = 0, partially = 3, yes = 5
8.3 Are the measures likely to address the transport issues at the site?	No = 0, partially = 3, yes = 5
9. Is sufficient information provided to guide the implementation of each measure? (max 8 points)	
9.1 Is a description of each measure given?	No = 0, partially = 1, yes = 2
9.2 Is a timeframe for implementing each measure stated?	No = 0, partially = 1, yes = 2
9.3 Is the responsibility for implementing each measure stated?	No = 0, partially = 1, yes = 2
9.4 Is the cost of each measure specified?	No = 0, partially = 1, yes = 2

Assessing the quality of travel plans for new developments

Assessment criterion	Scoring
TRAVEL PLAN MANAGEMENT	
10. Is a clear statement of commitment provided? (max 8 points)	
10.1 Is commitment provided towards implementing the travel plan?	No = 0, partially = 2, yes = 4
10.2 Is commitment provided towards monitoring and reviewing the travel plan?	No = 0, partially = 2, yes = 4
11. Has a person been identified to manage/lead the travel plan (e.g. travel plan coordinator)? (max 8 points)	
11.1 Are contact details for a coordinator provided? <i>(organisation, address, contact name, phone number, email)</i>	No = 0, partially = 2, yes = 4
11.2 Is the role and responsibilities of the coordinator clearly stated?	No = 0, partially = 1, yes = 2
11.3 Is an estimation of time allocated to the coordinator role clearly stated?	No = 0, partially = 1, yes = 2
12. Are the roles and responsibilities of any others clearly defined? (max 5 points)	
12.1 Is a working/steering group identified?	No = 0, yes = 1
12.2 Are partnerships with other stakeholders identified?	No = 0, yes = 1
12.3 Are handover arrangements (e.g. applicant to occupant) clearly stated?	No = 0, partially = 1, yes = 3
13. Is a sufficient budget included with funding streams identified? (max 8 points)	
13.1 Is a sufficient budget associated with the travel plan coordinator post specified?	No = 0, partially = 1, yes = 2
13.2 Is a sufficient budget associated with the travel plan measures specified?	No = 0, partially = 1, yes = 2
13.3 Is a sufficient budget associated with monitoring and review specified?	No = 0, partially = 1, yes = 2
13.4 Is justification given for the allocated budget?	No = 0, partially = 1, yes = 2
14. Is a plan for communications included? (max 3 points)	
14.1 Are communication updates with the site's users proposed?	No = 0, yes = 1
14.2 Is the use of branding/slogans proposed?	No = 0, yes = 1
14.3 Are events proposed to raise the profile of the travel plan (e.g. launch event)?	No = 0, yes = 1
MONITORING AND REVIEW	
15. Is a clear process for monitoring and reviewing the travel plan included? (max 14 points)	
15.1 Is the timing and frequency (e.g. annual) of monitoring and review specified?	No = 0, partially = 1, yes = 2
15.2 Are responsibilities for undertaking monitoring and review stated?	No = 0, partially = 1, yes = 2
15.3 Is the cost associated with monitoring and review specified?	No = 0, partially = 1, yes = 2
15.4 Is the method of data collection specified (e.g. survey, counts)?	No = 0, partially = 1, yes = 2
15.5 Is the type of information to be sought specified (e.g. transport mode shares)?	No = 0, partially = 1, yes = 2
15.6 Is the proposed reporting format and mechanism stated?	No = 0, partially = 1, yes = 2
15.7 Is information provided on how results from monitoring & review will be used?	No = 0, partially = 1, yes = 2

Appendix – Assessment Results

Assessment criterion	% of maximum possible score		
	Lowest scoring travel plan	Highest scoring travel plan	Average across all travel plans
BACKGROUND INFORMATION			
1. Is relevant background information about the development included?	88% ●	88% ●	71% ●
2. Are relevant contact details provided?	80% ●	80% ●	66% ●
3. Is the rationale for the travel plan clearly stated?	0% ○	50% ●	46% ●
Sub-total	58% ●	74% ●	62% ●
EXISTING CONDITIONS			
4. Has a site audit been undertaken and appropriately documented?	56% ●	100% ●	66% ●
5. Has an estimate of expected travel patterns been made?	0% ○	75% ●	33% ●
Sub-total	29% ●	88% ●	50% ●
OBJECTIVES AND TARGETS			
6. Are a clear set of appropriate objectives identified?	0% ○	100% ●	56% ●
7. Are a clear set of appropriate targets identified?	0% ○	88% ●	51% ●
Sub-total	0% ○	93% ●	53% ●
TRAVEL PLAN MEASURES			
8. Is a package of suitable measures proposed?	46% ●	100% ●	73% ●
9. Is sufficient information provided to guide the implementation of each measure?	38% ●	75% ●	67% ●
Sub-total	43% ●	90% ●	71% ●
TRAVEL PLAN MANAGEMENT			
10. Is a clear statement of commitment provided?	0% ○	38% ●	14% ○
11. Has a person been identified to manage/lead the travel plan?	13% ○	25% ●	19% ○
12. Are the roles and responsibilities of any others clearly defined?	0% ○	60% ●	28% ●
13. Is a sufficient budget included with funding streams identified?	0% ○	0% ○	15% ○
14. Is a plan for communications included?	0% ○	67% ●	31% ●
Sub-total	3% ○	31% ●	19% ○
MONITORING AND REVIEW			
15. Is a clear process for monitoring and reviewing the travel plan included?	0% ○	71% ●	45% ●
Sub-total	0% ○	71% ●	45% ●
TOTAL	22% ●	69% ●	47% ●

○ = 0-20% ● = 21-40% ● = 41-60% ● = 61-80% ● = 81-100%