THE EFFECTIVENESS OF TRAVEL PLANS

Draft Final Report

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1. INTRODUCTION

1.1 Steer Davies Gleave was commissioned by JMP Consultants Ltd, on behalf of the TRICS Consortium, to undertake a study to:

- review the effectiveness of Travel Plans and to identify the characteristics that make an 'effective' Travel Plan;
- identify the information needed to quantify the effect that Travel Plans will have on mode of travel;
- formulate a mechanism whereby TRICS data can be qualified to take account of the effect of Travel Plans (if possible); and
- make recommendations regarding ways in which the TRICS system can be enhanced by incorporating Travel Plan effects.

1.2 The study stemmed from recognition that local authorities were increasingly requiring travel plans to be submitted alongside planning applications. However, within the TRICS database there is currently no formal recognition of the impact that a Travel Plan may have on mode split and, ultimately, on the total number of vehicles coming on to a site.

Study Methodology

1.3 Much research already exists regarding Travel Plans. However the quality of this research is variable, and much of the research is not UK-based. As a result, its applicability in the context of TRICS is open to debate.

1.4 The approach adopted for this study has been to review existing research and, based on this review, to make recommendations for a possible way forward for incorporating the effect of Travel Plans into the TRICS database. This research differs from other Travel Plan research projects in that it has sought to identify a common assessment method for understanding Travel Plan effectiveness.

1.5 The remainder of this report is structured as follows:

- Chapter 2 reviews the recent history of Travel Plans, and the reasons for their current importance;
- Chapter 3 presents a literature review, summarising the results of previous Travel Plan studies;
- Chapter 4 focuses on the results of the recent DFT Travel Plan research study carried out by Transport 2000;
- Chapter 5 presents the result of research carried out by Steer Davies Gleave on a number of Travel Plans which have not previously been reported elsewhere;
- Chapter 6 presents a discussion of the main findings from our research;
- Chapter 7 discusses different monitoring methodologies, and why it would be beneficial for a single standardised monitoring approach to be adopted;
- Chapter 8 presents a proposal for a standardised monitoring approach;
- Chapter 9 discusses Travel Plans in the context of development planning in the UK; and
- Chapter 10 presents our conclusions.

2. TRAVEL PLAN DEVELOPMENT – THE HISTORICAL CONTEXT

2.1 Travel Plans have evolved from Travel Demand Management Strategies (TDMS) which have been running for over 25 years in the US and for more than 15 years in the Netherlands. Like the UK, the reason for organisations in the Netherlands adopting Travel Plans stemmed from deteriorating traffic conditions. They are now seen as an important tool for addressing mobility, congestion and air quality concerns.

2.2 The concept of Travel Plans is therefore clearly not a new one. However, it is only in the past five or six years, following development of a Commuter Plan by Nottingham City/ Nottinghamshire County Councils, that interest in Travel Plans has increased significantly in the UK. There now exists a significant body of literature related to implementing Travel Plans and Best Practice Guidance. Additionally, in 1997 the National Association for Commuter Transport was established, dedicated to the promotion of sustainable transport, improved air quality and reduced car dependency through the encouragement of commuter Travel Planning.

2.3 Since 1998 the Government has promoted the voluntary take-up of Travel Plans by all major employers. Government Departments and Executive Agencies have been required to prepare Plans for all their headquarters and key buildings, whilst hospitals have been required to develop Plans as part of Controls Assurance. Some local authorities have set targets for Travel Plan take-up in their Local Transport Plans and increasingly local authorities are requiring organisations to submit Travel Plans alongside planning applications. Many authorities have officers dedicated to encouraging and assisting in development of workplace and School Travel Plans - 111 of these posts are funded via Central Government's bursary scheme. In addition, Central Government is also funding free Site Specific Advice for organisations developing Travel Plans, via the Energy Efficiency Best Practice Programme.

2.4 Research carried out by Steer Davies Gleave in early 2001[1] into the take-up of Travel Plans in the UK revealed the following:

2.5 24% of local authorities had developed a Travel Plan and a further 45% were in the process of developing one;

- 7% of businesses employing over 100 people had thought about implementing a Plan;
- 61% of hospitals had or were thinking about implementing a Plan; and
- 50% of Higher Education establishments had or were thinking about developing a Plan.

[1] Take-up and Effectiveness of Travel Plans and Travel Awareness Campaigns, DTLR, February 2001

Policy Guidance Encouraging Travel Plan Take-up

Planning Policy Guidance Note 13 Transport (2001)

2.6 The revised PPG13 published in 2001 placed much greater emphasis on Travel Plans than the previous PPG13 guidance published in 1994. PPG13 (2001) clearly recognises the role that Travel Plans can play in the delivery of sustainable transport objectives including:

- reductions in car use;
- increased use of walking, cycling and public transport;
- reduced traffic speeds and improved safety, particularly for pedestrians and cyclists; and
- more environmentally friendly delivery and freight movements.

2.7 The guidance identifies the following circumstances when it is appropriate for a local planning authority to require planning applications to be accompanied by a Travel Plan:

- for all major developments comprising jobs, shopping, leisure and services;
- for smaller developments comprising jobs, shopping, leisure and services which would generate significant amounts of travel in, or near to, air quality management areas, and in locations where there are local initiatives or targets set out in the development plan or Local Transport Plan, for the reduction of road traffic or the promotion of public transport, walking and cycling; and
- where a Travel Plan would help address a particular local traffic problem associated with a planning application, which might otherwise have to be refused on local traffic grounds.

Transport Assessments

2.8 PPG13 includes a requirement for a Transport Assessment to accompany planning applications for all developments that will have significant transport implications. Until recently, Traffic Impact Assessments were carried out to assess the impact of the development on traffic using the adjoining highway network. Transport Assessments provide a broader approach to assessing the traffic impacts than that previously undertaken. For major proposals, the assessment must give details of the proposed measures to improve access by public transport, walking and cycling, to reduce the need for parking and to mitigate transport impacts. Where appropriate, it will be expected that a Travel Plan will be prepared and included within the planning application documents. Guidance on the preparation of Transport Assessments is soon to be published by the Department for Transport (DfT).

8.6 In the case of the TRICS Consortium, the survey approach currently used for TRICS data collection is already very detailed. In this case, the challenge would be to adjust TRICS data collection procedures to enable efficient interrogation of Travel Plan related data.

8.7 Similarly, were the TRICS Consortium to become actively involved in surveying sites with Travel Plans, we would expect that the survey would be a very detailed one, consistent with the normal TRICS surveying procedure.

8.8 A standard approach should not prevent an organisation from customising its monitoring to suit its individual requirements or circumstances. Therefore, it makes sense to strictly limit the amount of 'standard monitoring' so that an individual organisation can add whatever customised monitoring they need.

Proposed Methodology

8.9 The method that we propose seeks to take account of the various conflicting demands on Travel Plans as outlined above.

8.10 There are four main elements to the proposed method. These are:

- the Key Questions;
- Timing/Frequency;
- the Background Data; and
- Travel Plan Measures Implemented.

Each of these is discussed below.

Key Questions

8.11 In deciding what the key questions should be, we have attempted to gain as much information out of the smallest number of questions. The questions have been selected as they should tell us the most important aspects of travel behaviour at a site, either with or without a Travel Plan and should be applicable to all types of site and all types of Travel Plan.

8.12 For the purpose of this document, the questions have been framed with the assumption that the survey was of a place of employment. However, with minor modification they could be used most at other types of site.

8.13 The key questions are:

- *For your journey to work, what was your main mode of travel – i.e. the mode in which you travelled the greater distance?*
- *If you drove to work today, how many passengers travelled with you?*
- *What was your final mode of travel when you arrived at the grounds (i.e. site boundary) of your place of work?*
- *If you drove to work today, where did you park – on-site or off-site?*

8.14 It is important to make the distinction between main and final modes of travel, as these may, in certain circumstances, be crucial to our understanding of travel behaviour. In many circumstances, the main and final modes will be identical. A person who drives to work and parks on-site will answer 'Car Driver' for both their main and final modes (the walk from the car park to the building entrance is ignored). However, a person who drives to work but must park off-site will enter 'Car Driver' as the main mode and 'Walk' as the final mode.

8.15 Alternatively, employees that travel to work in large cities may travel to work using a combination of modes – many employees travelling to Central London use a combination of car, mainline rail and underground rail as part of their regular journey to work. It is important that to achieve standard monitoring, the approach chosen takes account of these multi-modal trips.

8.16 A pro-forma standardised monitoring form is given in Appendix C.

Timing and Frequency

8.17 Whilst the timing and frequency of monitoring may vary from site to site, one important aspect – and one of the weakest aspects of existing monitoring arrangements – is the 'before' survey. Without a robust survey of travel behaviour prior to the implementation of the Plan (or for new developments, on occupation of the building), subsequent attempts to estimate the effectiveness of Travel Plans (or individual elements of Travel Plans) are seriously undermined.

8.18 Having carried out the survey of base conditions – a survey which should be based on the 'key questions' that we have recommended here – the frequency of subsequent monitoring would probably depend upon the timing of key milestones in the Travel Plan itself. Given that it can take time for Travel Plan measures to take effect, we would recommend that it would be sensible to wait at least 6 months after the implementation of any major Travel Plan measure before attempting to assess its effectiveness.

8.19 Overall, we would recommend that the timing and frequency of monitoring should have regard to the normal procedures that are used in transport-related surveys, for example:

- frequent monitoring will result in survey fatigue. It is therefore recommended that surveying should generally be limited to no more than once per year;
- where possible, monitoring should take place in neutral months. At the very least, school holidays and the week either side should be avoided;
- surveys should try to avoid Mondays and Fridays, as commuting patterns can differ on these days; and
- monitoring should take place at the same time of the year as the pre-Travel Plan survey.

Background Information

8.20 Whereas the 'key questions' concern individual employees, background information concerns the organisation for whom the Travel Plan is being conducted. It is important that this information is gathered every time that monitoring is undertaken – ultimately the number of journeys to work (and any mode split calculations) will depend upon the number of employees working at a site.

8.21 The background information is similar to data currently gathered for TRICS surveys. At a minimum, the following should be collected each time the survey is undertaken (again, this example assumes that the organisation is an employer):

- number of employees;
- location (e.g. town centre, edge of town, proximity to motorway junction etc.)
- number of bus services within walking distance of workplace and the frequency of these services;
- number of train/underground services within walking distance of workplace and the frequency of these services;
- hours of operation of site; and
- parking availability including, both in terms of on-site spaces and the availability of off-site parking.

Travel Plan Measures Implemented

8.22 It is also important to understand exactly what measures have been introduced as part of the Travel Plan. Typical Travel Plan measures, such as encouraging cycling, can be implemented in many different ways. At a basic level, this could simply involve providing cycle stands. However, a higher level of provision could include covered shelters, lockers, shower facilities and CCTV, for example. All other things being equal, we would expect that in the latter example a higher take-up of cycling will be observed.

8.23 This illustrates the difficulty with defining Travel Plan measures. When assessing a Plan, it is necessary to distinguish between a very limited level of provision and a more advanced level of provision.

8.24 Table 8.1 presents a list of the Travel Plan measures that are likely to be most effective in achieving mode shift based on research undertaken as part of this study. Within each measure we have presented two 'thresholds'. The first of these is a minimum level of provision in order for a Travel Plan to 'qualify' for having introduced that measure. The second level is a 'preferred' level of provision.

8.25 In order to simplify and standardise Travel Plan monitoring, we would recommend that information pertaining to Travel Plan measures should be categorised in accordance with the measures indicated in Table 8.1.

TABLE 8.1 TRAVEL PLAN MEASURES IMPLEMENTED - DEFINITIONS

Measure	How might location of organisation/ organisation type affect effectiveness?	Preferred level of provision	Minimum level of provision	Effectiveness
Car park management	Only likely to be successful where no alternative parking is available e.g. in a busy town centre with expensive public parking, or where the workplace is situated within a CPZ.	Lack of off-site/on-street parking or CPZ in surrounding streets. Limited availability of on-site parking spaces for staff and visitors. Parking permit eligibility restrictions. Charging for parking to a suitable level. Parking enforcement on-site and off-site.	Lack of off-site/on-street parking or CPZ in surrounding streets. Parking enforcement on-site and off-site.	**
Encouraging car sharing	Especially suited to 'isolated'/rural locations or locations poorly served by public transport. Especially suited to organisations with a high proportion of workers with arrival/departure times outside of normal public transport operation.	Computer-based facilitated car share matching system. Guaranteed Ride Home available free to staff. Priority parking spaces for car sharers close to building entrances.	Facilitated car share partner matching system. Guaranteed Ride Home available free to staff. Priority parking spaces for car sharers close to building entrances.	*
Encouraging cycling	Suitable for encouraging staff from within a catchment of 5 miles - suitable for organisations with a relatively high proportion of staff living within 5 miles. Limited transfer to cycling for organisations located in hilly areas.	Covered cycle racks close to building entrances. Sheffield stands (possibly even cycle lockers). Secure, locked compound. Well lit. CCTV. Shower and changing facilities. Large capacity locker provisions located close to changing/work areas. Supported by good network of cycle routes to the site and good signage (both on and off site)	Covered cycle racks close to building entrances. Sheffield stands. Well lit. Lockers provided	*
Financial incentives		Provision of financial incentives for choosing to use sustainable modes - £2 minimum per day but depends on area.		

Measure	How might location of organisation/ organisation type affect effectiveness?	Preferred level of provision	Minimum level of provision	Effectiveness
Encouraging use of public transport				
Waiting facilities (bus and rail)		Covered, high quality waiting facilities (shelter and seating) - clean and graffiti free within 400 metres of the site entrance for bus and 800 metres for rail (or provision of frequent shuttle to rail station). Provision of up to date, stop-specific timetable information.	Covered, high quality waiting facilities (shelter and seating) - clean and graffiti free within 400 metres of the site entrance for bus and 800 metres for rail (or provision of frequent shuttle to rail station). Provision of up to date, stop-specific timetable information	**
(Public) bus service improvements	Easier to implement in urban locations where existing public transport access is good.	Bus service improvements. Discounted ticketing (preferably at least 30%). High quality buses. Good information. Good publicity/awareness raising material. Provision of personalised journey planning information/public transport helpline. Safe, well lit pedestrian routes to bus stops within 400 metres of site	Bus service improvements. Good information. Good publicity/awareness raising material. Safe, well lit pedestrian routes to bus stops within 400 metres of site	**
Employer provided shuttle bus		Provision of employer provided shuttle bus directly serving areas where staff live OR local rail stations.		**

Encouraging Organisations to Adopt Standardised Monitoring

8.26 The elements of monitoring that we would consider essential to allow comparison between sites consist of four easy to understand questions, which we have referred to as 'key questions'. We have identified these as we would not expect that their incorporation into any monitoring programme would cause difficulties for Travel Plan Co-ordinators, regardless of their experience. However, it is important that the method and the reasons for monitoring in this way are explained as there would be cost implications from this proposal to some organisations. Firstly, we are suggesting that organisations should do a baseline survey when some currently do not. Secondly, we are suggesting that organisations should carry out regular monitoring of their plans, when many do not.

8.27 There are a number of ways in which standardised monitoring could be encouraged amongst organisations, depending upon the organisation concerned, and the reason for Plan development. In the case of 'Voluntary' Plans, we would expect that the majority of organisations developing a Plan would at some point liase with their Local Authority Travel Plan Coordinator. The Local Authority coordinator would be in a position to advise them of the form of monitoring appropriate to their needs. The Local Authority coordinator could therefore ensure that the key questions and background data are gathered whenever the organisation carries out a monitoring survey – although they would not be able to compel the organisation to monitor on a regular basis. The same would be true for those organisations that seek assistance through the Energy Efficiency Best Practice Programme with consulants on the Panel encouraging use of the standardised monitoring.

8.28 In the case of organisations that are developing a Travel Plan as part of a planning agreement, the Local Authority should compel an organisation to monitor in a certain way and to an agreed timetable. This could be achieved through imposing a condition on the planning permission. Ideally, the condition would be explicit in terms of the method of survey and the regularity of monitoring. Indeed, the condition could go as far as specifying that the organisation should have the survey carried out by an approved survey company. Alternatively, the Local Authority could ensure that the organisation sets aside a sum of money through a Section 106 agreement and that the Local Authority would undertake the survey.

Collection and Dissemination of Data

8.29 There is little purpose in having a standard approach to monitoring without also agreeing ways in which this data can be collected and accessed. At the moment, there are few obvious mechanisms for collecting and disseminating data of this nature in the UK. However, we believe that the TRICS database would certainly be suitable.

8.30 However, for this to happen (either through TRICS or through another platform), there are a number of issues that would need to be addressed, for example:

- Who will pay for its upkeep?
- Will access be controlled or restricted – will there be charges for use?
- In the case of existing database platforms – what re-programming will be necessary to allow efficient data selection?
- Specifically in the case of the TRICS database, would the new data be included in the main database or as a separate module?

9. TRAVEL PLANS AND DEVELOPMENT PLANNING

The Changing Role of Travel Plans

9.1 In the past, Travel Plans were generally developed on a voluntary basis by organisations that wished to reduce their own transport impact. Whilst it is still true that some organisations wish to introduce Travel Plans on a voluntary basis, it is increasingly the case that Travel Plans are being introduced because organisations are being compelled to do so.

9.2 As our review of transport policy (Chapter 3) points out, Travel Plans must accompany any major planning application and many smaller applications. In the past, this led to developers seizing upon Travel Plans as a means of justifying unrealistically low car mode split generation for their developments, as a means of easing their way through the planning process.

9.3 In response to this, Local Authorities began setting mode share targets for developers, and threatening financial penalties on developers who did not meet these targets.

9.4 Thus, whilst the main purpose of a Travel Plan remains unchanged – to reduce the negative transport impacts of a development - it is increasingly important for planners not only to be able to understand what measures make a good Travel Plan, but for them to be able to attempt to quantify these effects.

9.5 Ultimately, planning applications can be granted or refused on the basis of mode split assumptions – so it is important that developers and applicants are able to reach agreement about mode split assumptions.

Travel Plans and the TRICS Database

9.6 The TRICS database is a tool that is commonly used in development planning in relation to proposed new developments. Although the database has changed over the years both in terms of the range of data available and the user-friendliness of the system, the reasons for using TRICS have changed little – and the ways in which the database is used have not changed considerably either.

9.7 Probably the most common usage of TRICS is for development control – either by an applicant for a new development or by a planning authority which must test the transport case presented by the applicant. In both of these cases, the database will normally be used to derive appropriate trip rates in order to assess the likely trip generation characteristics of a proposed development.

9.8 The database has been developed in such a way as to enable it to be easily used. However, a clear distinction is drawn between the database and the user of the database. The user is entirely responsible for which data they use, how they use the data and the inferences that they draw from them.

9.9 Over time, the planning environment has changed, and the requirements of TRICS users have changed accordingly. One of the more important changes is the reduced emphasis on car trips, and the resulting requirement to assess trip generation for all visitors to a site, regardless of mode. This has led to TRICS commissioning multi-modal surveys to address this issue.

9.10 However, for the reasons discussed above, more and more planning applications will include a Travel Plan – and the possible effects of the Travel Plan will need to be quantified as part of that process. TRICS is currently able to give guidance on the mode split without the introduction of a Travel Plan, but unable to predict the impacts of a Plan. Appendix D discusses the role of TRICS and Travel Plans in more detail.

9.11 It is clear that the demand exists amongst development planners for a means of quantifying Travel Plan effects. This can only increase as Travel Plans become mandatory for more and more developments.

Travel Plan Targets

9.12 Throughout this report we have discussed the use of Travel Plan targets in the development planning system.

9.13 The setting of targets has, for a long time, been recognised as an important tool in developing a Travel Plan. However, when a target is set within the context of a Plan, it is set at an achievable level, and used as a means of keeping the momentum of a Travel Plan going. Thus, by setting modest targets, the successes of a Travel Plan can be highlighted.

9.14 However, when a Local Authority sets a Travel Plan target as part of a condition on a planning application (with financial penalties for non-compliance), it is not done with a view to the longer-term success of the Plan. Similarly, where a developer claims unrealistic mode split targets for their proposed development, this is not done in order to help the Travel Plan to succeed. Thus, setting targets in each case does not help the development of the Travel Plan.

9.15 Part of the reason why unrealistic targets are set is because, as we have already pointed out, there is little reliable information with which to benchmark Travel Plans and Travel Plan measures. Even if an ambitious monitoring programme were to start soon, it will be a few years before a large enough body of reliable information is available.

Accreditation

9.16 Furthermore, the question must be asked, how realistic are these targets? If they are based on existing Travel Plan research, then this study suggests that these targets could be unrealistic. Indeed, our research suggests that it could be many years before enough Travel Plans have been implemented and monitored in order for realistic targets to be set on this basis. Additionally, there is the issue that the mode split of a development can, in spite of a developer's best endeavours, be affected by many factors over which the developer has no control.

9.17 Thus, we would propose that rather than setting mode split targets, Local Authorities should set, as a target, that the developer should develop an "Accredited Travel Plan". A condition would then be set on the planning consent that there would be financial penalties should the developer not be able to achieve accreditation for their plan.

9.18 This leaves many questions unanswered, such as:

- What should an Accredited Travel Plan contain;
- What is the system by which a Travel Plan achieves accreditation; and
- What is the body that awards accreditation?

9.19 Whatever the mechanism, it seems likely that Travel Plan accreditation schemes are likely to be the next development in Travel Planning – and it is highly likely that a key requirement for accreditation will be that an effective monitoring programme is set in place.

10. CONCLUSIONS

10.1 From the outset, this study has had 2 main objectives. The first of these was to pull together all of the most important sources of Travel Plan research into a single document that could be referenced by transport and development planners. Thus, Chapters 2-6 of this report presents a summary of previous research, plus some additional new case studies which are reported here for the first time.

10.2 The second aim of this study was to assess the effectiveness of individual measures that are commonly adopted in Travel Plans. Having reviewed both UK and overseas research, we have come to the conclusion that it is not possible at present to provide a meaningful comparison of alternative Travel Plans and measures. The main reason for this is that Travel Plan monitoring arrangements, where they exist, are generally inconsistent. Travel Plans are also very site-specific, tending to defy directly comparable monitoring in all events.

10.3 This presents difficulties to everyone involved with Travel Plans and especially those involved in forecasting what their effects will be. Local Authorities and developers are restricted in their planning negotiations as neither really knows what it is reasonable for a Travel Plan to achieve. Travel Plan coordinators have little reliable evidence regarding what measures have been successful at other sites or whether results are transferable to their own locations.

10.4 There is a clear case in favour of monitoring and for monitoring in a consistent manner. Within this document we have presented a method by which this could be achieved. This method aims to collect as much information as possible through a small number of questions. We believe that this method could be used to monitor all types of Travel Plan easily and relatively cheaply.

10.5 The way in which standardised monitoring is promoted/encouraged is probably more important than the actual monitoring method. We have suggested some ways in which this could happen – standard monitoring could be encouraged through the Energy Efficiency Best Practice Programme, and Local Authorities can compel developers and others to implement standard monitoring programmes. However, is this enough?

10.6 We believe that the next stage in this process is for influential organisations/bodies to actively promote standardised Travel Plan monitoring. Specifically:

- For a standardised monitoring approach to actually become standard, the DfT should become involved. It would be particularly helpful if the DfT could produce a good practice guide;
- Does the TRICS consortium have a role to play in taking this forward? TRICS members would clearly benefit (indeed, as Travel Plans become more widely adopted, TRICS members will expect it), and the TRICS consortium could use its influence to push this forward;
- What other organisations have an influence in this area? They should be identified and contacted; and
- Ultimately, should we be moving towards a nationally recognised accreditation scheme for Travel Plans? It seems reasonable to assume that this would in itself encourage more monitoring to take place, were monitoring to be an essential component of accreditation.

APPENDIX A

Summary of Findings from DfT Study: 'Using the Planning Process to Secure Travel Plans'

A1.1 This Appendix summarises the key findings relevant to TRICS users from the 2002 DfT Research on *'Using the planning process to secure travel plans'*

A2. POLICY BACKGROUND

A2.1 The research outlined the policy context into which Travel Plans fit - and the current expectations of local authorities. It highlighted that although PPG13 sets out a basis for requiring and securing Travel Plans (see paragraph 1.7) there is no standard format or content for a Plan. Current local authority Travel Plan 'ideal content' requirements are sometimes set out in public planning documents. In summary they are:

- setting objectives and targets;
- measures to promote and facilitate public transport use, including physical works, shuttle buses to stations and financial incentives;
- measures to promote and facilitate walking and cycling;
- car parking restraint, charges and management;
- promotion of car sharing;
- promotion of practices and on-site facilities that reduce the need to travel;
- monitoring and review mechanisms;
- Travel Plan Co-ordinators; and
- travel information and marketing.

A3. TRAVEL PLANS AND TRANSPORT ASSESSMENTS

A3.1 In most cases a Travel Plan will be submitted alongside a Transport Assessment. The Transport Assessment will identify the transport implications of the proposal, taking into account factors such as:

- the extent to which the development raises policy issues;
- site characteristics;
- the scale, land use and other details of the proposed development;
- the accessibility of the site by different modes;
- the potential traffic impact without a Travel Plan;
- the potential creation of local parking and other problems; and
- the wider land use and transport context.

A3.2 Transport Assessments are important in determining the purpose of a Travel Plan in relation to a particular planning application. The Transport Assessment, carried out by the applicant where required, will identify how the Travel Plan can help address the impact of the proposed development. This will provide the applicant with the information necessary to initiate preparation of a Travel Plan.

A3.3 Best practice advice on Transport Assessment is due to be published in 2002. It will clarify the process for identifying the following through a predictive assessment of the catchment area and travel needs of projected users;

- the level of accessibility by different transport modes to the proposed development;
- the opportunities for improving accessibility by one or more sustainable modes;
- the generated travel and transport demands;

- the transport and other impacts of meeting these needs and demands; and
- the consequences of any means proposed for ameliorating adverse impacts.

Travel Plans for Speculative Development

A3.4 The Guide highlights the difficulties in securing Travel Plans for speculative development and multi-occupation. To accommodate these situations, it recommends that the following are taken into account:

- Travel Plans need to be dynamic and flexible over time, even though the planning systems secures them largely at one point in time;
- preparation of Travel Plans as currently perceived requires information about an occupier's employee travel patterns, which in speculative or phased developments may not be known at the time the planning application is determined – so a phased approach is needed; and
- some measures of Travel Plans depend on 'critical mass' to be realistically achieved, so means need to be devised to secure Travel Plans in all potentially related developments.

A3.5 In addition, the following legal considerations needs to be addressed:

- ensuring the adjustability of the Travel Plan over time where relevant e.g. as circumstances and occupiers change;
- taking account of the fact that Travel Plans may involve the help of third parties in achieving some measures or targets; and
- securing enforceability of the effective implementation of the Travel Plan.

A3.6 Although the travel characteristics of occupiers may not be known for speculative developments, there are many effective Travel Plan measures that may be justified without reference to the detailed travel patterns of the occupiers, including:

- controls on car parking;
- nomination of Travel Plan Co-ordinator or responsible person;
- provision of improved public transport, cycle and pedestrian facilities and services; and
- provision of shuttle buses.

A3.7 In the case of several occupiers or where a level of turnover of occupiers is anticipated, consideration might be given to the scope for an umbrella site Travel Plan (usually administered by a Travel Plan co-ordinator). Within this there could be subsidiary occupier Travel Plans, with each new / different occupier required to submit a separate Travel Plan. Potential occupiers need to be advised of the Travel Plan requirements, and research suggests that where this has been done the anticipated adverse commercial impact has not materialised. Effective multi-modal access to the site and low levels of congestion can help marketing and recruitment.

Time Frame

A3.8 The time frame surrounding the stages of the Travel Plan process and implementation of the components must be clear to a) ensure the Travel Plan is effective; b) allow both the local authority and applicant to have adequate resources in place to complete the process; and c) provide a basis for enforcement if necessary. Milestones that may be specified include:

- *Submission and approval of Travel Plan:* normally submitted with the planning application in the cases of known-end user. Where exceptions to this are justified (i.e. to reduce delay), submission of the Travel Plan prior to development commencing may be appropriate. Implementation of relevant Travel Plan measures prior to occupation is preferable to avoid the development of car-based commuting patterns. In cases of speculative development, an interim Travel Plan (i.e. including elements that are not dependent on staff / visitors surveys) should be submitted (as part of a final Travel Plan) for approval within six months of occupation.
- *Implementation of travel plan:* there are three approaches to this, depending on the overall strategy:
  1. Specify a timetable for implementation within the travel plan for each element, with reference to occupation; or
  2. Specify the date by which targets must be achieved, else sanctions are applied, providing an incentive to implement the Travel Plan; or
  3. With respect to speculative development, specify as above for approved elements, with remainder within three months of approval (or to approved timetable).
- *Maintenance of ongoing aspects of Travel Plan:* payments of money in planning obligation should be time limited and not be required in perpetuity. Non-financial planning obligations can, where appropriate, run with the occupation of the development.
- *Review of Travel Plan:* An annual review is suggested to maximise effectiveness and allow for modification by agreement where appropriate to respond to changing circumstances especially in complex situations.
- *Monitoring of outputs of Travel Plans:* specify date/period of first monitoring (could be the date for obtaining the base data) and subsequent dates/periods for monitoring. Monitoring generally should be undertaken for five years in complex applications, though this will depend on whether targets have been specified and what timescales are allowed to reach the targets (see below).
- *Travel Plan meets targets:* Specify when target must be achieved. A two-stage approach for modal split targets is suggested (both can have sanctions) with the first at three years and second at five years.
- *Remedial works/sanctions if the Travel Plan is not performing:* If remedial works (e.g. car parking controls, enhanced public transport, further works) are included, specify the timescale within which period these must be implemented. If payments have been specified in the event of non-achievement of the target/outcomes, specify when this payment must be made.

A4. TARGET SETTING AND MONITORING

A4.1 The term targets is used in relation to Travel Plans to cover any measurable aim that will be monitored and is considered by the local authority to be an important indicator of the Travel Plan's effectiveness. Vehicle trip reduction is a common target as is the observed level of car parking adjacent to the site (after introduction of restraints).

A4.2 As set out in PPG13 '*Travel Plans should have measurable outputs, which might relate to targets in the Local Transport Plan....*' Until targets have been developed for local areas, care must be taken in applying authority wide targets to specific applications although they are helpful indicators. Where a traffic reduction target has been set out in policy plans for a large geographic area (e.g. county) the same target should not automatically be used in respect of a single development as local transport characteristics may indicate that this target is under-ambitious, unrealistic and/or unachievable.

A4.3 Modal split or modal shift targets provide a basis for measuring the effectiveness of a Travel Plan in terms of its impact on the levels of actual travel modes used in accessing a development site. The former are better for speculative developments and the latter for existing occupiers. They both need to reflect the scope for improvement over the current situation, on a local basis. It is a measure of performance, not just the achievement of a physical measure. If selected carefully, their inclusion increases the potential for the Travel Plan being effective.

A4.4 Targets need to take account of individual site characteristics as well as policy, using whatever data is available (travel surveys, Census, TRICS) and also taking account of what is achieved on sites within the local area. Where applicants have undertaken a Transport Assessment, comprehensive and up-to-date information on local traffic and transport characteristics should be available to support targets.

A4.5 The science of setting targets is inexact and current practice has not yet been standardised in respect of key factors (e.g. timescales, indicators used) although technical guidance is available. The bulk of research and guidance is for setting targets and associated timescales in respect of single driver commuting, rather than for targets for increasing public transport use or other indicators. Therefore, employee car use per 100 employees may be a more useful indicator, especially where payments or other sanctions are an issue.

A4.6 The setting of targets may also be a victim of the confusion that may develop in negotiations between *modal share, modal split, modal shift, trip reduction* and other variations on possible indicators (such as vehicle movements per 100 employees), as well as inconsistencies in the use of percentages.

A4.7 Agreement of modal split or modal shift targets are often one of the most difficult areas of the Travel Plan negotiation in the planning process. The owner of the site is being asked to commit to achieving outcomes over which s/he does not have total control (in the sense that the actual choice of travel mode is made by employees or visitors). Furthermore, the owner may be faced with sanctions/payments if the modal split/ modal shift targets are not achieved within the specified timescale. If the planning process is to be effective, the setting of modal split or modal shift targets must be transparent, realistic and justified.

A4.8 The importance of the sustainability agenda in an area will also have a bearing – areas of high air pollution and congestion may place a higher priority on ensuring that Travel Plans achieve substantial car trip reduction. Also relevant is the planning authority's view on meeting targets for determining planning applications and on how to minimise delays and use of resources.

A5. MONITORING

A5.1 The Guide stresses the importance of monitoring and states that should there be any failure in achieving the agreed levels of implementation, the means should be available to enforce implementation. Suggested indicators for monitoring include vehicle trip reduction, SOV, change in mode split, levels of parking on site and levels of parking (from the development) in surrounding areas. The Guidance says that conditions and planning obligations need to include detail of monitoring requirements and arrangements, with emphasis on:

- clarity and consistency as to the indicator used;
- ensuring repeat surveys that are comparable;
- avoiding distorted figures;
- ability to relate cars parked to staff counts; and
- ways of verifying data.

A5.2 Monitoring information should seek to be objective, accurate, comparable, related to regular time periods and widely available. Monitoring information should ensure acquisition of all relevant data including numbers of on-site, car parking spaces and numbers in adjacent areas, and numbers of person-trips to/from site in SOV, by travel mode, by time of day and by journey purpose.

APPENDIX B

Summary of T2000 Case Studies

SUMMARY OF TRANSPORT 2000 CASE STUDIES

	Land Use/Sub Land Use	Location, background & budget (annual running costs)	Staff numbers	Measures	Achievements
Orange Point Temple	Telecommunications company/employment/office	City centre – relocation from edge of town to city centre. Site well served by public transport. £200,000 (for both sites) / £100 per employee	400 107 parking spaces	Strict parking permit policy (incl. allocated car share spaces) and needs-based permit allocation. Free parking. Monthly payment for those not given solo parking. GRH. Car share scheme. Showers, lockers, pool bikes, lockable cycle facilities with CCTV. Free half hourly Orange bus service connecting to other Bristol offices. Interest free loan on bus and train in addition to equipment for cyclists and walkers.	No. of cars per 100 employees dropped by two-thirds. 79% of staff drove to work in N Bristol compared with 27%, after the move. 38% are taking buses or trains, 13% are walking and 9% arrive by bike. (Even before their move, Orange had achieved a 12% reduction in car driving through introduction of a car share scheme and bus service improvements). 27 no of commuter cars arrive per 100 staff *Financial incentives and parking restrictions were the key factors for change.*
Agilent Technologies (formerly Hewlett Packard)	Employment/ Office	Isolated-location outside Edinburgh. Has a wide variety of facilities on site. Close to train station. £2,550 / £1.70 per employee	1,500 1,059 parking spaces	33% discount on rail tickets and development of better train services. Priority parking at prime locations for car share teams of three, and promotion through events, e-mails and to new employees. Cycle facility improvements – parking, shower and changing facilities. Free parking	Train use increased from 5% to 13% in two years. 12% of staff car share. No. of cars per 100 staff on site have dropped by approx 8 per 100 (from 71 to 63).
Buckinghamshire County Council	Employment/ Office	Close to Aylesbury town centre, all facilities are close to where staff works. Site well served by public transport £125,000 / £57 per employee	2,200 380 free car park spaces, 3,500 off – site charged spaces 0.5 mile away.	50% discount on all bus fares and 33% discount on Chiltern Rail travel (incl. leisure journeys). Improved access to timetables. Promoted walking with emphasis on health benefits. The cost of car have been highlighted, and parking restraint. Cycle parking improvements and provision of showers and lockers. Discounts with a local cycle shop. Car share scheme. Parking permit system – half of staff have free parking, others	Reduced driving to work by one-fifth – from 71% to 56%. Walking has increased from 11% of staff to nearly 17% over 3 years. Increase in bus use from 5.5% to 10% 56 commuter car arriving per 100 staff.

	Land Use/Sub Land Use	Location, background & budget (annual running costs)	Staff numbers	Measures	Achievements
		employee		can pay £2 per day on-site or £6.50 off site. Car sharers are exempt from charges.	
Bluewater Shopping Centre	Retail (Retail Park)	Out of town, and well served by public transport. £200,000 / £36	5,500 on-site (at peak times). 2,000 parking spaces	Worked with the public transport operators to improve services to the site. 'Pump primed' local bus services which later became commercially viable. Increased from 6 buses at peak hours to 50 now at peak hours. Train services were doubled from 4 till 8. Free shuttle service from train station to the shopping centre, simplified timetables and flexible discount on public transport for part time and full time staff. Recruited locally – new staff recruited from areas served by planned bus routes. New employees given £50 towards bus fares. On-site travel info. centre. Cycle link to the NCN was funded and cycle parking has increased. Lockers, showers and changing facilities installed. Two cycle shops offer repairs and some stores do car share schemes. Free parking	42% staff arrive by public transport. May 2000 – 56% of staff arrived by car (39% as drivers). 31 commuter cars per 100 arriving staff.
Egg	Employemt/ Business Park (Financial Services Call Centre)	Edge of city centre. Several facilities are provided on site. The site is behind the railway station and 0.5 mile from a park and ride. £80,500 / £27.84 per employee	880 on site at any one time 500 parking spaces	Free parking for car sharers. Parking costs 75p per day for others. Subsidise key shuttle service from the bus station to the site, and from the local P&R site. Shuttle bus runs from the business park to Derby centre every 12 mins.	Shuttle bus used by 14% of staff. Approx 26% of staff car share. 40% are paying car users. 53 commuter cars per 100 staff.
Derriford Hospital - Plymouth Hospitals NHS Trust	Health/ Hospital (district general)	Outer suburb. The site has some facilities for the employees	4,913 staff 1,353 parking	Bus passes subsidised by 65% - greater discounts for those giving up parking permits. Doubled no. of buses serving site and more direct services.	Parking permits issued suggest that cars coming on to site have reduced by one-third. An increase in bus use from 8% in 1995 to 15% in

	Land Use/Sub Land Use	Location, background & budget (annual running costs)	Staff numbers	Measures	Achievements
		employees. The site is well served by public transport due to changes after the implementation of the travel plan. £150,000 / £36 per employee	spaces	Parking permit scheme and staff parking costs 50p per day. A £250 cash-out for staff who return their parking permits Car share scheme with priority parking spaces closest to the hospital buildings.	2001. 6% arrive as car-shares. A decrease in car driver from 90% in the first travel survey to 54% in 2001. 54 commuter cars per 100 staff.
Pfizer	Industrial Pharmaceutical company	Rural. A variety of facilities are offered on site. The site is well served by public transport due to implementation of travel plan. £275,500 / £50 per employee	5,500 use site every day. 4,000 parking spaces	Contracts services from Stagecoach and subsidises service (23 buses now stop on site at peak times). Cheap fares are offered. Free shuttle bus links nearest town and the station Parking Cash Out Scheme (staff receive £2 pre tax for each day that they do not bring their car onto site), *was not implemented in the time of the second survey*, otherwise free parking. Staff commuting daily by rail eligible for 50% discount on Connex services. Car share scheme (no GRH) which has been well promoted. Changing rooms, lockers, showers and cycle storage. New cycle routes.	Car commuting cut by 9% over 3 years. In 1998 – 75 cars coming on to site per 100 employees. By 2001, this had fallen to 68. Shuttle bus is used by ~ 5% of the workforce. Bus use has increased from 6.5% in 1998 to 12% in 2001. Increase in car share from 17.5% to 20.5%
BP	Oil company	Edge of town. The site has a variety of facilities provided. Prior to travel plan the public transport was poor, has improved after the implementation of the travel plan. £475,000 / £226 per	2,100 on a daily basis. 1,600 parking spaces	Free shuttle to Feltham Station every 15 minutes. 14 buses stop on the site during peak hours, compared to none in 1998. A 20% discount on season ticket for BP staff. Better services to interchanges. A new off-road cycle way, new changing and shower facilities are being developed, including better marketing of cycle routes through newsletter and intranet travel website. All staff are entitled to a parking permit, and parking is free	Shuttle used by nearly 12% of staff every day, which has led to an increase in bus/train use from 4.5% in 1998 to 15% in 2001. An increase in bicycle use from 2.5% to 5% in the same period. 72 commuter cars per 100 staff.

	Land Use/Sub Land Use	Location, background & budget (annual running costs)	Staff numbers	Measures	Achievements
		employee			
Computer Associates	Business software company	Semi-rural area next to M4. The site has a variety of facilities. No public transport services. £276,200 / £325 per employee	800 825 parking spaces	Free shuttle bus to Slough bus station (close to rail station). Information about the service is included in induction literature and in a 'commuter centre'. Financial incentives - £150-£200 for staff travelling green 25 days in 6 months. Big events when the incentives were launched. Free parking	Shuttle used by 14% of staff 34% of staff signed up to car share, 12% to cycle, 7% to walk for 25 days in 6 months. 74 commuter cars per staff.
M&S Financial Services	Financial services company	Outskirts of Chester City. Some facilities are provided on site. The site is served by public transport at a moderate scale. £78,000 / £70.90 per employee	1,700 922 parking spaces	A good central matching scheme has been introduced, with staged incentives for those car sharing one or more days per week. It includes GRH, priority parking and a lot of information. A subsidised shuttle for staff running in lunchtime between the site and city centre for 25p return. A bus link has been provided from the local railway station. Free parking.	31% of staff car share on one day or more per week. Increase in walking, cycling and train use from less than 1% to 2-3% from 1998 to 1999. 83 commuter cars per 100 staff.
Addenbrookes NHS Trust	Health/ Hospital (with casualty)	Edge of town (Cambridge). The site has a shop and cafeteria and is served by 16 services per hour during weekdays. £205,000 / £41 per fulltime employee	4,977 fte 2,400 parking spaces for staff	On and off site cycle routes improvements. Improved cycling facilities in term of better parking, signing, interest free loan for cycling equipment and shower improvements. Promotional events. Pay as you go charge for staff parking (30p per day) 21 buses serve hospital in peak hour. P&R from nearby supermarket. Car share scheme. Improved bus/rail information to staff available from reception and internet. Car sharing has been encouraged through events, GRH, and priority parking.	1993-99 no. of staff travelling by car fell from 74% to 60%. Cycle use rose from 17 to 21% and bus use rose from 4% to 12%. 16% of staff regularly car share. 60 commuter cars per 100 staff.
Bristol University	University	Town centre and is well served both by facilities and public	4,177 staff, 1,070 parking	Introduced parking charge system related to salary – varies between 50p and £3.75 per day. 10% discount on bus services incl. an interest free loan on	Some 300 staff belong to 130 car share teams. Car use has dropped from 44 cars per staff to around 35 (a 35% reduction). Introduction of the

	Land Use/Sub Land Use	Location, background & budget (annual running costs)	Staff numbers	Measures	Achievements
		transport. £210,000 / £52.70 per employee	spaces	bus/train tickets. Free shuttle bus between University, hospital and station. Car sharers must share for at least 3 days a week to qualify for a guaranteed parking space Improved cycle facilities, 10% discount on cycle equipment, cycle training and cycle mileage allowance. New pedestrian crossings and improved street lighting and footway quality on site. A car share scheme incl GRH.	parking regime, together with increased charges were considered to be the most effective. 35 commuter cars per 100 staff.
AstraZeneca	Pharmaceutical company	Rural on the A34 with a range of facilities on site. Rather poorly served by public transport £455,000 / £108.33 per empoyee	4,200 3,277 parking spaces	Subsidised a number of cheap public bus services, significantly increasing services to site. This includes shuttle buses between the sites and Manchester Airport. In addition to improved infrastructure on site, and better information. A centrally co-ordinated computerised car sharing matching service. GRH, £5 vouchers to active car shares. The success has been to encourage people to share when they can instead of all the time-flexibility. Free parking	A reduction in car use from 90% in 1997 to 73.5% in 2001. 25% of staff are registered to car share, whilst 18% are actively sharing. Increase in bus use from 2% to 7% in the same period. 82 commuter cars per 100 staff.
Government Office for the East Midlands	Government organisation	Town centre (Nottingham) with good transport links and access to facilities. £10,224 / £42 per employee	245 staff 35 parking spaces	General bus service improvements led to GOEM focussing on awareness raising and marketing. Improved bus service brought about by a proactive local authority and commuter planners' club negotiating good partnerships working between the main public transport operators. A cross-office working group (GOFIF) is awareness to fitness and health issues. A series of walks have been arranged to promote walking for health, transport and leisure purposes. Less than 50% of staff are entitled to a parking permit, the rest is given on a lottery basis. Free parking.	1997-99, car use fell from 45 to 38%. Increase in bus use from 42% to 48% 38 commuter cars per 100 staff.

Nottingham City Hospital NHS Trust	Health/ Hospital	Edge of Nottingham with a range of facilities. Prior to 2001 no bus services entered the site, this has now changed to a service every 15 minutes £144,000 / £41 per employee	3,500 fte 1,200 car parking spaces	Buses come on to site every 15 mins (used to stop at edge of site). Bus shelter improvements, new fleet of low floor buses, better information. The new buses are of high quality. An intra site shuttle service. Staff parking charges - £55 p.a. Improvements on-site for cyclists and pedestrians incl. lighting improvements. Also, cycle storage, showers and changing facilities.	In three years, bus and train use has increased from 11% to 20%. Car sharing has increased from 2% to 11%. Sole car use has reduced from 72% to 55%. 61 commuter cars per 100 staff.
Stockley Park	Employment/ Business Park	Suburbs of West London, with a variety of facilities on site. The site is well served by public transport. £266,000 / £38.83 annual running costs per employee.	7,700, 6,000 parking spaces	'Pump primed' local bus services which later became commercially viable. The buses are of high quality and new quality stops have been built on the site. A discount of 70% on the Heathrow Express for a monthly ticket. Cycle access to site is very good and improvements have been carried out to the cycle route. Bikes are available for a months free loan. Free parking.	Decrease in car use from 88% to 84% (these numbers also include car shares). An increase in public transport from 10% to 12%, and an increase in cycling from 1% to 2% in the period from 1997 to 1999. 84 commuter cars per 100 staff.
Vodafone	Telecommunications company	Centre of Newbury, outskirts and Theale, and has access to a vide range of facilities. No bus services were provided prior to the travel plan, this has now rose to 10 buses put into service. £2,326,000 / £430.74 per employee	5,400 3,354 (Newbury) and 706 (Theale) parking spaces New parking availability will be 1,500 including visitors.	Financial incentives: Staff who walk, cycle or use public transport receive £85 a month. Car sharers receive £42.50 per month. 10 Vodafone buses have been put into service which links the sites to the railway stations. Free parking.	A decrease in arrival by car by 82.5% in 1998 to 73% in 2001. An increase in bus use from 0.5% to 4%, train use 1% to 3.5% and increase in walking from 8% to 10% in the same period. 75 commuter cars per 100 staff.

Wycombe DC	Employment	Town centre location, close to facilities, bus and train station. £3,000 / £6 per employee	502 180 parking spaces, but a number of car parks fairly close by	Staff who forego a parking permit receive £120 towards an annual bus season ticket. On a typical day, 8% of staff work at home after promotion of home working hours, flexi hours and use of area offices when appropriate. Cycle facilities have been improved, including more parking, changing and shower facilities. Free parking.	A decrease in car travel from 77% to 65% from 1998 to 1999. Increase in cycle use from 1% to 4% 65 commuter cars per 100 staff.
Boots Company	Pharmaceutical company	Suburban location, with numerous facilities for staff. The site is fairly well served by public transport £325,000 / £43	7,500 4,250 parking spaces	Have a centrally co-ordinated car share scheme, GRH, £10 voucher incentive to join and 130 dedicated parking. High quality on-site walking and cycling facilities which are improved every year. All staff are entitled to a parking permit, and the parking is free	A reduction in car use from 70% in 1995 to 62% in 1999. 12% of staff have currently joined the car sharing scheme, with 8% actively sharing. 62 commuter cars per 100 staff.
Oxford Radcliffe Hospitals NHS Trust	Health sector	Suburban location with several facilities. The sites are well served by public transport. £142,500 / £22 per employee	9,000 2,700 parking spaces	A parking charge has been introduced of £20 per year, together with a tighter restriction of who are entitled to parking. Access for cyclists are reasonably good, with designated cycle paths along the main routes. Both sites are well served by buses, and a discount is available for staff on season tickets. A free shuttle service run between the sites in Headington and the Radcliffe Infirmary which is located in the city centre.	Both sites have a decrease in car driver alone from 58.5% in 2000 to 54% in 2001 (JR) and from 67% to 63% (Churchill) in the same period. Increase in bus use from 7.5% to 9% (JR), whilst walking increased from 12.5% to 14.5% (JR) An increase in cycling from 7% to 11% (Churchill) in the same period. 54 commuter cars per 100 staff.

APPENDIX C

Monitoring Pro-Forma

MONITORING SURVEY - DATE 2003

Interviewer name: ..... **Interview location:**.....

Time	Reason for Visit:	Main Mode used to travel to site	Final Mode used to travel to site	If Car Driver or Car Share, number of people in car (including driver)?	If Car Driver or Car Share, where did you park?
	Staff: 1 Visitor: 2 Delivery: 3	Car driver: 1 Car passenger (car share): 2 Car passenger (dropped off): 3 Bus: 4 Train: 5 Employer's Bus: 6 Cycle: 7 Walk: 8 Taxi: 9 Other (specify)	Car driver: 1 Car passenger (car share): 2 Car passenger (dropped off): 3 Bus: 4 Train: 5 Employer's Bus: 6 Cycle: 7 Walk: 8 Taxi: 9 Other (specify)		Staff car park – 1 Visitors car park – 2 On street – 3

APPENDIX D

TRICS and Travel Plans

D1. INTRODUCTION

Background

D1.1 Steer Davies Gleave was commissioned to undertake a review of the effectiveness of Travel Plans in encouraging the use of non-car modes for both staff and visitors across a range of land uses, and to identify how the TRICS database could be enhanced to accommodate the effect that Travel Plans may have on car trip generation. Within the TRICS database there is currently no formal recognition of the impact that a Travel Plan may have on mode split.

D1.2 In our inception report we identified a series of Technical Notes that would be produced throughout this study. This note presents our analysis of the current operation of the database and the data contained within it.

D1.3 There are 4 further sections to this report. Chapter 2 discusses the structure of the database, and the data contained within it. Chapter 3 discusses how the database is used, and the need to address Travel Plans within it. Chapter 4 discusses some alternative means by which Travel Plans could be incorporated into the database. Chapter 5 presents our conclusions.

D2. STRUCTURE OF TRICS

Introduction

D2.1 We understand that at the time of writing the database is in the process of being revised, and that the new database will allow much more sophisticated interrogation of the data than the current version (version 4.7). Consequently, we have kept our discussion of the existing workings of the database brief, as they will soon be superseded. However, we do not expect that the more fundamental aspects of the database will change in the short term, and that manipulation of the data will be done in a broadly similar manner to the current methodology.

Structure

D2.2 The TRICS database provides information derived from surveys of a number of different land-uses throughout the country. The database has steadily evolved in size and complexity, and currently contains data split over 16 land uses, the majority of which are divided into numerous sub-land uses.

D2.3 The data can be accessed in two main ways. Either directly, where the user simply accesses the tabulated count data for the site (including a large volume of supplementary information describing the site and the survey) or through calculation of a trip rate, where a number of sites are combined depending upon certain user-specified criteria. Figure D2.1 illustrates the structure of TRICS, and includes the main and optional parameters utilised by TRICS in the trip rate calculation procedure.

D2.4 There are, additionally, a number of library reports available through the TRICS database.

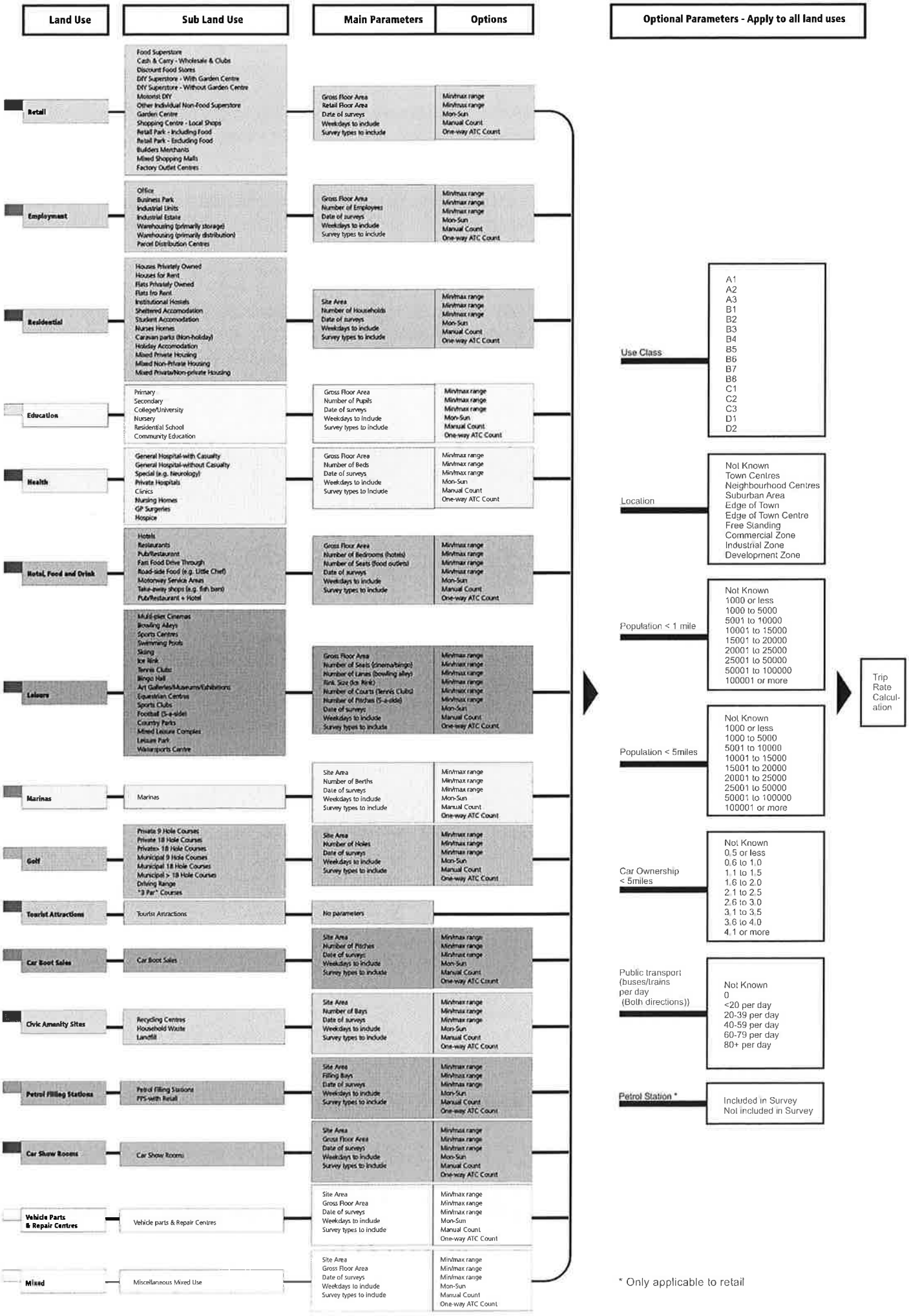
Data

D2.5 TRICS data has changed in many ways throughout the development of database. The most obvious change is the amount of data, and the geographical coverage of the data.

D2.6 However, as the database has grown, so have user's demands for more a more specific forms of categorisation and site selection. Thus, whilst the core information collected remains much the same, (counts of vehicles entering and leaving a development) the number of sub-land uses have increased in number, as have the possible search criteria. Thus, there are now a total 92 sub-land uses within the database.

D2.7 In recent years, the data collection programme has increasingly included multi-modal surveys, the first multi-modal surveys being included in TRICS 4.5. In the data collection phase for the most recent version of TRICS (version 4.7), a total of 171 new surveys were carried out, 43 (36%) of which were multi-modal.

Figure D2.1: Structure of TRICS Database



D3. HOW AND WHY IS TRICS USED

Introduction

D3.1 Clearly, incorporating a new type of data into the database could create difficulties – otherwise, we can assume that Travel Plans would already have been incorporated into the database (by some means). Thus, before deciding how Travel Plans could be addressed by the TRICS database it is worthwhile to consider whether it would offer value to existing or new TRICS users to include Travel Plans in the database. This chapter discusses how TRICS is used at present and discusses whether it would be worthwhile to incorporate Travel Plans into the database.

Who Uses TRICS

D3.2 The initial users of TRICS was a consortium of county councils from S. England, who recognised that there was a need for a way of accessing the large body of traffic count data that they had collected between them. It was recognised that the data would be most suitably compiled and accessed through a database. This has since grown into the TRICS database.

D3.3 The initial users were primarily concerned with issues of development control – thus the database was used as a means of assessing the assumptions of developers and their consultants. The database is now used by both applicant and planning authority – some 200 organisations are currently members. Indeed, the database is often used outside the realms of development planning – it is commonly used as a convenient way to estimate future trip demand from matrix cells in a traffic model, for example.

How is TRICS Used

D3.4 Although the database has improved over the years both in terms of the range of data available and the user-friendliness of the system, the reasons for using TRICS have changed little – and the ways in which the database is used have not changed considerably either.

D3.5 Probably the most common usage of TRICS is for development control – either by an applicant for a new development or by a planning authority which must test the transport case presented by the applicant. In both of these cases, the database will normally be used to derive appropriate trip rates in order to assess the likely trip generation characteristics of a proposed development.

D3.6 The database has been developed in such a way as to enable it to be easily used. However, a clear distinction is drawn between the database and the user of the database. The user is entirely responsible for which data they use, how they use the data and the inferences that they draw from them.

D3.7 Over time, the planning environment has changed, and the requirements of TRICS users have changed accordingly. One of the more important changes is the reduced emphasis on car trips, and the resulting requirement to assess trip generation for all visitors to a site, regardless of mode. This has led to TRICS commissioning multi-modal surveys to address this issue.

The Need to Address Travel Plans

D3.8 Travel Plans have becoming an increasingly important tool in development planning, to the extent that many large planning applications must be accompanied by one. This is particularly so for employment related land-uses.

D3.9 In recent years, many developers have seized upon the Travel Plan concept as a means of justifying low car mode split assumptions. Many of the mode split assumptions which have justified by a Travel Plan have been ambitious at best. Often they have been poorly justified, and developers have not delivered the Travel Plan that they promised.

D3.10 In response to this, planning authorities have attempted to make developers properly justify their claims, and some authorities view developer's Travel Plan proposals with some scepticism.

D3.11 In reality, this situation is difficult for both local authority and developer. There are no clear benchmarks against which to compare Travel Plans generally. Furthermore, it is generally acknowledged that certain elements of Travel Plans tend to have a higher impact upon the success of the Travel Plan (where success in this context is a reduction in car mode split).

D3.12 Thus, there is a clear need to clarify and quantify the effectiveness of Travel Plans. In addition, there is a need to identify which Travel Plan elements are more effective than others.

D4. INCORPORATING TRAVEL PLANS INTO TRICS

D4.1 There are a number of ways that this can be achieved, each with its own advantages and disadvantages. However, broadly speaking, they fall into two categories – data provision or predictive modelling.

D4.2 We have given some consideration as to the relative advantages and disadvantages of each. At a later stage in this study - when our analysis of Travel Plan data is further progressed – we will be in a better position to comment upon the means by which this can be achieved.

Data Provision

D4.3 In its simplest form, the most obvious way to include Travel Plans into the database is to conduct surveys at sites with Travel Plans and then to incorporate these into the database in a simple read-only format. Thus, the data would be provided, but would not be used by the program to carry out trip rate calculations.

D4.4 Probably the simplest way to incorporate the data would be by reporting a series of case studies. The particular strength of this methodology is that it would not be necessary to ensure that all survey data included in the database was in a standard format. Therefore, it would be possible to include data from studies elsewhere (subject to receiving the consent of the organisation sponsoring the survey).

D4.5 This methodology would provide database users with data on which to base predictions. Most importantly, this methodology could achieve this within a relatively short time-frame – indeed, the literature review which Steer Davies Gleave is carrying out as part of this study would be a useful starting point.

D4.6 The obvious advantage of this methodology is that it would be relatively inexpensive. The data gathered as part of this study could provide some base data, and yearly updates/additions to the data could be achieved by monitoring Travel Plan-related conferences, and sending information requests to organisations presenting Travel Plan results at these conferences. Ultimately, if this approach was continued over a period of years the database could become the primary source for those seeking Travel Plan data.

D4.7 The most obvious disadvantage of this approach, however, is that the TRICS database would simply be presenting data that had been gathered elsewhere – but would not be adding value to that data. Also, as the data will be reported upon in a non-standard format, a considerable amount of interpretation will be necessary on behalf of the end user.

D4.8 An extension to the above methodology would be for TRICS to collect and present the data in some form of standardised format. This would make it easier for the user to manipulate the data, as the data would appear in standard formats and data fields. This alone would add value to the data, particularly over time, as the volume of data in the database increased.

D5. CONCLUSIONS

D5.1 We have briefly reviewed the TRICS database, and how it is commonly used. We have reviewed this in the context of the changes in transport/development planning in recent years. Our overall conclusion from this is that it is certainly desirable for the TRICS database to be modified in some way to take account of Travel Plans and their potential impacts.

D5.2 We have reviewed the means by which this could be carried out. We have found that the more sophisticated the means by which TRICS addresses Travel Plans, the more data will be required. This will have two main implications:

- High data collection costs; and
- Possible problems collecting sufficient data.

D5.3 It is likely that many TRICS users would wish the database to incorporate some means of predicting the effects of Travel Plans. We feel that this may be possible, but only at considerable expense. We also believe that it will be extremely important in any future development of the database to consider the possibility that database findings may be challenged in a Public Inquiry.

D5.4 Both of the above assume that the data which the database uses is data that is largely collected by others. The next logical extension to this would be for TRICS to specifically commission surveys, with the intention of simply presenting the surveys within the database (for analysis, manipulation and interpretation by the end user). The main advantage of this is that it would be possible for TRICS to specify the format of the questionnaire, to ensure that all possible Travel Plan elements were investigated.

D5.5 However, this would involve a significant step-up in expense. The survey that would be required would be similar to the existing multi-modal surveys, but with additional Travel Plan related information – thus, the surveys would inevitably be more expensive than the existing multi-modal surveys. If we assume that the annual survey budget is fixed, this will mean that fewer new surveys could be carried out every year.

D5.6 A useful approach here could be to approach organisations with a Travel Plan in place and offer to help them with their monitoring programme. This would ensure cooperation from the organisation, and would also avoid the possibility of re-surveying an organisation too often.

Predictive Model

D5.7 Whilst the existing TRICS database is often used simply as a library of data, it is also used to predict trip rates. There is no doubt that if the effects of Travel Plans could be introduced into this calculation, many TRICS users would find this beneficial. This could be achieved in a number of ways – although probably the most useful would be a model where trip rates for different type of development could be adjusted to reflect particular elements of a Travel Plan.

D5.8 An example of this would be if, as part of a planning application, a developer committed to appointing a Travel Plan co-ordinator, they could claim an x% reduction in car mode split generated by their development. If they committed to cycle lockers and shower facilities, they could claim a y% reduction. If they committed to both, they could claim a reduction equivalent to some function of x% and y%, and so on.

D5.9 Whilst this seems to be the ideal solution, it has a major limitation – it will require considerable data collection.

D5.10 We have not attempted to establish the number of organisations that would need to be surveyed in order to derive some form of statistically significant sample. However, the number could be significant, as there is likely to be considerable variation in the characteristics of the sites surveyed.

D5.11 Not only will there be variation in the sites surveyed, but there will be variation in the Travel Plans themselves, and the proposals within them. Furthermore, there will also be variation in the effectiveness of individual elements of the Travel Plans – the Travel Plan co-ordinator at one site may be more pro-active than at another, or the degree of management participation could vary considerably.

D5.12 Additionally, the actual number of organisations which could be surveyed would be limited to fairly large ones. This would be necessary as the marginal impacts of certain

Travel Plan elements is likely to be so small that we could only use them with certainty if they were derived from a large sample.

D5.13 The scale of the data collection exercise will also depend upon the number of land uses which are addressed. Clearly, workplaces would be a major focus of the research. However, a number of hospitals and educational establishments are developing plans. Clearly, research carried out on the effectiveness of an office Travel Plan will have limited relevance to an educational establishment, and vice versa. Thus, it would be necessary to carry out a statistically significant number of surveys in several different land uses.

D5.14 Clearly, the data collection cost is an important consideration here. However, another consideration that should not be ignored – do sufficient detailed Travel Plans exist in order to allow us to achieve statistically significant samples?

Transparency of Results

D5.15 Earlier in this report we referred to how the user of the database is responsible for whatever inferences that they draw from TRICS data. Given that TRICS data has been frequently presented as evidence in Public Inquiries, the distinction between the role of supplier/provider of the data and the end user is extremely important.

D5.16 The other important aspect of TRICS is that it is extremely transparent – it does not carry out any calculations which cannot be easily verified, and the methodology by which it calculates trip rates is a standard, accepted methodology.

D5.17 Introducing a predictive element to TRICS could potentially change the relationship between the database and the user. To make the database operate in this manner may require considerable statistical analysis, and in so doing, make it more difficult for the user to independently verify the predictions made by the database.

D5.18 Furthermore, if predictions are made by the database, it is likely that at some point these may be examined in a Public Inquiry. Any predictive modelling which is incorporated into the database will need to be robust enough to withstand detailed scrutiny. Thus, any decisions made regarding the size of sample necessary to allow predictive modelling will need to be justifiable.

APPENDIX E

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3. LITERATURE REVIEW

3.1 An important initial part of this study involved a review of previous research that had looked at the effectiveness of Travel Plans in achieving modal shift. Until 2002, most of this research had been based upon experience in the US and the Netherlands, where implementation of Travel Plans was more advanced than in the UK. The first major research into Travel Plan effectiveness in the UK, commissioned by DfT, reported in August 2002. This section provides an overview of the main findings from the literature reviewed.

The Impact of Travel Plans on Modal Split – Results from Previous Studies

1994 Research – US Experience

3.2 One of the early studies on Travel Plan effectiveness (COMSIS Corp, 1994) reported the results of the Transit Co-operative Research Program, funded by US Department of Transport.[2] This unpublished working paper was based on the results of a sample of 49 employers, all of whose Travel Plans were considered 'exemplary'. The study highlighted a link between the type of measures employed and the level of trip reduction, with Plans incorporating only 'basic' measures having less impact than those incorporating financial incentives or disincentives. The research used vehicle trips as its indicator and concluded that the percentage reduction in vehicle trips arriving at the workplace was:

- Zero for employers whose Travel Plans consisted only of information;
- 8.5% for those using alternatives e.g. van pools, car share;
- 16.4% for those providing financial incentives; and
- 25.4% for those organisations who, as well as providing financial incentives, also provided additional services.

3.3 Given that the employers selected for the research were considered 'exemplary', it is likely that mode shift experienced would be higher than in organisations that are less committed to Plan implementation.

3.4 The study concluded[3] that trip reduction rates were related to site conditions, with the following factors highlighted:

- sites with scarce parking had four times the vehicle trip reduction rate of sites with ample parking;
- there was a positive correlation between vehicle trip reduction and public transport accessibility;
- employers with significant services such as food or banking on or near the site had four times the vehicle trip reduction of isolated sites without on-site services;

[2] As reported in 'The Potential for Further Changes to the Personal Taxation Regime to Encourage Modal Shift', DTLR, 2001

[3] As reported in 'Making Travel plans work – lessons from UK case studies', DfT, 2002.

- the most effective programmes were located in suburban central business districts or the regional central business district fringe, not in more isolated suburban settings. However, a separate study, by LK Nozick et al (reported in DfT's *'Making Travel Plans work'*) came to a different conclusion that the location of the work site is not a significant factor;
- Plans which had run for longer had greater impacts;
- Plans initiated in response to a mandatory requirement showed a reduction in car use three and a half times higher than those initiated in a voluntary environment;
- there was no positive correlation between the size of the employer and the trip reduction; and
- there was no positive correlation between the annual budget of the programme and the size of the trip reduction.

1996 Research – US and Netherlands

3.5 A study by Schreffler and Organisational Coaching (1996)[4] looked at 20 sites in the Netherlands and US (10 per country) that were considered to be leaders in the field of Travel Planning. Again, given that the organisations selected were 'leaders', levels of trip reduction are probably higher than might be expected generally:

- basic measures – 14.2% reduction in vehicle trips;
- financial incentives – 18.9% reduction in vehicle trips; and
- incentives and disincentives – 29.2% (the highest single reduction being a 40%) reduction in vehicle trips).

3.6 This research was further reviewed in the 2002 DfT research[5] which revealed a range of vehicle trip reduction rates for US programmes, from 6.4% to 49.4% with an average reduction of 19%. The Netherlands revealed reductions between 6% and 32%, with an average of 19.9% trip reduction. The research found that the highest performing employers were located in town centres or in urban locations with good access to all modes, especially public transport. In contrast to other studies, this study also identified that the highest performing plans tended to be those with higher average costs per employee.

1998 Research – The Netherlands

3.7 Another significant study of the effectiveness of Travel Plan measures was by Ligtermoet, (1998). This was reviewed as a part of the 2001 DTLR study on personal tax and modal shift[6]. Ligtermoet's study reviewed Travel Plans in the Randstad of the Netherlands and again found a correlation between their effectiveness in achieving modal shift and the presence of direct financial incentives and disincentives. Solo car use was used as the indicator of effect, with data showing an average reduction in single occupant car commuting of:

[4] As reported in 'Planning for Mode Share in New Development', Scottish Executive, July 2001

[5] As reported in 'Making travel plans work – research report', Department for Transport, July 2002

[6] As reported in 'The Potential for Further Changes to the Personal Taxation Regime to Encourage Modal Shift', DTLR, 2001

- 5% for Plans consisting mainly of car sharing;
- 8% for Plans incorporating financial incentives to use alternative modes; and
- 15% for Plans that included financial disincentives to car use.

3.8 Ligtermoet's 1998 study was also reviewed in a Scottish Executive Study on Planning for Mode Share in New Development[7], which provided further detail on the research. Ligtermoet based his work on previous Dutch studies as well as on his own 40 case studies. Ligtermoet's conclusions on the impact of Travel Plans on trip reduction (using vehicle kilometres as the indicator, as is common in the Netherlands) were that:

- a plan with basic measures could achieve a reduction of 6-8% in vehicle km; and
- a plan with 'luxury' measures and/or disincentives could achieve a 15-20% reduction.

3.9 However, Ligtermoet went on to say that based on only his own 40 case studies, reductions in vehicle km were somewhat larger; 10% for basic measures and 23.3% for 'luxury' Plans.

3.10 Ligtermoet (1998) and Schreffler (1998) concluded that Travel Plans based solely on car sharing but without any disincentives achieve only a modest change in mode shift, whilst a Plan that combines incentives and disincentives is a much more potent measure, and can achieve greater change.

1999 Research – The Netherlands

3.11 A comprehensive database system for monitoring the implementation of Travel Plans (ReMOVE) has been developed in the Netherlands. This includes some 70 measures that can be taken to promote Travel Plans (not all relevant to the UK as some relate to the taxation regime in the Netherlands). Touwen (1999)[8] categorised these into 5 groups:

- communication/marketing measures;
- basic measures such as car sharing, cycle leasing;
- organisational measures such as flexi-time;
- luxury measures such as company buses that are costly; and
- disincentives, principally parking management.

3.12 The first three bullets were reported as having achieved an average reduction of 8% of km travelled by employees, whilst those consisting of all of the measures achieved 20% reductions. When considering vehicle kilometre reductions in the context of impact on mode split, caution needs to be applied however. For instance, a long distance driver switching to rail can have a big effect on vehicle kilometre reductions, but a small impact on overall mode split.

[7] As reported in planning for Mode Share in New Development, Scottish Executive, July 2001

[8] As reported in planning for Mode Share in New Development, Scottish Executive, July 2001

2001 Research – Conclusions Drawn Based on the Above Studies

3.13 A number of studies in 2001 considered the results of the studies described above and drew their own conclusions as to the impact that Travel Plans might have on mode split. *'Planning for Mode Share in New Development'* (Scottish Executive), which also looked at a very limited number of case studies in Scotland, concluded that:

- a Travel Plan containing only marketing and promotion is unlikely to achieve any modal shift;
- a Plan with car sharing and cycling measures may achieve a 5-8% reduction in drive-alone commuting;
- a Plan with the above measures plus large (30+%) discounts on public transport plus works buses will achieve around a 15% reduction in drive-alone commuting; and
- a combination of all of the above measures plus disincentives to car use can achieve a larger (20%+) reduction in drive-alone commuting.

3.14 The study included development of a scoring system for the likely level of car trip reduction that could be achieved with different Travel Plan measures at a site, 1 being the lowest score and 5 the highest (see Table 3.1). It should be emphasised again that this was based only on limited empirical evidence from US, Netherlands and Scotland.

TABLE 3.1 TRIP REDUCTION MEASURES

Measure	Score
Major new public transport infrastructure	3
Minor new infrastructure e.g. bus stops, cycle racks	1
1-2 new or enhanced public transport services	2
More than 2 new or enhanced public transport services	2
Reductions in prices of public transport services by 30% or more	3
Restrictions on effective parking availability	5
Annual budget for measures per employee or (retail/leisure) 50m GFA:	
Not stated	0
<£10	1
£20-£50	2
£50-£100	3
>£100	4
Promotional activities e.g. Green Transport Week	1
Consultation with staff	2
Public transport information	1
Car sharing scheme:	
Paper-based (notice boards)	1
Computer access and self-registration	2

3.15 The report went on to state that the level of trip reduction could be expressed in terms of a percentage reduction in single occupant car travel. At less urban sites, the final level of drive alone trips will always be higher than at more urban sites, even if the same proportionate amount of trip reduction is achieved. The scores and resultant levels of single occupant trip reduction were identified as follows:

- for a score of 8 or less – 3% to 5% reduction;
- for a score between 8 and 16 – 5% to 10% reduction; and
- for a score of 16 and above which MUST include parking restrictions – 10% to 15% reduction.

3.16 The report stressed that the scores were not prescriptive but intended as a guide only, to be adjusted according to local circumstances. The report also went on to say that higher levels of trip reduction may be achievable, but the sponsoring organisation should be able to demonstrate exceptional commitment to the measures. Examples of exceptional commitment were:

- very high levels of funding;
- senior managers prepared to lead by example by giving up reserved parking spaces and changing mode; and
- support from the organisation for a network of bus services to serve the development, coupled with fare reductions of at least 30%.

2001 Research – DfT Travel Plan Evaluation Tool

3.17 The DfT commissioned WS Atkins to undertake an evaluation of Government Department Travel Plans (second tranche), building on the evaluation framework developed by Steer Davies Gleave as part of their assessment of the first tranche of Plans (1999-00). An output of the Atkins study was the development of a 'Travel Plan Evaluation Tool', primarily designed to assess Travel Plan documents.

3.18 Since that study the Evaluation Tool has been further refined and has been made publicly available via the DfT website. The Evaluation Tool predicts mode split in the following ranges:

- 0 to 5% reduction in Single Occupancy Vehicle trips;
- 5 to 10% reduction in Single Occupancy Vehicle trips; and
- 10 to 30% reduction in Single Occupancy Vehicle trips.

3.19 Bearing in mind that the Tool is designed to assess Travel Plan documents, aspects of the plan are awarded points on a weighted system:

- the plans and measures proposed (250 points);
- monitoring, specific targets (100 each);
- marketing, travel survey, process, implementation, travel plan co-ordinator (all 80);
- management support (75);
- motivations (50);
- details of site/organisation (20);
- external audit (10);
- literature referenced (10); and
- Plan's format (10).

3.20 Guidance has been produced to accompany the Evaluation Tool and assumes the viewpoint that the most important measure of a Travel Plan's success is its outcome i.e. its effect on employee travel behaviour for trips to, from and during the course of work and also, where appropriate, trips by visitors etc. But, it recognises that the process is also important to help predict outcomes.

3.21 This Guidance states that changes in travel behaviour can be assessed in terms of:

- changes in vehicle numbers entering a site;
- changes in average vehicle occupancy;
- percentage reduction in staff driving alone to work;
- percentage increase in use of other modes; and
- changes in vehicle km and from that, changes in emissions.

3.22 The Guidance states that to achieve a reduction in car use of more than 5% over a three to five year period will require more than just 'basic' measures. A higher level of reduction may be achievable but the developer should be able to demonstrate 'exceptional' commitment to the measures. Examples of 'exceptional' commitment (clearly based on the Scottish Executive Guidance as detailed above) are cited as being:

- very high levels of funding (more than £200 per employee per year);
- senior managers prepared to lead by example, for example giving up reserved parking spaces and changing mode; and
- support from the developer or organisation for a network of bus services to serve the development, coupled with fare reductions of at least 30%.

3.23 In 2001 Surrey County Council also produced its own Assessment Method for Individual Travel Plans, which is less complex than the DfT Evaluation Tool. The Council's Tool was reviewed in the 2002 DfT study *'Using the Planning Process to secure Travel Plans'*. The survey method comprises a checklist of requirements including transportation characteristics of the development, general objectives and measures proposed. Items within the checklist are assigned 'scores' from 1 to 5 and are colour coded to relate to:

- minimum requirements for small scale development (below 1500 sqm);
- minimum requirements for larger scale developments; and
- measures which will add significant weight to the value of any Plan (and by implication would be included in the most effective Travel Plans).

3.24 However, the DfT study reported that there is no scope for qualitative assessment of the Travel Plan elements and thus it may be possible for an *'inappropriate or ineffective plan to score quite highly'*.

2002 Research – UK Research

3.25 The 2002 *'Soft Factors Report'* [9], looked at the likely impact of 'soft factors' over the next fifteen years, in the light of the Multi-Modal Studies. The report was produced following recognition that some of the factors and policies that are not generally assessed by transport models have the potential to change travel behaviour and reduce demand, and therefore need to be taken into account in future forecasting. The study drew the following broad conclusions:

- Improved **electronic communication** is having several effects on travel and transport. It is used widely by the transport industry to improve its efficiency. It can change the travel experience by providing in-transit communications, it can replace some journeys and it expands social, economic and cultural networks, thus enlarging travel potential. E-commerce is expanding rapidly and is affecting the transport needs of business but, on the little evidence available, the report concluded that it appears just as likely to increase transport activity as to reduce it.

- **Tele-working** – almost 6% of the workforce tele-work, although only just over 1% are home based. It was estimated that over the next ten to fifteen years, some 10% of workers could engage in some form of tele-working. The amount of tele-working that takes place varies across regions (possibly due to the differing structure of employment types across regions), with tele-working more prevalent in London and the South. The Soft Factors study cited a number of key findings from other research into teleworking including:
  - ***Review of Tele-work in Great Britain (1995)*** – Long term potential of 5% to 12% reduction in car use through tele-working;
  - ***Motors and Modems Revisited (NERA, 2000)*** – Tele-working will facilitate a 10% reduction in car commuting by 2005 (15% by 2010) and a 3% reduction in other business travel (5% by 2010); and
  - A study in San Diego (1995) found no change in modal split at the *aggregate* level (i.e. not site specific), although Hamer et al (1991) found that in the Netherlands, tele-working frequently replaced trips by cycle and public transport. Gillespie (1995) and Salomon (1994) have argued that this is not a surprising finding, given that travel by public transport is generally less convenient than travel by car.

- **Internet shopping** – over 12% of adults buy on-line, and it was estimated that by 2005, 5.6% of all sales would be on-line (mainly groceries), although books, CDs and computer equipment would have a higher market share. The study concluded that forecasts of 15% of grocery sales being on line by 2010 were ambitious, but this was not considered unreasonable by 2015. It was felt however that this would not be fully reflected in reduced traffic as there would be more van deliveries to homes and it concluded that on balance, the effect of internet shopping would be negligible. Research in the Netherlands has suggested that it is journeys on foot and cycle that are most frequently replaced by Internet purchasing.

[9] *'Soft Factors Report'* DTLR, February 2002

- **Video-conferencing** – has the potential to reduce business travel although this has been slow in developing. The study concluded that as much as 10% of business travel could be replaced by video-conferencing by 2015, although a more reasonable figure was considered to be 5%.

3.26 The study went on to say that Travel Plans could lead to a decrease in car travel of between 7% and 12%. The report assumed a 10% reduction in car use for its estimates of likely impact on overall car travel.

3.27 A 2001 DTLR study of local authorities asked about the perceived impact of School Travel Plans. Across five authorities, responses varied between a 10% and 30% reduction in car travel. The Soft Factors report concluded that *'whilst it is too early to be sure about the effects of School Travel Plans, it seems that early examples may reduce car use by about 15%.'*

3.28 The findings from the Soft Factors Report have been rebutted by a report commissioned by the South West Activists' Roundtable and Transport 2000[10]. The latter report concludes that the Soft Factors Study has been 'unjustifiably cautious' and considered that up to an 18% reduction in car travel was more realistic.

'Using the Planning Process to Secure Travel Plans', DfT 2002

3.29 This research study, commissioned by DfT and undertaken by Addison Associates/T2000, involved development of a Best Practice Guide on how to make requirements for Travel Plans secured via the planning process both appropriate and effective. Some of the findings from the study will be of particular relevance to users of TRICS and are thus provided in some detail in Appendix A.

3.30 Key findings from the study included:

- 'Ideal content' requirements of Travel Plans as set out in planning documents issued by some local authorities include:
  - setting objectives and targets;
  - measures to promote and facilitate public transport use, including physical works, shuttle buses to stations and financial incentives;
  - measures to promote and facilitate walking and cycling;
  - car parking restraint, charges and management;
  - promotion of car sharing;
  - promotion of practices and on-site facilities that reduce the need to travel;
  - monitoring and review mechanisms;
  - Travel Plan Co-ordinators; and
  - travel information and marketing.

[10] Local Transport Today, 25 April 2002

- Although the characteristics of speculative developments may not be known, there are many effective Travel Plan measures that may be justified without reference to the detailed travel patterns of the occupiers including:
  - controls on parking;
  - nomination of a Travel Plan Co-ordinator;
  - provision of improved public transport, cycle and pedestrian facilities and services; and
  - provision of shuttle buses.

Making Travel Plans Work, DfT, 2002

3.31 Research recently undertaken by Transport 2000 on behalf of the DfT looked at 20 UK case studies, representing a range of organisation types, that had implemented a Travel Plan and monitored their effect. The results are discussed in-depth in Section 4 of this report.

4. TRANSPORT 2000 STUDY – KEY FINDINGS RELEVANT TO TRICS

4.1 This section seeks to provide an overview of the 2002 DfT study undertaken by Transport 2000 (referred to here as the T2000 study) which looked at the effectiveness of Travel Plans, the findings of which were published in three documents:

- 'Making travel plans work- lessons from UK case studies';
- 'Making travel plans work – case study summaries'; and
- 'Making travel plans work – Research report'.

4.2 A summary of T2000 case studies are contained in Appendix B.

4.3 The study examined 20 organisations that had successfully implemented Travel Plans. Travel Plans considered were predominantly from large organisations with over 1,000 employees, as indicated in Table 4.1. The Table also illustrates that the case studies selected largely fell within the Employment and Health categories of TRICS. This is not surprising given that to date, Travel Plan development has largely been encouraged amongst these groups.

4.4 It is important to note that each of the selected case studies was known to have been successful in achieving mode shift, and that many organisations' results will be based on the survey responses of a small self-selected group of staff

TABLE 4.1 ORGANISATIONS SELECTED AS CASE STUDIES

Organisation	Organisation Type	Land use – TRICS Category	Sub land use – TRICS Category	Location	Number of Employees
Orange (Temple Point)	Telecommunications company	Employment	Office	Town centre	400
Bluewater	Out of town shopping centre	Retail	Retail Park	Rural	5,500 peak times, 3-4,000 at off peak times
University of Bristol	University	Education	University	Town centre	4,177
Government Office for the East Midlands	Government	Employment	Office	Town centre	245
Egg	Financial services call centre	Employment	Business Park	Edge of town/ inner suburbs	880
Plymouth Hospitals NHS Trust	Health care	Health	General hospital with casualty	Outer suburbs	4,193
Oxford Radcliffe Hospitals	Health care	Health	General hospital with casualty	Outer suburbs	6,570
Buckinghamshire County Council	County Council	Employment	Office	Town centre	2,200
Addenbrooke's NHS Trust	Health care	Health	General hospital with casualty	Edge of town	4,977
Nottingham City Hospital NHS Trust	Health care	Health	General hospital with casualty	Edge of town	3,500
Boots	Pharmaceuticals company	Employment	Mixed office/warehouses	Outer suburbs	7,500
Aglient Technologies	Telecommunications products company	Employment	Office	Rural	1,500
Wycombe District Council	District council	Employment	Office	Town centre	502
Pfizer	Pharmaceuticals company	Employment	Industrial units	Rural	5,500
BP	Oil company	Employment	Office	Outer suburbs	2,100
Computer Associates	Software	Employment	Office	Edge of town	800
Vodafone	Telecommunications company	Employment	Office	Town centre	5,400
Orange (Almondsbury Park)	Telecommunications company	Employment	Office	Edge of town	2000?
AstraZeneca	Pharmaceuticals company	Employment	Industrial units	Rural	4,200
Marks and Spencer Financial Services	Financial services company	Employment	Office	Edge of town	1,700
Stockley Park	Multiple occupancy business park	Employment	Business park	Outer suburbs	7,700

Key Findings from the T2000 Study

Mode Shift

4.5 On average it was reported that the Travel Plans had resulted in at least 14 fewer cars arriving per 100 staff, representing a reduction of at least 18% in the proportion of commuter journeys being made as a car driver; these are based on mean averages. Median averages are not dissimilar, achieving a median change of >12 cars per 100 staff and a median % reduction of >15%. Fifteen Travel Plans had reduced the number of commuting journeys made as a car driver by more than 10% whilst 5 had achieved reductions of over one fifth. The study also concluded that the starting point is not critical – whether car use is initially high or low, change can be achieved.

Use of Different Modes

4.6 There is no 'natural maximum' level of use of non-car modes – for each mode there are case studies that have achieved significantly higher than average levels of use (with the highest levels being a 23% modal share for walking; 21% for cycling and 53% for bus/rail use). On average, organisations had nearly doubled the proportion of staff commuting by train, bus, train, cycle and walking.

4.7 The most successful organisation as regards car sharing had over 30% of staff actively sharing at least once a week – with 48% of staff registered as car sharers. In terms of regular sharing, the most successful organisation had 26% of staff car sharing on a daily basis. The impact of Travel Plans on car sharing was however one of the most difficult effects to assess as many organisations do not measure informal sharers, but only monitor those staff who are registered and sharing as part of a formal car sharing scheme. The study found that on average the number of car sharers increased from 13% to 16% although this was considered to be a very conservative estimate given that it did not include an analysis of 6 of the 10 organisations that had been most successful in encouraging car sharing.

4.8 Car share schemes offering incentives for car sharers have been the most effective in encouraging car sharing e.g. Marks & Spencer and Computer Associates. Egg showed that exempting car share staff from parking charges had a good effect.

4.9 Many high performing organisations reported significant improvements in the provision of bus and rail services. About half of those organisations included in the study offered a free shuttle bus (shuttle bus provision appears to be particularly effective as a Travel Plan measure), half offered discounted fares, and of the 13 organisations that had increased bus services, services had increased by an average of 14 per hour in the peak period. Improvements had been achieved by initial pump priming, ongoing subsidy or provision of shuttle buses.

4.10 All organisations included in the T2000 study had put considerable time and effort into promoting/providing bus and rail services and it was therefore difficult to analyse the significance of the number of bus services within a quarter of a mile. However, it would seem that it is the appropriateness of the service that is more important e.g. timings conducive to staff start/finish times. For this reason staff shuttle buses can be

particularly important as they are tailored specifically to staff needs. Other important measures for encouraging bus/rail travel appeared to be:

- offering relatively cheap fares/ negotiating discounts;
- increasing the number of bus/rail services;
- improving service quality; and
- improving off-site infrastructure (in some cases).

4.11 To encourage high levels of bus use, fares were typically £35 or under for a monthly season ticket from 5 miles away or else a free shuttle was offered.

4.12 The proportion of staff living locally does not seem to automatically determine the proportion that will cycle, and gender balance within an organisation seems unimportant. Quality of access to the site for cycling is important, although 'natural' disadvantages can be overcome. However, quality of access to the site and the proportion of staff living within 2 miles are important factors affecting the number of staff that will walk.

4.13 Organisations which have achieved the lowest levels of car use have restricted the proportion of staff who are entitled to park. Charging for parking also appears to be an important secondary measure. Organisations that have introduced significant cash payments for staff have encouraged at least 9% more of their staff to use alternative modes for travel to work.

4.14 Organisations that had addressed parking (either by restricting numbers of staff entitled to park, introducing charges or providing incentives not to park) had reduced the proportion of commuting journeys made as a car driver by an average of at least 24% compared with an average of at least 10% for those that had not.

External Factors Affecting Modes that Staff Choose to Use

4.15 Organisations which have lower paid staff, or which employ a greater proportion of women, tend to have lower levels of car use in some cases although not all the time. However, salary level does not seem to affect the degree of change that can be achieved through Travel Plans and age does not appear to have a significant effect on levels of car use or degree of change that can be achieved.

4.16 Organisation size does not seem to be critical to the degree of change that can be achieved or the final levels of car use that can result. However, very large organisations with many staff and a large customer base can make it easier to develop good bus and rail services to bring about mode shift.

4.17 The proximity of services such as shops may impact on the effectiveness of a Travel Plan as this may influence whether staff need to bring their cars to work.

4.18 Organisations situated in town centre locations or major transport foci e.g. hospitals, or an organisation with a 'natural advantage' e.g. proximity to a bus/rail station, are likely to have to spend less on bus/rail services, although negotiation of service improvements, better timing of services or ticket discounts can bring about great advantages. Organisations without such advantages may need to provide additional

resources to ensure that appropriate public transport is available for all. Private shuttle buses seem to cost between £70k and £100k per service per annum.

Motivations

4.19 The main reasons cited for introducing a Travel Plan are given below, with the number of times each reason was given provided in brackets:

- help in securing planning permission (10);
- to fulfil environmental responsibilities (8);
- to address site parking pressures or congestion (8);
- to respond to government transport policy (6);
- to improve options for staff travel and reduce commuter stress (6);
- to lead by example (2);
- to free up spaces for customers (1); and
- to allocate parking more fairly (1).

Other

4.20 Most Travel Plans had a Co-ordinator although some did not (e.g. University of Bristol, Egg and BP). This suggests that a Travel Plan Co-ordinator is not essential

4.21 The median average annual running cost for running a Travel Plan was £200,000 p.a., with spending ranging from £2,550 to £2million. Running cost per employee ranged between £1.70 (Agilent) and £430.74 (Vodafone), with a median gross annual running cost of £47 per employee.

4.22 The duration of the Plan does not determine the level of change in the number of cars arriving per 100 staff. Significant change can be achieved in a short time with appropriate measures and trigger events such as relocation. However, all plans that had carried out more than two surveys had achieved progressive change over time.

4.23 The study concluded, as other studies in Netherlands and the US have shown that *'to achieve sustainable change, it is usually necessary to introduce parking management as well as providing incentives to use alternative modes.'* It also concluded that organisations situated in town centres, with lower paid staff, with a high proportion of staff living locally, with good walking and cycling access, or with cheap public transport fares were more likely to have low levels of car use. However, the report concluded that none of these factors were critical.

'Highlights' of the T2000 Research Relevant to TRICS

4.24 The T2000 research assessed the number of commuter cars arriving per 100 staff members (in many cases, this was inferred by the mode split from staff travel surveys). This section summarises the key points from the T2000 study of relevance to TRICS users.

4.25 Table 4.2 illustrates the change in use of non-car modes following implementation of a Travel Plan at the case study site. Results are indicated in terms of the % of total staff using non-car modes.

TABLE 4.2 USE OF NON-CAR MODES AT THE END OF THE TRAVEL PLAN MONITORING PERIOD (% OF STAFF), COMPARED TO % OF STAFF USING NON-CAR MODES BEFORE TRAVEL PLAN IMPLEMENTATION

	AFTER Travel Plan				BEFORE Travel Plan	
Organisation	Bus/rail use	Cycle	Walk	Total % staff using non-car modes	Total Before	CHANGE
GO-EM	53	1	9	63	54	9
Orange (Temple Point)	38	9	13	60	13	47
University of Bristol	17	8	23	48	41	7
Bluewater	42	1	2	45	21	24
Addenbrookes NHS Trust	12	21	5	38	25	13
Oxford Radcliffe Hospitals NHS Trust (JR)	10	12	15	36	32	4
Buckinghamshire County Council	14	3	17	34	21	13
Nottingham City Hospital NHS Trust	20	4	9	33	24	9
Egg	19	1	13	33	24	9
BP	15	5	6	26	12	14
Vodafone	7	3	10	20	11	9
Agilent Technologies	14	2	4	20	14	6
Computer Associates	14	3	2	19	7	12
Pfizer	12	5	1	19	14	5
Wycombe District Council	6	4	5	15	12	3
Stockley Park	12	2	1	15	12	3
Marks & Spencer Financial Services	5	3	2	10	5	5
Orange (Almondsbury Park)	6	1	3	10	4	6
AstraZeneca	7	2	0	9	4	5
Average	*17*	*5*	*7*	*29*	*18*	*11*
Average excluding Bluewater and Orange (relocations)						*8*

4.26 The results suggest an average percentage change of 11%. However, the percentage 'change' in mode split for Bluewater and Orange (Temple Point) needs to be considered with particular caution as these are both new sites; Orange (Temple Point), which is located in Bristol city centre close to Bristol Temple Meads rail station, relocated from the outskirts of Bristol and this comparison has thus been made against a very different 'baseline' situation; there is likely to have been a significant change in mode split even with no Travel Plan in place due to better access to public transport. The Bluewater site is also a new site, and has been compared against a 'benchmark' figure of what might have been expected if there had been no Travel Plan.

4.27 Thus, if the Bluewater and Orange results are excluded from the analysis, a mean of 8% mode split reduction is achieved.

4.28 A number of other organisations involved in the T2000 study also used 'inferred' results in the assessment of mode shift that had been achieved. These organisations were:

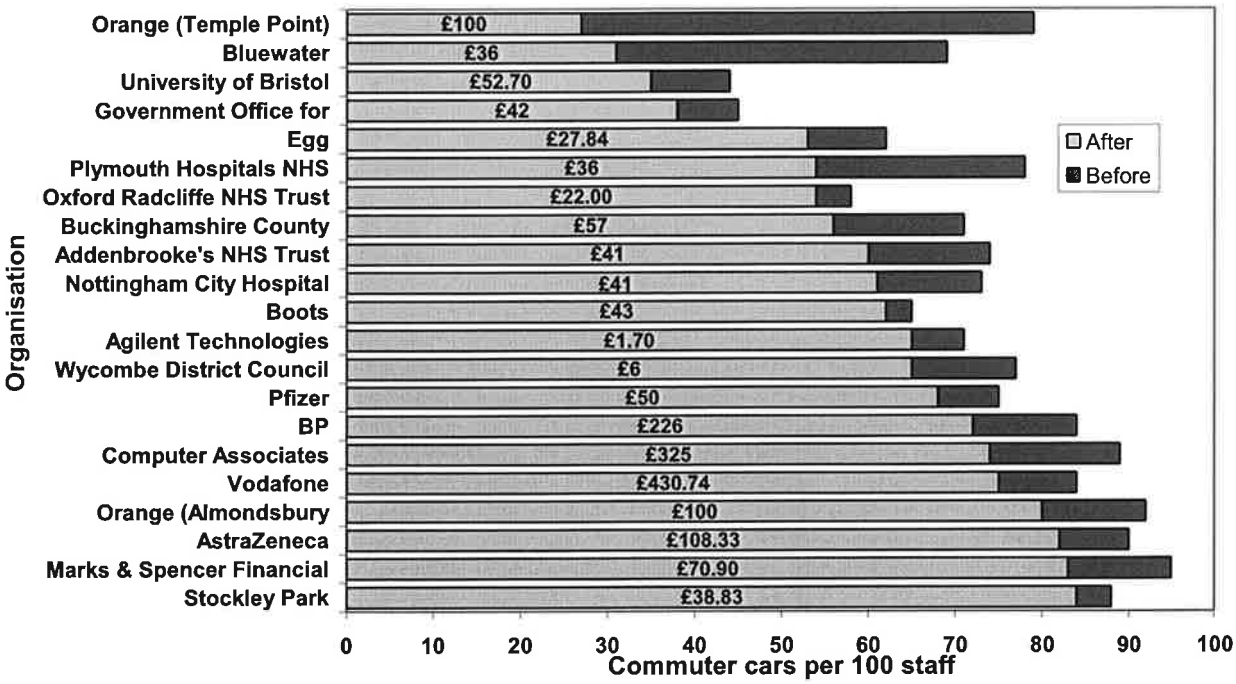
- Vodafone – a straightforward assessment of the results of surveys was difficult as staff were able to choose either a single mode or a combination of modes in the travel surveys. A *'cautious comparison'* of the surveys was therefore necessary.
- Computer Associates – no data was available from a second ('after') travel survey and thus evidence of the impact of the Travel Plan was estimated from the take-up of individual incentives for car sharing, cycling and walking and from the ridership of the company's courtesy shuttle bus.
- Egg – no 'before' data was available. Thus 'before' data was estimated based on National Travel Survey data. Again only a *'cautious comparison'* could thus be made.
- Boots – monitoring data had been collected in different ways e.g. via a travel survey and via gate counts, which made comparison of 'before' and 'after' data sets difficult. Hence this again led to a cautious comparison.
- Plymouth NHS Trust – 'before' and 'after' data was collected in different ways; a travel survey had been undertaken to collect before data, but the 'after' data involved monitoring various indicators such as number of bus passes issued, number of live parking permits etc. Thus again, assumptions had to be made in interpreting the data.

4.29 Indeed the four organisations that had achieved the greatest mode shift i.e. Orange, Bluewater, Plymouth Hospitals NHS Trust and Computer Associates were all organisations which had issues associated with collection of monitoring data (see Table 4.4).

Change in Commuter Car Use

4.30 Table 4.3 indicates the change in numbers of commuter cars per 100 staff across the range of organisations, compared with the Travel Plan spend (annual running cost) per employee. The graph supports the findings of previous US and Dutch research that there is no direct correlation between spending on the Travel Plan and trip reduction that can be expected. Interestingly, the DfT Evaluation Tool suggests that expenditure of £200+ per employee may constitute 'exceptional commitment' for a Travel Plan that may result in mode shift greater than 5%. The findings from T2000 however do not seem to support this.

TABLE 4.3 TRAVEL PLAN ACHIEVEMENTS COMPARED TO TRAVEL PLAN COST PER STAFF MEMBER



4.31 Table 4.4 indicates that in 15 organisations, the Travel Plan was introduced in association with development of a new building or in conjunction with an increase in staff numbers, and in 12 organisations the planning process had been involved either formally or informally. The planning process can be a useful stimulus for change, but low car use can also be achieved without involvement of the planning process - for example, Bluewater and Britol University both have low levels of car use without involvement of the planning process.

4.32 Table 4.4 also indicates that change can be achieved over a relatively short period of time – the measures contained in the Plan are more important than simply how long the organisation has been attempting to address their travel via the Plan.

TABLE 4.4 CHANGES IN STAFF NUMBER, PLANNING INVOLVEMENT AND TRAVEL PLAN DURATION

Organisation	Cars per 100 staff		Change in staff numbers	Planning involved	Survey period (months)
	After	Change			
*Orange (Temple Point)	27	-52	New	(Yes)	0
* Bluewater	31	-38	New	-	14
* Plymouth Hospitals NHS Trust	<54	>-24	693	Yes	72
* Computer Associates	74	-15	100	Yes	16
Buckinghamshire County Council	56	-15	0	N/a	29
Addenbrooke's NHS Trust	<60	>-14	867	Yes	72
Wycombe District Council	65	-12	0	N/a	12
Orange (Almondsbury Park)	80	-12	1300	-	63
Nottingham City Hospital NHS Trust	61	-12	0	Yes	36
Marks and Spencer Financial Services	<83	>-12	373	-	14
BP	72	-12	450	Yes	37
* Vodafone	<75	>-9	Growth	Yes	40
University of Bristol	35	-9	0	-	36
* Egg	53	-9	New	Yes	16
AstraZeneca	<82	>-8	400	(Yes)	48
Government Office for the East Midlands	<38	>-7	0	Yes*	24
Pfizer	68	-7	1500	Yes-	36
Agilent Technologies	65	-6	300	-	24
Stockley Park	<84	>-4	1700	-	24
Oxford Radcliffe Hospitals NHS Trust (JR site)	54	-4	0	Yes	12
* Boots	62	-3	1500	Yes	53

Notes:

- Change in staff numbers refers to the change in the number of full time (or full time equivalent) staff over that period. Three sites were newly occupied, such that this does not apply. At Vodafone there was growth, but there is no information available about the amount of growth.
- Planning involved refers to the involvement of the planning process in ensuring that a Travel Plan was put in place. In the cases with brackets, the planning process was involved but arrangements were voluntary, rather than the Travel Plan being formally required. In the case of Government Office for the East Midlands, the introduction of a Travel Plan was a Central Government requirement.
- Survey period refers to the time between the two measurements of car use which has resulted in the reduction in cars arriving per 100 staff given in the third column.

* signifies 'inferred'/'implied' data has been used in analysis

4.33 All organisations where less than 100% of staff are entitled to park have achieved relatively low levels of car use (see Table 4.5). Only two of these (GOEM and Buckinghamshire CC) have ample off-site parking, but in both cases it is relatively expensive. Parking provision does not always dictate the number of cars that arrive per 100 staff; for example, Wycombe DC has relatively low levels of car use compared to parking provision due to the proportion of staff who now work from home, as do Computer Associates where staff are dissuaded from parking by generous financial incentives.

TABLE 4.5 PARKING AVAILABILITY AT THE TIME OF LATEST MONITORING OF STAFF TRAVEL

Organisation	Car per 100 Staff		< 100% Park	Parking per 100 staff	Off-Site Parking
	After	Change			
Orange (Temple Point)	27	-52	Yes	14	Some
Bluewater	31	-38	Yes	31	Few
University of Bristol	35	-9	Yes	26	Some
Government Office for the East Midlands	<38	>-7	Yes	18	Ample
Egg	53	-9	-	57	Some
Plymouth Hospitals NHS Trust	<54	>-24	Yes	32	Few
Oxford Radcliffe Hospitals NHS Trust (JR Site)	54	-4	Yes	28	Some
Buckinghamshire County Council	56	-15	Yes	27	Ample
Addenbrooke's NHS Trust	<60	>-14	-	48	Some
Nottingham City Hospital NHS Trust	61	-12	-	34	Few
Boots	62	-3	-	57	Few
Agilent Technologies	65	-6	-	66	Ample
Wycombe District Council	65	-12	-	100	Ample
Pfizer	68	-7	-	73	Few
BP	72	-12	-	76	Ample
Computer Associates	74	-15	-	97	Few
Vodafone	<75	>-9	-	72	Few
Orange (Almondsbury Park)	80	-12	-	55	Some
AstraZeneca	<82	>-12	-	78	Few
Marks and Spencer Financial Services	<83	>-4	-	84	Few
Stockley Park	<84	>-4	-	78	Few

Notes:

- <100% park indicates those organisation where less than 100% of staff are entitled to park in the organisation's own car park. This is often determined by whether all staff are issued with a parking permit.
- Parking per 100 staff has usually been calculated using the number of full-time staff, or the number of staff on site during core hours. For the hospitals, the staff figure given was usually the number of full time equivalents (FTE), as there is not information about the number of staff on site during core hours. Yet, this may have resulted in conservative estimates of parking availability, as there are likely to be less staff than the number of FTE on site at any one time. When calculating the number of parking spaces available, spaces reserved for car-shares have been excluded from the calculations.
- The amount of off-site parking opportunities was defined by the staff travel co-ordinator, according to the categories given in the survey questionnaire.

4.34 Table 4.6 indicates those organisations that charge for parking. In general, organisations with parking charges have achieved lower levels of car use, and where all staff are entitled to park, those with charges have achieved lowest levels of car use.

TABLE 4.6 PARKING CHARGES/INCENTIVES AT THE TIME OF LAST MONITORING OF STAFF TRAVEL

Organisation	Cars per 100 staff		Charge to those entitled to park	Weekly parking cost		Payments for using alternatives
	After	Change		On site	Off site	
Orange (Temple Point)	27	-52	-	-	N/A	Yes
Bluewater	31	-38	-	-	/	-
University of Bristol	35	-9	Yes	£2.50 - £18.75	N/a	-
Government Office for the East Midlands	<38	>-7	-	-	High	-
Egg	53	-9	Yes	£3.75	£2.50	-
Plymouth Hospitals NHS Trust	<54	>-24	Yes	£2.50	/	Yes
Oxford Radcliffe Hospitals NHS Trust (JR Site)	56	-4	Yes	£0.43-	Free	-
Buckinghamshire County Council	<60	-15	-	£1.50	£10.00	-
Addenbrooke's NHS Trust	61	>-14	Yes	£1.20	Free	-
Nottingham City Hospital NHS Trust	62	-12	Yes	-	/	-
Boots	62	-3	-	-	/	-
Agilent Technologies	65	-6	-	-	Free	-
Wycombe District Council	65	-12	-	-	£20.00	-
Pfizer	68	-7	-	-	/	-
BP	72	-12	-	-	Free	-
Computer Associates	74	-15	-	-	/	Yes
Vodafone	<75	>-9	-	-	/	Yes
Orange (Almondsbury Park)	80	-12	-	-	Free	-
AstraZeneca	<82	>-8	-	-	/	-
Marks and Spencer Financial Services	<83	>-12	-	-	/	Yes for car sharing
Stockley Park	<84	>-4	-	-	/	-

Notes:

- Many organisations do not have a weekly parking cost – either having daily charges or annual passes. An artificial "weekly charge" has been calculated from these, to enable organisations to be compared with each other.
- With off-site parking, "/" indicates that there are few opportunities to park off-site. N/A indicates that the cost for off-site parking was not available from the interview.
- Payments for using alternatives are defined as schemes typically offering staff as much as £1,200p.a. to give up a parking permit. (Offers such as a £10 voucher are not included here).
- indicates "no".

4.36 Table 4.8 indicates that for walking the proportion of staff living within 1 to 2 miles is important but not critical.

TABLE 4.8 CHARACTERISTICS OF THE SITE FOR WALKING AT THE TIME OF LATEST MONITORING

Organisation	% Staff within approx 2 miles	Gender	Walking access	% staff walking	
				Before	After
University of Bristol	36	No bias	Good	19	23
Buckinghamshire County Council	39	No bias	Good	11	17
Oxford Radcliffe Hospitals NHS Trust (JR site)	>27	>70% female	Medium	13	15
Orange (Temple Point)	N/a	No bias	Good	N/a	13
Egg	20	No bias	Medium	N/a	Up to 13
Vodafone	22	>70% female	Medium	8	10
Nottingham City Hospital NHS Trust	30	> 70% female	Medium	8	9
Government Office for the East Midlands	13	No bias	Good	5	9
BP	8	No bias	Medium	5	6
Boots	10	No bias	Good	6	>5
Wycombe District Council	44	No bias	Good	6	5
Addenbrooke's NHS Trust	25	>70% female	Medium	4	5
Agilent Technologies	8	No bias	Medium	5	4
Orange (Almondsbury Park)	14	No bias	Poor	2	3
Computer Associates	4*	>70% male	Good	1	2
Marks and Spencer Financial Services	4	>70% female	Poor	1	2
Bluewater	N/a	>70% female	Medium	N/a	2
Stockley Park	N/a	No bias	Good	1	1
Pfizer	10	No bias	Poor	2	1
Plymouth Hospitals NHS Trust	13	>70% female	Medium	<1	<1
AstraZeneca	<1	No bias	Poor	0	0

Notes:

- "% staff within approx 2 miles" refers to the proportion of staff living within approximately 2 miles of the organisation. In the case of Computer Associates, this figure may be less informative, since staff are counted as they arrive at the site, and consequently the proportion walking could include those who use the train and walk the last part of the journey.
- Quality of walking access was defined by the Staff Travel Plan co-ordinator, according to pre-set categories. These relate to the quality of walking environment, without taking into account the potential distance of the walk, since this is allowed for by the proportion of staff who live within 2 miles.
- Where the change in the proportion of staff who are walking is small, it should be noted that rounding of numbers may have exaggerated or disguised small increases or decreases in modal share.

4.37 Table 4.9 is taken from the T2000 Research Report, summarises the findings discussed in this section of the report, indicating how the location and characteristics of an organisation relate to the 'after levels' of commuter car use recorded across the case study sites.

4.35 Table 4.7 indicates that for cycling:

- The proportion of staff living within 4 to 5 miles is not crucial; even if only 15 to 20% of staff live within 4 to 5 miles, if a proportion of these can be attracted to cycling quite high levels of cycling can be achieved e.g. Pfizer and BP;
- Although nationally, more cyclists are male, organisations with high proportions of women can encourage cycling e.g. Addenbrookes, ORH; and
- Quality of access to the site by bike is important but is not critcal e.g. Wycombe DC and BP have both achieved relatively high levels of cycling despite poor cycle access. Conversely, at Stockley Park, cycle levels are low despite good cycle access (this may be due to the lack of parking restraint).

TABLE 4.7 CHARACTERISTICS OF THE SITE FOR CYCLING AT THE TIME OF LATEST MONITORING

Organisation	% Staff within 3 to 5 miles	Gender	Cycle Access	% Cycling	
				Before	After
Addenbrooke's NHS Trust	45	>70% female	Good	17	21
Oxford Radcliffe Hospitals NHS Trust (JR site)	>52	>70% female	Good	12	12
Orange (Temple Point)	N/a	No bias	Good	2	9
University of Bristol	49	No bias	Good	7	8
Pfizer	16	No bias	Good	6	5
BP	16	No bias	Difficult	3	5
Boots	43	No bias	Excellent	7	>4
Wycombe District Council	64	No bias	Average	1	4
Nottingham City Hospital NHS Trust	63	>70% female	Good	5	4
Computer Associates	7	>70% female	Good	1	3
Buckinghamshire County Council	53	No bias	Average	2	3
Marks and Spencer Financial Services	25	>70% female	Average	1	3
Vodafone	38	>70% male	Difficult	2	3
Plymouth Hospitals NHS Trust	53	>70% female	Good	2	>2
Agilent Technologies	20	No bias	Difficult	3	2
AstraZeneca	<1	No bias	Difficult	2	2
Stockley Park	<24	No bias	Excellent	1	2
Orange (Almondsbury Park)	21	No bias	Average	1	1
Government Office for the East Midlands	51	No bias	Difficult	3	1
Egg	41	No bias	Difficult	N/a	1
Bluewater	47	>70% female	Average	N/a	1

Notes:

- Staff living within 3 – 5 miles refers to the proportion of staff living within reasonable cycling distance. Ideally, information about staff living within 4 miles was sought. However, some organisations were only able to provide information about the proportion within 3 miles or within 5 miles, depending on their original survey work.
- Quality of cycle access was defined by the staff travel co-ordinator, according to the survey definitions. There were some problems with classification – for example, Wycombe has excellent cycle access in one direction and poor cycle access from another. Bluewater has excellent cycle routes, but is "down a hill, in a hole". In some cases, conditions around the site are good but are bad further away, and the opposite scenario also exists.

TABLE 4.9 FACTORS THAT MOST CLOSELY RELATE TO "AFTER" LEVELS OF COMMUTER CAR USE

Organisation	Cars per 100	Town Centre	Below average income	<100% park	Parking Charge	Cheap fares	Good cycle access	Good walk access	% within 2 miles
Orange (Temple Point)	27	Yes	-	Yes	-	Yes	Yes	Yes	N/a
Bluewater	31	-	Yes	Yes	-	Yes	Average	Medium	N/a
University of Bristol	35	Yes	-	Yes	Yes	Yes	Yes	Yes	36
Government Office for the East Midlands	<38	Yes	-	Yes	-	Yes	-	Yes	13
Egg	53	-	Yes	-	Yes	Yes	-	Medium	20
Oxford Radcliffe Hospitals NHS Trust (JR site)	54	-	-	Yes	Yes	Yes	Yes	Medium	27
Plymouth Hospitals NHS Trust	<54	-	-	Yes	Yes	Yes	Yes	Medium	13
Buckinghamshire County Council	56	Yes	-	Yes	-	Yes	Average	Yes	39
Addenbrooke's NHS Trust	<60	-	-	-	Yes	Yes	Yes	Medium	25
Nottingham City Hospital NHS Trust	61	-	Yes	-	Yes	Yes	Yes	Medium	30
Boots	62	-	-	-	-	Yes	Yes	Yes	10
Agilent Technologies	65	-	-	-	-	-	-	Medium	8
Wycombe District Council	65	Yes	-	-	-	-	Average	Yes	44
Pfizer	68	-	-	-	-	Yes	Yes	-	10
BP	72	-	-	-	-	Yes	-	Medium	8
Computer Associates	74	-	-	-	-	Yes	Yes	Yes	4
Vodafone	<75	Yes	-	-	-	Yes	-	Medium	22
Orange (Almondsbury Park)	80	-	-	-	-	Yes	Average	-	14
AstraZeneca	<82	-	-	-	-	Yes	-	-	0
Marks and Spencer Financial Services	<83	-	-	-	-	-	Average	-	4
Stockley Park	<84	-	-	-	-	Yes	yes	Yes	N/a

Notes:

- Car per 100 refers to the number of commuter cars arriving per 100 staff.
- Town centre refers to whether or not the organisation is located in a town centre site.
- Below average income refers to whether >70% staff at the organisation are paid less than £15,000.
- <100% park refers to whether less than 100% of staff are entitled to park on site.
- Parking charge refers to whether staff are entitled to park are charged for parking.
- Cheap fares refers to whether staff have access to a bus service where fares are less than £35 a month (for a journey of approximately 5 miles) and/or a free shuttle service.
- Cycle access refers to whether there is reasonably good or excellent cycle access.
- Walking refers to whether there is good access to the site on foot.
- % within 2 miles refers to the proportion of staff living within 2 miles.

5. FURTHER EXAMPLES OF TRAVEL PLAN EFFECTIVENESS

5.1 This study was commissioned as the T2000 study was being undertaken. Therefore, given that the majority of Travel Plans are relatively young, and given that very limited monitoring data is available, this severely limited the selection of additional Travel Plans to explore as a part of this study. Those case studies selected by T2000 were the 'obvious' examples of organisations with monitoring data available. However, we were able to identify additional organisations which had monitoring information available.

5.2 In order to gather information of sufficient detail, an in-depth telephone interview was undertaken using a structured guide. Findings from the interviews are detailed below. It should be noted that a number of other organisations to those detailed below were interviewed but 'before' and 'after' monitoring data was either not available or it was available in a format where it was difficult to transfer it to mode split figures.

Elli Lilly

5.3 Elli Lilly is a pharmaceutical Research & Development company located in Windlesham, Surrey. The site has approximately 600 staff. Operation hours of the site are 07:00 to 19:00, with most staff working between 07:30 and 18:30. The site is 'free standing', with very poor public transport access (only one public bus serves the site every 2 hours). The site is 2 miles from the nearest rail station (Ascot) and Eli Lilly operates its own shuttle bus to the station, making 4 or 5 runs during the morning peak and a similar number during the evening peak. There are cycle routes in the area but they are discontinuous, and traffic speeds on the roads to the site are fast, which discourages cycling.

5.4 Elli Lilly's Travel Plan was developed as part of a Section 106 agreement. The site did have pressures on parking and access, but the Section 106 agreement was the main motivation.

5.5 Elli Lilly has a full-time Travel Plan Co-ordinator who has held the post since the Travel Plan began in 1999. Measures implemented as part of the Plan include:

- **Walking:** walking is not actively promoted as so few people live within walking distance of the site.
- **Cycling:** Covered, secure cycle sheds were provided in 2000 for 40 cycles. Showers, lockers and a drying room were also provided. The organisation has a Bicycle User Group, and leaflets and maps are provided around the site giving details of cycle routes and leisure trails. The Travel Plan Co-ordinator also provides tailored journey planning information on cycle routes to the site. Interest free cycle loans are provided and cycle training has been offered to staff. There has to date been no improvement to cycle routes leading to the site and no cycle mileage allowance is payable for business trips.
- **Public transport:** Elli Lilly operates its own shuttle bus service during the AM and PM peaks. The bus also does a lunchtime shopping run for staff and the bus will pick up from local hotels. Season ticket loans are available and site specific maps and timetable information are provided.

- **Car sharing:** Elli Lilly promotes car sharing and has a computer-based car share matching facility. Priority spaces and a guaranteed ride home are offered to staff who car share.
- **Motorcycling:** Motorcycling is encouraged. Covered sheds for motorcycle parking are provided and loans are available for motorcycle purchase.
- **Car park management:** Elli Lilly has approximately 450 spaces but there are no restrictions on parking.
- **Reducing the need to travel:** On-site facilities are offered to staff to reduce the need to travel off-site during the lunchtime period; a dry cleaners and the post office come on to site. Also, staff are able to take advantage of Waitrose@Work delivery service (shopping can be delivered free to staff at work). Elli operates a flexi-time system and an informal home working policy. Video-conference facilities are also available.
- **Visitors:** Staff are encouraged to send information to visitors about travelling to the site sustainably, but to date visitors have not been a priority of the Plan.
- **New recruits:** The Travel Plan is promoted at the recruitment stage.

5.6 The annual budget for the Travel Plan is £12,000, which excludes operation of the shuttle bus (£1600-£1700 per month) and the salary of the Travel Plan Co-ordinator.

5.7 A comparison of surveys undertaken in 1999 with surveys undertaken in 2001 show that:

- There has been a significant reduction in the number of Single Occupancy cars on site, with a 13% increase in car sharing (from 4% in 1999 to 17% in 2001);
- There has been a 4% increase in the number of public transport users (from 1% in 1999 to 5% in 2001); and
- The number of cyclists has remained constant at 11 staff

Eastleigh Borough Council

5.8 Eastleigh BC offices are located in Eastleigh, Hampshire. The Council's Travel Plan includes only those staff based at the Civic Offices (338 staff in one building) although the council does have other offices. The Offices are located on an edge of town site, approximately one mile from the town centre and one mile from the train and bus stations. Junction 13 of the M3 is less than one minute away by car. There is a cycle route to the site although the quickest route into town is via a busy A road.

5.9 There is a bus stop close to the offices which is served by two buses per hour. The magistrates court, leisure centre and other offices are located on the site.

5.10 The Council began developing a Travel Plan in 1999, with the motivation of leading by example. Key measures introduced as part of the Travel Plan are:

- **Walking:** Health Walks are promoted. There are some pedestrian routes.
- **Cycling:** Showers and lockers are available for cyclists, and a hairdryer, iron and ironing board are also available. Interest free bike loans are available for bike purchase and safety equipment. Cycle parking is provided in a secure shelter. Three pool bikes are available for staff to use for personal use and staff are able to 'clock in' before getting changed for work.

- **Public transport:** Interest free loans are available for purchase of bus/rail passes and discounted season tickets are available for local buses.
- **Car sharing:** the Council offers a guaranteed ride home and there are seven dedicated car share spaces in the car park.
- **Reducing the need to travel:** The Council has a policy for allowing homeworking, and a compressed working week (a nine day fortnight) is allowed with agreement of line managers.

5.11 The Council spent £20,000 originally on the installation of showers, purchase of pool bikes and similar measures, and now spends £2,000 per annum on the Plan. Survey results show that there has been a 6% reduction in the proportion of (single occupancy vehicle) SOV trips to the site (i.e. a reduction in 11 out of 175 staff driving alone to the site).

TABLE 5.1 EASTLEIGH BOROUGH COUNCIL: RESULTS OF TRAVEL PLAN MONITORING

Mode	Feb 1998		Sept 2001	
	No of staff	%	No of staff	%
Car – single occupancy	175	88.5	164	77.5
Car share driver	4	2	11	5
Car share passenger	5	2.5	8	4
Cycle	6	3	10	5
Walk	6	3	12	5.5
Bus	1	0.5	2	1
Train	1	0.5	3	1.5
Motorcycle	No data	-	1	0.5
Total	**198**	**100**	**211**	**100**

Waitrose

5.12 The Head Office of Waitrose is located in Bracknell, and comprises a large mixed-use site incorporating office and warehousing. The 72 acre site is located in the industrial zone of Bracknell with very poor public transport accessibility (no buses run to the site). The site is a 24 hour operation, operating 7 days a week.

5.13 Waitrose began developing their Travel Plan in 2000 as part of a Section 106 agreement. The organisation was also facing pressures on parking. A Travel Plan Co-ordinator was in post for the first year of Travel Plan development and implementation. Principal measures that made up the Travel Plan are as follows:

- **Walking:** maps of walking routes are provided. Showers and changing facilities are provided;
- **Cycling:** there are 20 covered and secure cycle stands and 12 pool bikes provided. Maps of cycle routes are available and bicycle loans are available for bicycle purchase.

- **Public transport:** information is provided to staff and a free employee shuttle bus is provided during weekday peak hours to the two local rail stations;
- **Car sharing:** the organisation operates a computer based car share system, and offers a Guaranteed Ride Home.
- **Car parking:** the organisation initially had 900+ car park spaces, but this was reduced by 170 spaces.
- **Reducing the need to travel:** home working was permitted.
- **New recruits:** the relocation package encourages employees to live close to site.

5.14 Waitrose saw a 5% reduction in the number of cars parked on site in the first four months of the Travel Plan, and this has been maintained. It was considered that car sharing had been the most effective element of the Travel Plan.

Powergen

5.15 Powergen introduced a Travel Plan at its site in site in Annersley, Nottinghamshire in July 2001 as part of relocation of staff from a long established site. Many staff lived close to the old site and the Travel Plan was thus introduced to enable staff to travel to the new site. 520 employees are based at the new site and there are 264 parking spaces. The new site is located on a business park in a Greenfield site. No public transport services serve the site nor are there any cycle routes. The site is a 2 minute drive from Junction 27 of the M1. The site is a 24 hour operation although most staff work between 0900 and 1700.

5.16 Powergen has a Travel Plan Co-ordinator. Main measures introduced as part of the Travel Plan include:

- **Cycling:** there are 10 covered cycle stands, 4 showers and 16 lockers. Maps of cycle routes are available for staff. At the time of relocation, staff were given a percentage of their salary either as cash up-front in return for a receipt for a bike, motorbike or car purchase for travelling to work. Alternatively, staff could have money paid into their pay packet over a five year period.
- **Public transport:** there is no public transport, but Powergen operates its own free employee shuttle bus service.
- **Car sharing:** there is a formal, computerised car share facility, with a Guaranteed Ride Home and 30 priority parking spaces for sharers. All 'Green Travellers' (including cyclists, bus users and car sharers) are entered into a prize draw regularly.
- **Motorcyclists:** also have their own sheltered parking.
- **Reducing the need to travel:** there is no formal policy for teleworking or flexible working, but this is permitted at the discretion of line managers.

5.17 Powergen has 5 cyclists, 18 motorcyclists and 35 staff per day using the shuttle bus service. 200 staff car share on 3 or more days per week. The shuttle bus costs £77k per annum, with an additional £1000 p.a. spent on prize draws. There are no problems with car park capacity.

6. SUMMARY OF RESEARCH FINDINGS

6.1 Table 6.1 summarises the findings from the various studies that have been undertaken to date whilst Table 6.2 provides an overview of the mode shift that has been achieved for organisations that have implemented different types of measures.

TABLE 6.1 PERCENTAGE MODE SHIFT THAT CAN BE EXPECTED FROM DIFFERENT TRAVEL PLAN MEASURES: SUMMARY OF FINDINGS FROM US, NETHERLANDS AND UK RESEARCH

US RESEARCH	NETHERLANDS RESEARCH	UK RESEARCH – *based on US and Dutch studies)*
(1994 study)[a]: % reduction in vehicle trips	**(1996 study)[b]: % reduction in vehicle trips**	**(2001 study)[d] : % reduction in drive alone commuting**
Information only – 0%	Basic measures – 14%	Marketing & promotion - 0%
Car share/van pool – 8.5%	Financial incentives – 19%	Car share/cycling – 5% to 8%
Financial incentives – 16%	Incentives and disincentives – 29%	Above plus discounts on buses and employer provided buses – 15%
Financial incentives plus additional measures – 25%	**(1998 study)[c]: % reduction in drive alone commuting**	Above plus disincentives – 20%+
	Car share mainly – 5%	
	Financial incentives – 8%	
	Financial incentives plus disincentives – 15%	

a: Commis Corp.
b: Schreffler & Organisational Coaching
c: Ligtermoet
d: Planning for Mode Share in New Developments, Scottish Executive.

TABLE 6.2 A COMPARISON OF TYPES OF MEASURES AGAINST ACHIEVEMENTS (T2000)

	Basic	Financial incentives (incl +30% discount on bus use)	Employer provided shuttle bus	Disincentives to park	% reduction in cars per 100 staff
Boots	✓				3
Stockley Park	✓		✓		4
Oxford Radcliffe Hospitals NHS Trust	✓			✓	4
Pfizer	✓	✓			7
GO-EM	✓			✓	7
Agilent	✓				8
AstraZeneca	✓		✓		8
Egg	✓		✓	✓	9
University of Bristol	✓		✓	✓	9
Vodafone	✓	✓	✓		9
BP	✓		✓		12
Marks & Spencer Financial Services	✓	✓			12
Nottingham City Hospital	✓			✓	12
Wycombe DC	✓	✓			12
Addenbrookes NHS Trust	✓			✓	14
Buckinghamshire	✓	✓			15
Computer Associates	✓	✓			15
Plymouth NHS Trust	✓			✓	24

6.2 It is clear from the above that there is no direct correlation between measures implemented and the % reduction in car use. From the point of view of TRICS this makes it difficult to provide a predictive assessment along the lines of implementing *'x and y measures will achieve a z% reduction in modal split'*.

6.3 However, the T2000 findings do support the findings from other studies in that to achieve a modal split of over 8% this would suggest that one or more of the following are required:

- Significant financial incentives – either in the form of direct payments for sustainable travel or through significant reductions for public transport use;
- Significant improvements to bus services serving the site and/or introduction of an employer-provided shuttle bus that directly serves the needs of staff;
- Restrictions on staff entitled to park;
- Financial disincentives for parking i.e. charges for parking – although these need to be of an appropriate level to dissuade staff to park .

6.4 The T2000 findings suggest that a mode shift of over 15% is difficult to achieve, at least in the shorter/medium term at an existing development.

6.5 However, even if an organisation implements the above measures, this is still no certainty that a Travel Plan will achieve a specified mode shift, demonstrating that the overall strategy of the Plan is important. It is difficult to assess the impact that an individual Travel Plan will have as it is dependent upon many factors; the combination of measures to be implemented, the extent to which the proposed measures will be implemented and enforced, the 'drive' of the individual(s) overseeing the Travel Plan, the degree of management support, the process involved in implementing the Plan and so on. However, best practice suggests that a good Travel Plan should:

- be tailored to the site;
- have senior management support – and associated financial support and commitment;
- be based on up-to-date knowledge of travel and transport patterns;
- be based around participation and consultation of staff;
- consist of a 'package' of measures;
- have staff time allocated;
- include extensive marketing and awareness raising;
- set clear objectives and targets; and
- have establish monitoring procedures in place.

6.6 It is also important to take the location of the site into consideration; sites that are centrally located or located at major transport foci will generally have lower levels of car use as a starting point, and it will be easier to achieve modal shift without extensive expenditure on new services or measures.

7. MONITORING METHODOLOGIES

What is being monitored?

7.1 Different organisations are currently monitoring the effects of their Plans in very different ways, using a variety of indicators. For instance, Travel Plan effects are being monitored in terms of:

- change in mode split;
- reduction in vehicle kilometres travelled;
- reduction of number of vehicles coming on to the site;
- change in number of cars parked in the car park; and
- number of staff registered on the organisations car share database.

7.2 This makes it very difficult to assess the effectiveness of Travel Plans across different organisations.

How is Monitoring Undertaken?

7.3 In cases where similar indicators are being used by organisations, the methodologies adopted for collection of the data often vary. For example, in assessing mode shift some organisations use self-completion questionnaires, some use interview surveys, and others may merely use counts of, for example, bicycles parked, car sharers registered on a database etc and then use this information to extrapolate their conclusions. Accurate estimations of mode shift cannot be drawn from such inferred data.

7.4 It was also apparent that some organisations do not collect adequate 'before' data, which again means a reliance on 'inferred' data and again means that an accurate assessment of the effect of the Travel Plan cannot be drawn.

7.5 As we found when attempting to compile new case studies for this research, many organisations have not monitored their Plans at all.

7.6 These findings are not in themselves surprising given that there are no guidelines as to how data for monitoring Travel Plans should be collected. This variety of approach does, however, make it very difficult (if not impossible) to assess the effects of Travel Plans reliably and consistently across organisations. If we are to draw robust conclusions from such comparative assessments in future, then a more standardised monitoring framework is required as a matter of urgency.

Reasons Why Organisations Monitor in Different Ways

7.7 It is useful to consider the motivations behind organisations developing Travel Plans, which helps to understand the reasons why organisations choose to monitor such a range of indicators. Table 7.1 provides a summary of who is monitoring Travel Plans, the reasons why they are monitoring and how this can influence what is monitored.

TABLE 7.1 MOTIVATIONS FOR MONITORING TRAVEL PLANS

Over-riding motivation	Reason for Travel Plan development	Monitoring information requested by whom?	Who is collecting the monitoring information ?	What monitoring information might be collected?
LEGAL REQUIREMENT	To accompany planning application for NEW development	Local authority	Developers/ prospective tenants	No. of vehicles generated by development Mode split
LEGAL REQUIREMENT	To accompany planning application for EXISTING development	Local authority	Developers/ tenants Travel Plan Co-ordinators	Mode shift Reduction in Single Occupancy vehicle (SOV) No. of registered sharers on car share database No. of cyclists, bus users etc.
OPERATIONAL EFFICIENCY	Car parking problems	Senior management	Travel Plan Co-ordinators	No. of vehicles parked in car park Mode shift Reduction in Single Occupancy vehicle (SOV)
OPERATIONAL EFFICIENCY	Cost savings	Senior management	Travel Plan Co-ordinators	Reductions in business travel expenditure
ENVIRONMENTAL IMAGE		Senior management	Travel Plan Co-ordinators	Vehicle kilometre reductions Mode shift Reduction in Single Occupancy vehicle (SOV)

7.8 As illustrated above, the way in which an organisation monitors its Travel Plan will often depend upon the reasons why they chose to implement a Plan. Thus, by understanding the reasons for the Plan, we can better understand their monitoring requirements.

7.9 As already mentioned, some organisations do not actually monitor the effects of their Travel Plans in an appropriate way – if at all. Even if a Plan is required as a result of a planning agreement, some local authorities do not have the resources available to enforce the monitoring requirement imposed.

7.10 This brings us to the current position with Travel Plan monitoring. Some Travel Plans are not monitored, and so we do not know if they are successful or not. Those Travel Plans which are monitored are monitored in different ways, depending upon individual circumstances. Thus, it is difficult to compare results between different sites.

Why Standardise Monitoring?

7.11 Adopting a standardised approach to monitoring would bring many benefits to a range of organisations and individuals including local authorities, developers, Travel Plan Co-ordinators, Central Government and agencies involved in understanding and promoting Travel Plans. The reasons why we believe a standardised approach to monitoring is required are as follows:

- As we have demonstrated, monitoring data is not currently collected in a consistent way e.g. in terms of how the 'before' and 'after' data is being collected, with inferred and manipulated data often used for making 'before' and 'after' comparisons. This means that it is difficult to assess the true effect that a Travel Plan has had on mode split. This is a particular issue for Travel Plans that are implemented as a result of a S106 Agreement as local authorities cannot be confident that the monitoring data collected to assess mode shift is robust;
- Local authorities and development planners need to understand the effect that particular measures implemented as part of a Travel Plan will have on trip generation, which will itself help in the setting of realistic mode share targets. The only way that it will be possible to do this is to be able to directly compare the effects of different Travel Plans that have been implemented. As this study has demonstrated, it is not currently possible to do this; and
- In order for Central Government to understand how effective their initiatives are at promoting take-up of effective Travel Plans robust monitoring data is required.

7.12 In summary, the objectives of a standardised monitoring approach would be to:

- enable local authorities to have confidence that Travel Plans implemented as part of S106 agreements are delivering the necessary results;
- ensure that realistic mode share targets are being set for Travel Plans; and
- enable conclusions to be drawn from the wealth of information that should soon be made available by organisations monitoring their Travel Plans, thus enabling identification of the impact that different measures can have for different organisations located in different areas.

8. A STANDARD APPROACH TO TRAVEL PLAN MONITORING

8.1 In the previous chapter we discussed the reasons why Travel Plans are monitored in different ways, and the benefits of adopting a common standard for Plan monitoring. In this chapter we discuss how this could best be achieved.

Pragmatic Approach

8.2 A standardised approach to monitoring which is not widely adopted across the industry will not achieve the objectives outlined in the previous chapter. Thus, it is important that any standardised approach that is proposed is also one that organisations will be both willing and able to adopt.

8.3 Therefore, it is important to recognise that there are limitations upon exactly what type of monitoring is realistically possible in most organisations. The main limitations are likely to be:

- budget – it is likely that within an organisation the resources allocated to monitoring would come out of the overall budget allocated to the Travel Plan. Therefore, increasing the budget allocated to monitoring could reduce the budget available to other elements of the Plan. This could be detrimental to the success of the Plan;
- survey fatigue – the desire to gather as much useful information as possible must be balanced against the possibility that the employees being surveyed are likely to become uncooperative if surveyed too often or if surveys are too detailed;
- complexity – in attempting to devise a survey method that can be employed by people of all levels of experience with Travel Plans, it is essential to consider that in some cases organisations will use staff whose experience in conducting surveys is limited. Thus, a complicated survey method could create difficulties in interpretation, and ultimately result in unreliable data; and
- analysis – related to the last point – not all Travel Plan Co-ordinators will have experience in the analysis of complex data sets, so any standardised approach must be easy to analyse.

8.4 Taking all of the above into account, it is apparent that the standardised monitoring methodology needs to be relatively simple and straightforward if it is to be widely adopted.

Flexible Approach

8.5 At the same time, it would be wrong to constrain those organisations that wish to adopt more sophisticated monitoring approaches. For example, a Travel Plan Co-ordinator who has just organised a major publicity drive for a particular element of their Plan may wish to better understand the impact of this measure. Alternatively, an employer who is funding an employee bus service may be keen to find out how many employees use this service. In each case, the monitoring approach is likely to focus upon particular measures and will not fit conveniently into a standard package. Indeed, an organisation that regularly monitors its Travel Plan may well change its monitoring approach from year to year, in response to the initiatives that they have introduced over the last year.