



THE UNIVERSITY OF
WAIKATO
Te Whare Wānanga o Waikato

Department of Accounting

Working Paper Series

Airport Surface Access Strategies and Targets

by

**Graham Francis, Ian Humphreys,
Stephen Ison and Kelly Aldridge**

Number 78

September 2004

MANAGEMENT SCHOOL
Te Raupapa

The *Working Paper Series* is published by the Department of Accounting, University of Waikato, and is intended to provide staff, visitors and postgraduate students with a forum for publishing developing research. The opinions expressed in the various papers in the Series are those of the author(s) and are not necessarily endorsed by the Department. Working Papers are preliminary in nature; their purpose is to stimulate discussion and comment, and any feedback from readers would be welcomed by the author(s).

Correspondence concerning the submission of manuscripts and the receipt of copy may be addressed to:

The Editor - Working Paper Series
Department of Accounting
University of Waikato
Private Bag 3105
Hamilton, New Zealand
Fax: 0064 (0)7 838 4332

Correspondence concerning the reproduction of, or comment on, any part of a Paper should be addressed to the author(s) concerned.

ISSN 1173-7182

AIRPORT SURFACE ACCESS STRATEGIES AND TARGETS

Graham Francis*, Dr Ian Humphreys,
Dr Stephen Ison** and Kelly Aldridge****

***Waikato Management School,
Waikato University, New Zealand.**

****Department of Civil and Building Engineering,
Loughborough University, UK.**

ABSTRACT

Airport surface access is increasingly seen as a major problem not only in the UK but worldwide given its impact in terms of both traffic congestion and environmental degradation. In 1998 the UK Government published a White Paper entitled 'A New Deal for Transport' (DETR, 1998) in which it introduced the idea of Airport Transport Forums to be established by UK airports in order to set targets for the reduction in the proportion of journeys to/from the airport made by car based modes. In this working paper the authors critically assess the targets developed for achieving the objective of a greater use of public transport in making journeys to airports. Evidence is presented as to how UK airports have developed targets in order to respond to the Government's initiative.

Key words: airports, surface access, targets, strategies.

1. INTRODUCTION

Civil aviation has a considerable effect on the environment and is likely to face increasing pressures to reduce its impact (Upham et. al., 2003). One way in which the issue can be addressed is by tackling airport surface access, made difficult by the forecasted doubling of worldwide airline travel over the next twenty years. As a result there will continue to be an increase in surface access to airports, most notably in terms of the private car (ACI, 2003). The major consequences of this growth will be continued congestion on the road network in and around airports and a deterioration in the quality of the environment. At Heathrow for

example it has been estimated that around 80% of air pollution is derived from surrounding road traffic and airside vehicles and only 20% is derived directly from aircraft.

Airport surface access trips can be segmented into three categories each with differing characteristics, namely: workers, passengers and meeter-greeters, each comprising approximately one third of the airport access trips, depending on the particular airport and its specific context (Ashford et al., 1997, ATAG, 1993, Kazda and Caves, 2000).

Private car use continues to dominate the modal split figures for both employees and passengers in terms of accessing airports worldwide. For smaller airports the dominance of the private car can be partially explained by a lack of critical mass in terms of traffic flows that can sustain commercially viable public transport links. In response to these issues in the UK, airports have been charged by the Government with setting targets in terms of achieving a mode shift from the private car to public transport (for both passengers and employees).

Each airport in the UK with over 1000 air transport movements per annum have been tasked with establishing Airport Transport Forums (ATFs) responsible for setting targets incorporated in an Airport Surface Access Strategy (ASAS). In the Department for Transport's guidance on ATFs (DETR, 1999) it states that Forums should:

- Draw up and agree challenging short and long term *targets* for decreasing the proportion of journeys to the airport made by the private car at the same time as increasing the share of journeys made by other modes.

(Source: Adapted from DETR, 1999, emphasis added)

The importance of ATFs and ASASs is emphasised as an essential part of a future, long term, sustainable National Airports policy (DETR, 2000, DfT, 2003). The aim of this working paper is to critically assess the targets for modal shift utilised by UK airports in order to address their surface access problems.

This working paper has the following structure. Section 2 outlines the method used and section 3 the current modal split situation at airports. Issues surrounding the setting of targets

are raised in section 4, followed by the detailed targets adopted by airports in section 5. Section 6 forms the discussion and in section 7 conclusions are drawn.

2. METHOD

In order to achieve the aims of this working paper all the 27 airports charged with producing targets were contacted by post in March 2004 requesting the airports' ASASs containing each airports' targets. Fifteen airports provided their ASASs, 4 claimed to be still working on the production of an ASAS and one claimed to have no knowledge of the need to produce such a document. The fifteen airports that submitted strategies included a full cross-section of airports with respect to passenger throughput size and these are listed in Table 1. Each strategy was carefully reviewed and surface access targets were identified for passengers and employees. These targets form the basis of Tables 2 and 3. A critical comparative analysis of UK airport surface access targets has been undertaken using the academic literature relating to target setting as a basis. In order to provide additional context and richness to this study, 8 semi-structured interviews were undertaken with UK airport managers responsible for surface access issues.

3. SURFACE ACCESS MODAL SPLIT AT UK AIRPORTS

The current mode split figures for both passengers and employees are presented in Table 1. It can be seen that the private car dominates the airport access mode used by both passengers and employees. For smaller airports the dominance of the private car can be partially explained by a lack of critical mass in terms of traffic flow necessary to sustain competitive public transport links. Equally, given the financial objective following privatisation and commercialisation of airports in the UK to provide returns for their owners, public transport links are unlikely to be provided unless there is a clear economic rationale. As such, the larger the airport the wider the range of viable public transport services but the more acute the traffic problems are likely to be.

Insert Table 1 around here

In order to formulate realistic targets for the future it appears essential that an understanding of current travel behaviour is developed and ASASs appear to have stimulated this process. Information made available by two of the larger airports in the sample implied that data gathering and surveys to understand travel behaviour had become more detailed, more frequent and sophisticated. One manager reported that “...*the Government agenda to improve surface access has led to more sophisticated travel data collection and a boost to initiatives for trying to reduce the number of vehicle trips*”.

The private car share in terms of the modal split is considerably higher for employees than for passengers, possibly due to most having a car available, starting their trip from a home address and many public transport links failing to serve the full range of employment locations dispersed in the vicinity of the airport. Potential to improve the proportion of employees using public transport should be seen as a priority area since these trips do not involve the carriage of baggage and to a degree are likely to be more under the control and influence of airport management. However, on closer examination the airport management-employee relationship is complex with only 7-10% of employees directly employed by the airport management, the remainder working for third party contractors (Graham, 2001). This means that to achieve mode shift the airport can not simply dictate terms but has to work in partnership with the variety of companies on site. For example, Manchester Airport has over 100 different companies on its site employing around 15,500 people.

3.1 Airport Surface Access Strategies

Strategies represent a multi-faceted package of measures to be implemented together in order to achieve the desired modal shift and the targets set. These strategies include major initiatives such as the construction of new infrastructure through to improvements in facilities for cycling. Typical examples of such strategies are:

Short term:

- A closer analysis of the current situation to understand travel patterns and behaviour;
- Improved public transport bus services in terms of frequencies and new routes;
- Provision of facilities to enable cycle access;
- Encourage walking;
- Raising of car parking fees;
- Examination and implementation of car sharing schemes;
- Improved Public Transport marketing;

- Through ticketing and staff concessions, often in the form of travelcards;
- Video Conferencing.

Long term:

- Development of rail links;
- Improve rail, bus and coach services;
- Busway development;
- Development of ground transport interchanges;
- Get employers to sign up to and implement Travel Plans.

As for these strategies, airports have primarily adopted non-market based ‘softer’ options when dealing with the problem. In the longer-term it would appear that more draconian market-based measures will become a necessity if airports are to seriously tackle the problem of surface access congestion and environmental degradation. In addition, airports need to continue to develop partnerships with privately owned public transport operators over which they have no direct control.

Larger airports tend to include a broader range of approaches to try and tackle surface access modal shift issues. Birmingham, Manchester, Heathrow, Gatwick, Stansted and Luton (the large and medium sized airports) see themselves as developing into transport interchanges. These interchanges will act as hub points and will bring together urban bus and rail services at the airport providing a single facility where passengers can change between different modes. Ultimately this will allow passengers and employees to access the airport but will also act as an interchange point for non airport related traffic. This role requires the construction of new infrastructure and the re-routing of some public transport services and then persuading their use. The rationale for these developments is to concentrate public transport activity on the airport site and in so doing improve the critical mass on more routes, in order to improve the market viability of a greater range of public transport services to/from the airport. Whilst this is an elegant concept questions remain. Is the ground interchange concept the way to reduce vehicle trips to airports? What will the consequences be of raising the number of total trips in order to reduce the percentage by car?

In conducting this research the authors identified a number of problems associated with reducing the number of vehicle trips by employees such as high staff turnover, the third party nature of airport employment and the dispersed nature of trips are likely to apply in a wider

context. Awareness of these issues by planners should be considered carefully when formulating airport employee based travel initiatives.

The range of strategies produced and their diversity reflect the multi-faceted nature of the airport access problem and the possible solutions, yet within the UK there appears to be little sharing of best practices between Airport Transport Forums. A mechanism for dissemination of good practice across the UK could provide forums with an insight into the processes of implementing various initiatives. An issue for Governments is how can lessons learnt from airport access strategies and their implementation in one part of the country be transferred and shared with airports elsewhere. Given the increasing ground access problem, internationally, if traffic forecasts are realised, then perhaps there is a need for a body such as the Airports Council International to lead the facilitation of knowledge transfer and application on an international basis so that airside capacity enhancements are complemented by appropriate ground access improvements.

4. TARGET SETTING

Targets can have an important part to play in creating effective management control within an organisation. They can be used by external (governmental or regulatory) bodies to influence the behaviour of organisations. Marsden (2004) comments that *'the use of targets as a means to drive and reward performance is a relatively new discipline with little behavioural understanding. However, what evidence there is suggests that targets do have an impact on decision makers and that having the right targets is therefore important'* (Marsden, 2004, p.1). Berry et al. (1995) suggests that there is an improvement in performance when clearly defined quantitative targets are provided. Button (1999) argues that improved quantitative information is required to better manage air transport and *'the environmental damage associated with air transport beyond the issues of noise nuisance'* (Button, 1999, p.85). In establishing performance targets there is a need to measure what is important to measure not what is easy to measure. Simplistic targets such as the percentage of people using public transport may be attractive (and indeed well meaning) but may not fully encapsulate the desired outcomes of the measure.

The rigour with which targets are set is also an important issue. It can be argued that allowing an individual or organisation to set their own targets frequently results in an element of slack

being included in any targets set. However involving the organisation may allow it to set more realistic targets that it feels it has some 'ownership' of, with the targets increasing the motivation to achieve them. Had the targets been externally set and seen as unrealistic/unachievable then such motivation may be diminished. Likerman (1993) stressed the need to '*establish realistic levels of attainment before the first targets are set.*'

Performance measurement is not a passive activity as is elegantly expressed in the so-called performance measurement paradigm "*what gets measured gets done*". It must be realised that when performance measures are established and targets set, people will work towards achieving them. This is fine when the targets are congruent with the desired outcomes. There have been examples of the *dysfunctional effects* that can arise from a determination to meet the target. There is a risk of having a narrow focus on meeting a target and not the desired outcomes. Target setting must therefore be viewed from a behavioural perspective. There is evidence that as well as any positive benefits that may arise from establishing performance indicators they may also encourage the following dysfunctional managerial behaviour characterised by Smith (1993) each of which has occurred or has the potential to occur in the context of airport surface access indicators:

- (a) **Tunnel Vision:** *concentration on areas... to the exclusion of other important areas;*
- (b) **Sub optimisation:** *the pursuit... [of] narrow objectives at the expense of strategic coordination;*
- (c) **Myopia:** *concentration on short term issues;*
- (d) **Convergence:** *An emphasis on not being exposed as an outlier... rather than a desire to be outstanding;*
- (e) **Ossification:** *A disinclination to experiment with new or innovative methods;*
- (f) **Gaming:** *altering behaviour so as to obtain advantage;*
- (g) **Misrepresentation:** *creative accounting and fraud.*

Source: Adapted from Smith (1993)

5. AIRPORT SURFACE ACCESS TARGETS

In terms of the targets set for assessing the achievement of an improved public transport share of the modal split, airports have varied in the severity of their targets. Certain airports have

required little change in travel behaviour whilst others appear to be somewhat over optimistic (See Table 2 and 3).

Insert Table 2 and 3 around here

In studying the ASASs it can be seen that certain targets are rather general ‘headline’ targets, such as 40% of non-transfer passengers using public transport by 2008 in the case of Gatwick Airport. Other targets are rather specific such as those for Southampton Airport which is seeking to achieve a mode split of 62% private car, 20% taxi, 1.5% coach/bus, 15% rail and 1.5% cycle by 2006. These are seen as challenging but achievable targets, but it is important to state that achievement is not solely down to Southampton Airport, but also to Hampshire County Council and neighbouring transport authorities via their Local Transport Plans.

Stansted Airport set itself 34 targets in its ASAS published in 2000, to be achieved by 2004 a good number of which have been achieved. The targets set appear to have been specific, measurable, realistic and achievable within a set time period. One example of a realistic/modest target set by Stansted Airport is an increase in the number of passengers using public transport from 33% to 35% over the period 1996-2000. Others could be seen as over ambitious. For example, in terms of Norwich International Airport 78% of employees travelled to work in their own car in 1999. The authors of this paper would argue that setting a target in their ASAS of 33% travelling by means other than driver-only private car by 2006 and 40% by 2011 is ambitious. Whilst ambitious targets may be seen as unachievable and therefore elicit little effort in attempting to attain them, conservative targets run the risk of *gaming* whereby they are deliberately set low so as to be achievable, with the airport achieving the target but failing to make a marked impact on airport surface access congestion or environmental degradation.

There needs to be a balance between short-term and long-term targets in order to avoid myopia. Short-term targets require careful monitoring since they impinge on medium/long term targets. For example, London Luton had short term targets between July 2000 and December 2001 of increasing the proportion of employees travelling to/from the airport by foot and bicycle from 4% to 5% and an increase in the proportion of air passengers travelling to/from the airport by public transport from 23% to 30%, over the same period. These are quite precise short-term targets and an airport manager informed us that there has been mixed

success in terms of their achievement. As such it is important to step back from targets' so called 'measure fixation' and look at the outcomes.

It is intended that the targets be reviewed regularly. For example the targets set by Gatwick Airport are altered with agreement of the main local authorities in the area via the Airport Transport Forum. The question is whether this is the case at all airports. Certain targets are within the remit of the Airport, for example car sharing at Heathrow Airport whilst others are more difficult such as passengers accessing the airport by public transport.

There has to be a strategy for achieving the targets. This requires a *partnership* approach with private rail and bus operators and to make efficient use of available road and rail infrastructure.

5.1 Difficulties Assessing the Achievement of Targets

The surface access targets in most cases are monitored by the airport themselves based on samples derived by each airport. There appears to be no single methodology for all airports and so the figures that are presented may or may not be comparable depending on the sampling methodology, size and frequency used by each airport. In cases where airports have to achieve particular targets as part of planning agreements then monitoring and transparency of the figures are necessary in order for the results to be considered credible. For passenger data the Civil Aviation Authority's national programme of surveys is used as a common basis from which to derive passenger modal split figures, however the employee modal split is calculated by each airport, often with varying methodologies and typically with low response rates. In one ASAS it was stated that an employee survey was circulated to all companies on the site and a response rate of approximately 15% was achieved and on this basis employee access mode share was derived. Three of the interviews with airport managers unearthed a modal split figure based on less than a 5% response rate to an employee survey. There is a need therefore to question the robustness of some of the figures. At another airport a Travel to Work Survey was distributed to over 4000 employees with a response rate of 19.3%, again an indication of low response rates.

5.2 When is a Target Not a Target?

Some of the targets could be seen more as commitments such as the production of Company Travel Plans by Stansted Airport. This was seen as necessary however in order to reduce staff car drivers as a percentage of the workforce from 93% to 88% by 2003. It is interesting that it is their own staff that have been targeted but it is important that these initiatives are seen to be existent at the airport company since other on-airport employers are being encouraged to produce their own travel plans.

Targets can also come with a proviso. For example, Nottingham East Midlands Airport stated in their Surface Access Strategy that the Parkway railway station would be completed by 2002. This has not materialised and as such the airport's aim of seeing 5% of passengers and staff incorporating rail transport as part of their journey to EMA will not be achieved in the near future. In fact targets tend to be couched in terms of *maybe*, *use all reasonable endeavours*, or *estimated* unlike Bournemouth, which states that 10 per cent of company staff *will* car-share. Targets can be qualified, based on certain core assumptions. For example, in the case of Gatwick Airport it states that employees will react to changes put in place such as the FastWay system. Currently 32% of Gatwick non-transfer passengers use rail or express coach services to travel to/from the Airport and the aim is to increase this to 40%, but this is predicated on strategies being put in place that will change passenger behaviour.

5.3 Dysfunctional Behaviour

How achievable are the targets reported in Table 2 and 3, and what are the consequences for airports of not meeting them? On first sight given the forecast increase in airport related trips by employees and passengers the numbers required to switch to public transport appear to be optimistic in certain cases. In other cases the targets set have already been achieved, an example of gaming (Smith, 1993). For example, in the London Luton ASAS it states that they have already achieved short-term targets listed in Tables 2 and 3.

Evidence from one of the airports revealed the possible dysfunctional side effects of such performance measures. Targets to achieve a certain percentage of surface access trips to the airport by public transport modes had led to the relocation of car parks to a site outside the airport boundary. Passengers park and catch a courtesy bus into the terminal area and these trips are counted as public transport modes. This is clearly a way of meeting the targets without achieving the operational shift in activity that the performance measure was supposed

to induce – an increase in the level of public transport access to airports. Performance measures need monitoring to check against these effects so that any issues can be identified and the performance measures adapted accordingly. This is another example of ‘gaming’ and ‘sub optimisation’ (Smith, 1993).

6. DISCUSSION

The UK Government guidance is such that the targets have been allowed to be set internally with a lack of common methodology in terms of achievability, monitoring and appraisal and thus there is limited comparability across airports. This raises important questions with respect to published targets. Are the targets selected the right ones? Is the metric, percentage by public transport used, because it is relatively easy to measure compared to the total number of vehicle trips by different modes and the number of people delivered? A target based on such a measure would expose the problem of empty taxis circulating; the full implications of kiss and fly and the issue of courtesy buses from remote car parks carrying few people per load. One airport manager reported that their airport site already had automatic traffic counters at the main site entrances. The measure of the percentage of passengers by public transport misses important detail in terms of the number of access trips. The manager further commented that “*The available evidence suggests that increasing public mode use to airports above 30% may be quite challenging*”.

It should be remembered that the indicators are not always congruent with the desired outcomes. If for example the desired outcome is to reduce congestion then the absolute number of cars arriving at peak hours may be a key component of this. However with the growth in absolute number of passengers and a non uniform arrival pattern, the percentage of people using public transport overall will not be well correlated to congestion. In particular while relative measures (such as percentages) can be a useful way of conveying information they can also be dysfunctional - for example where passenger numbers are increasing a fall in the relative (percentage) number of those arriving by cars may obscure an increase in the absolute number arriving by cars.

Perhaps an additional metric for airports to reduce the ratio of cars to passengers airport access/egress trips is needed to incentivise airports to reduce the number of cars per person trip, a measure that unlike existing percentage figures would capture the benefits of car

sharing. The measure would also detect the number of circulatory movements by taxi, drop off vehicles and shuttle buses, serious contributors to access traffic and all currently undetected in the measure of percentage of people arriving by public transport. This might incentivise airport management to promote long stay parking¹ for which 2 vehicle trips are made as opposed to the practice of taxi or 'kiss and ride' access where 4 vehicle trips are made to deliver a passenger to/from the airport. The practical problem with this target is the complexity and cost of measuring it. Costs, however, should be weighed in relation to management needing improved information for the benefit of managing the airport and the surface access system. Since existing data have a number of weaknesses, this might undermine particular strategies to improve access and may hide the causes of congestion. It might be that a vehicle trips to/from the airport in relation to the number of people accessing the airport site would expose the need to manage circulating traffic and could lead to measures such as charging per vehicle to access the airport site.

Allowing airports to set their own targets may also be more cunning than first thought since the resultant targets may be more realistic and the airports may feel more obligated to achieve them. This does not rule out external comparison (or even dreaded league tables!) of the standards actually achieved (not targets!). A further issue that is not made clear is the one of who counts in the percentage of trips by public transport? If non-airport related trips to a transport interchange at an airport count in the statistics for raising mode share then is this sending out a contradictory message to airport planners?

In light of this discussion it is interesting to reflect on the issues raised here in comparison to the public sector control problems identified by Smith (1993) not least the fourth item!

1. The difficulty in securing a consensus as to what the output and objectives should be;
2. The difficulty in measuring such output and eventual outcome of public sector intervention;
3. The difficulty of interpreting any output and outcome measures that can be developed;
4. The difficulty of persuading citizens to take any interest in performance measures and their interpretation.

(Adapted from Smith, 1993, p.135)

¹ The importance of car park revenues to commercial airports is not necessarily consistent with this.

What is clear is that targets and those who set them must not lose sight of the objective in terms of outcomes (environmental impacts) and need to respond to changing circumstances.

7. CONCLUDING REMARKS

Civil aviation faces challenges surrounding the lack of sustainability of air travel with ever increasing scrutiny of the environmental impact. Surface access would appear to be one area where progress can and should be made. However achieving more sustainable surface access practices is not without its difficulties. In terms of targets there needs to be a rigorous collection of data in support of this objective plus transparency in how the figures are calculated. There is also a need for a common methodology in terms of target setting between airports and a harmonisation of data collection for both passenger and employee data. The additional costs of collecting the data may be outweighed by the improved quality of information for government, airport management and stakeholders in the surrounding community to monitor and measure the surface access situation at each airport.

The introduction of a metric to measure passengers/employees per vehicle trip onto the airport site may be more difficult to measure but would offer a measure that more accurately captures airport access behaviour, with resultant targets that could incentivise car sharing and monitor the airport access problem by allowing limits on the absolute number of trips to be made. This would replace the frequently used percentage of trips by public transport measure. Although it is easy to measure it has a number of flaws, not least that the absolute total number of trips to the airport site by car can rise while the relative measure of the percentage of trips to the airport could fall due to the airport's business expanding, a likely scenario given the 4-5% annual growth forecast for air transport. So apparent success of airports meeting their surface access targets may not be congruent with any reduction in congestion and environmental impacts.

Targets can be made obsolete at short notice, particularly at the airports with less than 2 million passengers per annum due to the rapid growth stimulated by low cost carrier services. In order to maintain meaningful and useful targets, feedback mechanisms and frequent updating of targets in conjunction with major stakeholders is needed, a role that could be fulfilled by the Airport Transport Forum.

The major challenge for airports and all stakeholders that provide airport access services is to overcome the difficulty of persuading those making access trips to take an active interest in the impact their journey is having. There are major factors that make individuals reluctant to use forms of transport other than the private car. It could be that airports alone can have only a limited impact and what is required is a co-ordinated government policy to improve public transport and re-educate the general public to use it. In many ways it is ironic that the Government has not succeeded in policy terms in this area and has sought to transfer responsibility to the individual airports.

Acknowledgments

The authors of this paper would like to thank Stewart Lawrence and those individuals who gave of their time and expertise in terms of the interviews undertaken.

References

ACI Europe, 2003. ACI Traffic Forecasts: 2002-2022. Airports Council International, Geneva.

Air Transport Action Group (ATAG), 1993. Airports as Transport Hubs: Guidelines for Improving Surface Access to Airports. Airport Council International, Geneva.

Ashford, N., Stanton, M., and Moore, C., 1997. Airport Operations. McGraw Hill, London.

Berry, A. J., Broadbent, J. and Otley, D., 1995. Management Control: Theories, Issues and Practice. Macmillan, Basingstoke.

Button, K., 1999. The usefulness of current International Air transport statistics. Journal of Transportation and Statistics, May 1999, 71-91.

DETR, 1998. A New Deal for Transport. HMSO, London.

DETR, 1999. Guidance on Airport Transport Forums and Airport Surface Access Strategies. DETR, London.

DETR, 2000. The Future of Aviation. Department of the Environment Transport and the Regions. DETR, London.

DfT, 2003. The Future of Air Transport White Paper. HMSO, London

Graham, A., 2001. Managing Airports an International Perspective. Butterworth Heinemann, Oxford.

Kazda, A. and Caves, R.E., 2000. Airport Design and Operations. Pergamon, Oxford.

Likerman, A., 1993. Performance Indicators: 20 Early Lessons from Managerial Use. Public Money and Management, Oct-Dec.

Marsden, G., 2004. What role do targets have? UTSG Conference, Newcastle, January 2004.

Smith, P., 1993. Outcome-related Performance indicators and organisational control in the Public Sector. British Journal of Management, 4, 135-145.

Upham, P., Maughan, J., Raper, D., Thomas, C., 2003. Towards Sustainable Aviation. Earthscan, London.

Table 1 Current Passenger and Employee airport surface access mode split at selected UK airports

Airport	Passengers		Employees	
	Car + Taxi ² %	Rail and Bus %	Car + Taxi %	Rail and Bus %
Heathrow ¹	65.3	34.4	77.0	17.0
Gatwick ²	67.5	32.0	84.5	11.3
Manchester ³	79.9	20.1	87.0	8.0
Stansted ⁴	66.2	33.8	96.0	2.0
Birmingham ⁵	87.0	13.0	87.0	13.0
London Luton ⁶	70.0	30.0	84.0	6.0
Newcastle ⁷	88.7	11.3	87.3	11.6
Bristol ⁸	92.0	5.0	96.0	0
Nottingham East Midlands ⁹	98.0	2.0	93.8	3.5
Liverpool John Lennon ¹⁰	95.2	4.5	77.0	9.0
London City ¹¹	79.0	2.0	74.0	21.0
Leeds Bradford ¹²	98.0	2.0	N/A	N/A
Norwich ¹³	95.0	4.0	86.0	3.0
Bournemouth ¹⁴	N/A	N/A	N/A	N/A
Southampton ¹⁵	88.4	10.7	N/A	N/A

Source: Airport Surface Access Strategies, UK CAA data.¹

² Includes travel by hire car.

Table 2 Selected Targets identified from ASASs (Employees)

Airport	Targets
Heathrow	<ul style="list-style-type: none"> • Double number of employees from 1999 figure of 1.3% cycling to work at Heathrow by end of 2002; • Reduce employee car use year on year by 1%, starting in 2002-03; • Increase the number of registered members of Airport Carshare at Heathrow to 3000 by end of March 2004 (with 62% actively carsharing).
Gatwick	<ul style="list-style-type: none"> • Achieve 12% of all airport staff living in the Crawley/Horley area choosing to use the local bus to and from Gatwick, within three years of successful implementation of FastWay; • At least double the number of home to work trips made by bicycle/on foot by 2008.
Manchester	<ul style="list-style-type: none"> • Achieve a progressive reduction in the proportion of vehicle trips by road (employee and pax.) relative to the number of air passengers, with a public transport use target of 40% at 40 million passengers per annum (mppa); • To increase bus use by employees from the current 7% to 13% by 2015.
Stansted	<ul style="list-style-type: none"> • Publish a Company Travel Plan for BAA Stansted staff by end of 2000 (achieved); • Reduce staff car drivers as a percentage of the workforce from 93% to 88% by 2003; • Double the percentage of staff cycling to work by the end of 2003; • Work with on-airport employers to encourage and assist 10 of them to produce their own plans by the end of 2001.
Birmingham International	<ul style="list-style-type: none"> • The Airport shall use all reasonable endeavours to achieve a public transport modal share (including employees and pax.) of 20% by 31 December 2005 or when the number of air passengers reaches 10 mppa, whichever event occurs later.
London Luton	<ul style="list-style-type: none"> • Short-term target: Increase in proportion of employees travelling to/from the airport by foot and bicycle from 4% to 5% over the period July 2000-December 2001; • Short-term target: Increase in proportion of employees travelling to/from the airport by public transport from 4% to 6%; • Long-term target: Reduce the proportion of employees travelling to and from the airport by car alone to 60% or less.
Newcastle International	<ul style="list-style-type: none"> • Intended share of all trips to/from the Airport by sustainable transport means: 15% (2006), 17.7% (2016), 19.2% (2030).
Bristol International	<ul style="list-style-type: none"> • The number of car journeys to the airport expressed as a proportion of the total vehicle journeys to the airport will decrease from an estimated 93.1% (1999/00) to 91.3% in (2005/6); • The use of the Bristol Flyer bus service will grow by 2% per annum; • Car sharing will increase to 15% of staff; • Cycling will increase to 3% of staff.

Nottingham East Midlands	<ul style="list-style-type: none"> • Increase by 5 percentage points the proportion of journeys to/from the Airport, made by site employees, using a mode other than as a single occupant in a car. This increase, bringing the total for these modal choices to 26%, to be achieved by the end of 2005; • See 5% of staff incorporating rail transport as part of their journey to East Midlands Airport within 5 years of the Midland Mainline East Midlands Parkway station opening.
Liverpool John Lennon	<ul style="list-style-type: none"> • The Airport Company will use reasonable endeavours to reduce the percentage of employees travelling by single occupancy private car from 63% (2000) to 58% (2002) and 53% (2005).
London City	<ul style="list-style-type: none"> • Encourage more local bus services to divert into LCA or to stop at the bus stop on the airport boundary, through discussions with local bus companies.
Leeds Bradford	<ul style="list-style-type: none"> • Achieve a public transport mode share (excluding taxis) of say 10% by 2011, a five fold increase from 1992/3 levels.
Norwich International	<ul style="list-style-type: none"> • Percentage of employees to travel by means other than driver-only private car by 2006 30% and 2011 40%.
Bournemouth International	<p>Short-term:</p> <ul style="list-style-type: none"> • An initial 10% of company staff will be involved in telecommuting; • 10% of company staff will car share. <p>Long-term:</p> <ul style="list-style-type: none"> • A proportionate reduction of 20% in private car usage by employees at the airport who commute at peak times, to be achieved through a combination of bus and bicycle use, car sharing and telecommuting, within 10 years.
Southampton International	<ul style="list-style-type: none"> • N/A

Source: Identified by authors from individual ASASs¹

Table 3 Selected Targets identified from ASASs (Passengers)

Airport	Targets
Heathrow	<ul style="list-style-type: none"> • Achieve 40% of air passengers travelling to/from airport by public transport by end of 2007, with longer term aim of 50%; • Increase the patronage of the Slough bus service (74) by 10% by June 2004.
Gatwick	<ul style="list-style-type: none"> • Achieve a 40% proportion of non-transfer air passengers choosing to use public transport for journeys to and from Gatwick by 31st December 2008, commensurate with the airport handling around 40 mppa.
Manchester	<ul style="list-style-type: none"> • Achieve a progressive reduction in the proportion of vehicle trips by road (employee and pax.) relative to the number of air passengers, with a public transport use target of 40% at 40 mppa; • Increase the rail mode share to 12% by 2005; • Increase coach use by passengers from the current 4% to 8% by 2015.
Stansted	<ul style="list-style-type: none"> • Increase the percentage using public transport from 33% in 1996 to 35% in 2000 (achieved); • Develop a package of measures which seek to increase public transport use beyond the 36% forecast in conjunction with possible development of the Airport to 25 mppa.
Birmingham International	<ul style="list-style-type: none"> • The Airport shall use all reasonable endeavours to achieve a public transport modal share (including employees and pax.) of 20% by 31 December 2005 or when the number of air passengers reaches 10 mppa, whichever event occurs later.
London Luton	<ul style="list-style-type: none"> • Short-term target: increase the proportion of air passengers travelling to/from airport by public transport from 23% to 30%, over the period July 2000-December 2001; • Long-term target: increase the proportion of passengers travelling to and from the airport by public transport to 35% or above.
Newcastle International	<ul style="list-style-type: none"> • Intended share of all trips to/from the Airport by sustainable transport means: 15% (2006), 17.7% (2016), 19.2% (2030).
Bristol International	<ul style="list-style-type: none"> • The number of car journeys to the airport expressed as a proportion of the total vehicle journeys to the airport will decrease from an estimated 93.1% (1999/00) to 91.3% in (2005/6); • Increase the Bristol Flyer passengers from 3% (1999) to 5% by 2005/6.
Nottingham East Midlands	<ul style="list-style-type: none"> • See 5% of passengers incorporating rail transport as part of their journey to East Midlands Airport within 5 years of the Midland Mainline East Midlands Parkway station opening.
Liverpool John Lennon	<ul style="list-style-type: none"> • The Airport Company will use reasonable endeavours to increase the percentage of passengers travelling by public transport from 4.5% (2000) to 6% (2002) and 10% (2005).
London City	<ul style="list-style-type: none"> • To encourage more local bus services to divert into LCA or to stop at the bus stop on the airport boundary, through discussions with local bus companies.
Leeds Bradford	<ul style="list-style-type: none"> • Achieve a public transport mode share (excluding taxis) of say 10% by 2011, a five fold increase from 1992/3 levels.
Norwich International	<ul style="list-style-type: none"> • Percentage of passengers to travel by means other than private car by 2006 33% and 2011 40%.

Bournemouth International	<ul style="list-style-type: none"> • Within 10 years the airport will seek to achieve a proportionate reduction of 5% in private car usage by air passengers.
Southampton International	<p>Target for 2006:</p> <ul style="list-style-type: none"> • Private/rental car 62%, Taxi 20%, Bus/Coach 1.5%, Rail 15%, Cycle 1.5%.

Source: Identified by authors from individual ASASs ¹

Endnote ¹:

- 1 BAA Heathrow, Shaping the Vision. A Surface Access Strategy for Heathrow – the next five years. Annual Progress Review, October 2003.
- 2 BAA Gatwick, Gatwick Airport Transport Strategy 2000-2008.
- 3 Manchester Airport: Draft Ground Transport Strategy, [http://www.manchesterairport.co.uk/Web.nsf/alldocs/E7B8BA6B1F0F336180256E2200601317/\\$File/Draft+Ground+Transport+Strategy+to+2015.pdf](http://www.manchesterairport.co.uk/Web.nsf/alldocs/E7B8BA6B1F0F336180256E2200601317/$File/Draft+Ground+Transport+Strategy+to+2015.pdf), last accessed 13 July 2004.
- 4 BAA Stansted, Stansted Airport Access strategy, Annual update July 2001.
- 5 Birmingham International Airport, Surface Access Strategy for Birmingham International Airport and The NEC, July 2000-July 2005.
- 6 London Luton Airport, London Luton Airport Surface Access Strategy, Building on Success, August 2001 and Update, July 2003.
- 7 Newcastle International Airport Surface Access Strategy – Consultation Draft, <http://www.newcastleinternational.co.uk/Documents/SurfaceAccess.pdf>, last accessed 14 July 2004.
- 8 Bristol International Airport Surface Access Strategy, 1999.
- 9 East Midlands Airport, East Midlands Airport’s Surface Access Strategy, August 2001.
- 10 Liverpool John Lennon Airport, Liverpool Airport Surface Access Strategy (August 2001) –Final and Airport Staff Travel Survey 2003
- 11 London City Airport Surface Access Strategy, Chapter One Strategic Context, <http://www.lcacc.org/atf/asas.PDF>, last accessed 3 June, 2004.
- 12 Leeds Bradford International Airport Surface Access Strategy, July 2000.
- 13 Norwich Airport Limited, Norwich International Airport Surface Access Strategy.
- 14 Bournemouth International Airport, The Bournemouth International Airport Surface Access Strategy, July 2000.
- 15 BAA Southampton, Airport Surface Access Strategy for Southampton International Airport, “Central Southern England’s leading Business Airport”, June 2000.

OTHER PAPERS IN THIS SERIES

1. Lawrence, S.L. Rational and social aspects of management accounting practice: report of a field study, June 1990.
2. Northcott, D.N. Capital budgeting in practice: past research and future directions, August 1990.
3. Cheung, J., Vos., E. and Low, C.K. IPO underpricing in New Zealand, September 1990.
4. Van Peurseem, K.A. Extant research in public sector accountability, March 1991.
5. Van Peurseem, K.A. New Zealand auditor perceptions: difficult and critical audit procedures, July 1991.
6. Alam, M. The budgetary process from information processing perspectives, September 1991.
7. McCracken, T. & Hooper, K. The New Zealand goods and services tax (GST): identifying the problem areas, September 1991.
8. Lowe, A. Strategic management accounting, September 1991.
9. McCracken, T. Pricing: a review of contemporary approaches, February 1992.
10. Cheung, J. Estimating costs of capital for small ventures, March 1992.
11. Cheung, J., Vos, E., & Bishop, D. Pre-holiday returns in the New Zealand share market, May 1992.
12. Van Peurseem, K.A. Accountability for social policy: a moral framework, June 1992.
13. Alam, M. & Poulin, B.J. Budget as a discipline: lessons from a turnaround enterprise, December 1992.
14. Raj, M. Pricing options on short and long-term yields using stochastic arbitrage based models, May 1993.
15. Godfrey, A. & Hooper, K. Domesday Book: its significance as an accounting document, June 1993.
16. Van Peurseem, K.A., Lawrence, S.R. & Pratt, M.J. Health management performance: a classification and review of measures and indicators, July 1993.
17. Coy, D. & Goh, G.H. Overhead cost allocations by tertiary education institutions 1989-91, September 1993.
18. Coy, D., Dixon, K. & Tower, G. The 1992 annual reports of tertiary education institutions: quality, timeliness and distribution, November 1993.
19. Van Peurseem, K.A. & Tuson, C. Financial reporting in Area Health Boards 1987-1992, January 1994.
20. Vos, E. & Davey, H. Time consistent accounting standards as a necessary condition for relating "point in time" accounting information to market returns, April 1994.
21. Coy, D., Buchanan, J. & Dixon, K. The users of New Zealand tertiary education institutions' annual reports: who are they and what information do they seek? December 1994.
22. Coombes, R. & Davey, H. The New Zealand accountant's role in environmental accountability, December 1994.
23. Wells, P.K. Marketing regulation and compliance programmes, November 1995.
24. Haslam, J. Analysis of accounting as at the end of the Napoleonic war: towards a critical theoretical history of the prescribing of accounting by the British State, November 1995.

25. Haslam, J. The British state and the prescribing of accounting, 1815-1830: a focus upon the regulating of friendly societies and savings banks in the post-Napoleonic war context, November 1995.

26. Haslam, J. Accounting publicity and the revolution in government, November 1995.
27. Haslam, J. Accounting history as critique of the present: a critical theorising of interfaces between accounting and the British state of the early 1840s, November 1995.
28. Dosa, L., Gallhofer, S. & Haslam, J. Accounting's location in a transition process: a focus upon Hungary, November 1995.
29. Gallhofer, S. & Haslam, J. Accounting on the road: turnpike administration in early nineteenth century Britain, November 1995.
30. Ciancanelli, P., Gallhofer, S., Haslam, J. & Watson, R. Pay systems and social ideology: the case of profit related pay, November 1995.
31. Jenkin, Erica and Van Peurse, Karen A. Expert systems in auditing: New Zealand auditor perspectives, November 1995.
32. Wells, P.K. Marketing regulation and compliance programmes: attitudes and reactions of New Zealand marketing managers in 1988, November 1995.
33. Davey, H.B., Bowker, T. & Porter, B. New Zealand's controlled foreign company regime, November 1995.
34. Davey, H.B., Barnes, H. and Porter, B. External environmental reporting: the need for a New Zealand standard, November 1995.
35. Lawrence, Stewart, Rethinking professional ethics: a religious metaphor for accountants, November 1995.
36. Ciancanelli, P., Watson, R., Gallhofer, S. & Haslam, J. Alternative perspectives on finance: a critical analysis, November 1995.
37. Gallhofer, Sonja & Haslam, J., Beyond accounting: the possibilities of accounting and "critical" accounting research, November 1995.
38. Gallhofer, Sonja, "It really challenged everybody": accounting and critical and feminist pedagogy, January 1996.
39. Gallhofer, Sonja, and Haslam, Jim, The direction of green accounting policy: critical reflections, January 1996.
40. Wells, P.K., Marketing regulation and compliance programmes: attitudes and reactions of New Zealand marketing managers in 1995, February 1996.
41. Pratt, Michael and Coy, David, Managing teaching allocations in a university department: the TAMM model, June 1996.
42. Coy, David and Pratt, Michael, The spider's web: politics and accountability in universities, June 1996.
43. Doolin, Bill, Organisational roles of decision support systems, June 1996.
44. Beale, Bob and Davey, Howard, The nature and origins of comprehensive income, August 1996.
45. Davey, Howard, and Holden, Mark, Emerging directions in the evaluation of foreign subsidiary performance, September 1996.
46. Kelly, Martin, A personal perspective on action-research, October 1996.

47. Doolin, Bill, Defining decision support systems, November 1996.
48. Gallhofer, Sonja, Haslam, Jim and Pratt, Mike, Developing environmental accounting: insights from indigenous cultures, November 1996.
49. Ciancanelli, Penny, Gallhofer, Sonja, Haslam, Jim and Watson, Robert, In the name of an enabling accounting: critical reflections developed and enhanced through an analysis of accounting and profit-related pay, November 1996.
50. Lowe, Alan, The role of accounting in the processes of health reform: providing a "black box" in the cost of blood products, November 1996.
51. Coy, David and Buchanan, John, Information technology diffusion among business professionals: Preliminary findings of a longitudinal study of spreadsheet use by accountants 1986-96, February 1997.
52. Beale, Bob and Davey, Howard, Total recognised revenues and expenses: an empirical study in New Zealand, March 1997.
53. Coy, David, Nelson, Mort, Buchanan, John and Jim Fisher, Spreadsheet use by accountants in Australia, Canada and New Zealand: preliminary findings, March 1998.
54. Wells, P.K., Manapouri: catalyst or consequence? October 1998.
55. Lowe, Alan, Tracing networks through case studies, October 1998.
56. Kim, S.N. and Mfodwo, K., Prospects for the establishment of Islamic banking in New Zealand: a contextual analysis, November 1998.
57. Van Peurseem, K.A., Method for a methodology: a new approach for the middle range, November 1998.
58. Locke, Joanne and Perera, Hector, An analysis of international accounting as a catalyst for the re-integration of accounting research, August 1999.
59. Julian, Aileen and Van Peurseem, Karen, Ethics education and the accounting curriculum: can ethics be taught?, August 1999.
60. Van Peurseem, K.A., Wells, P.K. and L'Huillier, B. Contracting services in SMEs: A New Zealand professional accounting firm case study, September 1999.
61. Lowe, Alan, Accounting in health care: providing evidence of a real impact, September 1999.
62. Alam, Manzurul and Wells, Philippa, Control systems of government-owned business enterprises: a critical analysis of the New Zealand model, November 1999.
63. Kelly, Martin, In Praise of Holistic Education in Accounting, December 1999.
64. Smith, Susan Ann and Coy, David, The quality of city council annual reports, 1996-97 and 1997-98: Preliminary findings, March 2000.
65. Hooper, Keith and Low, Mary, Representations in accounting: the metaphor effect, June 2000.
66. Dixon, Keith, The impact of management control across a hospital system, August 2000.
67. Lowe, Alan, Accounting information systems as knowledge-objects: some effects of objectualization, August 2000.
68. Locke, Joanne and Lowe, Alan, A market test of the ranking of accounting journals: an Australasian perspective, October 2000.

69. Francis, Graham, Humphreys, Ian and Jackie Fry, Lessons for other counties from the privatisation, commercialisation and regulation of UK municipal airports, December 2000.
70. Hooks, Jill, Coy, David and Howard Davey, Information disclosure in the annual reports of New Zealand electricity retail and distribution companies: preliminary findings, January 2001.
71. Lowe, Alan, Methodology, Method and Meaning in Field Research: Intensive Versus Extensive Research Styles in Management Accounting, March 2001
72. Van Peurse, Karen, Locke, Joanne and Harnisch, Neil, Audit Standard Analysis: An Illocutionary Perspective on the New Zealand Going Concern Standard April 2001
73. France, Necia, Francis, Graham, Lawrence, Stewart and Sacks, Sydney, Measuring Performance Improvement in a Pathology Laboratory: A Case Study, April 2001
74. Hooper, Keith and Davey, Howard, Preferences on Learning Options in Accounting Education: A New Zealand/Asian Perspective, May 2002
75. Lowe, Alan and Locke, Joanne, A Paradigm Sensitive Perspective on the Ranking of Accounting Journals: A Web-based survey Approach, May 2002
76. France, Necia, Francis, Graham and Lawrence, Stewart Redesigning Clinical Laboratory Services: Securing efficient diagnoses for New Zealanders, January 2003
77. Lowe, Alan and Jones, Angela, Emergent and the Measurement of Performance: The formulation of Performance Indicator at the Micro-Level, May 2003