Alternatives to Private Car Use by Mobile NHS Professionals
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Dr Steve Melia

Senior Lecturer, Planning and Transport
Centre for Transport and Society
Department of Planning and Architecture
University of the West of England, Bristol

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1 Key Findings

From 2009, Avon and Wiltshire Mental Health Trust (AWP) introduced a pioneering scheme (Golow) offering electric bicycles and pool cars to employees based in Bristol. One team (the ‘Zero Petrol Team’) now travels almost entirely by electric bike. This study aims to evaluate the experience of the Golow scheme, and also to explore the travel patterns and needs of mobile NHS professionals more generally, using AWP as a case study.

Through an online survey, telephone interviews and a focus group of the Zero Petrol Team, the study aimed to explore the travel needs and constraints of AWP staff, their travel patterns, their experience of the Golow scheme, and the factors explaining the participation, or non-participation, of individual staff and work teams.

The online survey was completed by 306 employees, 18.5% of the staff based in Bristol and South Gloucestershire. Key findings include:

- 55% worked in clinical positions. 73% were female. 66% were full-time.
- 38% travelled more than three times a week – these staff are mainly community-based, working in multi-disciplinary teams, visiting clients in their homes.
- Their patterns of work travel, commuting and private travel are shown in Figure 8 (page 16) to Figure 12. 60% used their own car as the main mode of work travel. 15% cycled and 7% used the Golow pool cars.
- Their reasons for different modal choices are shown in Table 3 (page 18) to Table 5. Driving straight from home to an external location was the main reason for driving for work. Health, environment, and avoidance of parking problems were the main reasons for cycling or walking.
- 25% of respondents had used a pool car at some point. For 46%, the experience was generally good, but 50% reported that the number of available cars was insufficient to satisfy demand.
- 30% of pool car users had reduced their commuting by car.
- Men were more likely to cycle for work than women, but age was not statistically significant: those over 45 were as likely to cycle as those under 45.

Analysis of the survey, interviews and focus group revealed:

- Some of the central sites, particularly Colston Fort, suffered from parking constraints: pool cars and travel by other means were essential in those circumstances.
- Most of those people who travelled by other means reported occasional needs to travel by car e.g. when taking a client outside their normal area. The 2-seat pool cars were sometimes too small, where 2 members of staff needed to accompany a client.
- Apart from time-saving and avoidance of parking problems, the electric bikes had brought other benefits to users. In the Zero Petrol Team, they were believed to have increased staff motivation and indirectly helped to motivate clients.
- Social norms within work teams influence modal choices and decisions to participate in the scheme. Pool car and electric bike users both perceived their colleagues and local managers to be more positive towards the Golow scheme, than did non-users.
- Local managers, particularly including the Golow manager, had played a key role in motivating people in those teams which frequently participated in the scheme.

The pool cars cost around the same as mileage reimbursements. The electric bikes were slightly more expensive because some are used only occasionally. The main potential for cost and carbon savings comes from staff switching from driving to cycling or walking. The availability of pool cars is necessary to support that switch.
2 Background and Aims of the Study

2.1 Introduction and Aims

In 2009, Avon and Wiltshire Mental Health Trust (AWP) introduced a pioneering scheme which offered electric bicycles and one electric pool car as an alternative to employees’ own cars (or bikes), initially for one team, which became known as the ‘Zero Petrol Team’. Like most teams in AWP, most of the team’s work involved visiting clients in their homes. The scheme was later expanded, with the purchase of 20 petrol-driven Smart cars for use by staff across the Trust’s sites in Bristol. In 2012, the Golow project, as it was then named, was set up as a separate social enterprise, which continued to provide similar services to AWP, and other public sector employers.

This study will use AWP as a case study to explore the travel patterns and needs of mobile NHS professionals, and the potential for initiatives such as Golow to offer alternatives to private car use elsewhere in the NHS. Through a combination of an online survey, telephone interviews, a focus group and analysis of financial data, the study aims to answer the following research questions:

1. What are the work travel needs and constraints of AWP’s mobile staff based in Bristol?
2. How do they currently travel?
3. What have been the advantages and problems for staff using the Golow cars and electric bikes?
4. To what extent has the scheme altered participants’ commuting, car ownership or travel patterns outside work?
5. What factors explain the participation or non-participation of staff in the scheme?
6. What are the implications of these findings for NHS trusts, other employers of mobile staff, and transport policy more generally?

It will also comment briefly (in Chapter 7) on financial aspects, and carbon savings from the scheme, and promotion of alternatives to private car use.

2.2 AWP and NHS Carbon Reduction Policies

The original impetus for the Golow scheme came from the then manager of the Zero Petrol Team, Pierre Fox, who has since become the manager of the new social enterprise. That process was explored in the focus group and will be described later. The context, which favoured the scheme’s acceptance and expansion, was the publication in the same year of the NHS’s carbon reduction strategy (NHS and SDU, 2009). This committed the NHS to a carbon reduction target of 10% between 2007 and 2015. The Sustainable Development Commission (abolished by the government which took office in May 2010) worked with the NHS’s own Sustainable Development Unit to calculate a carbon footprint for the NHS, which showed that travel and transport accounted for 18%. This calculation included both travel to NHS sites and travel by NHS staff. On that basis, the NHS accounts for 5% of the traffic on the roads in England. Key actions for Trusts included that “all trusts should have a board-approved travel plan” and that they should “systematically review the need for staff, patients and visitors to travel”.

AWP’s Carbon Management Plan published later the same year committed the Trust to an 18% reduction in carbon emissions by 2014 (AWP, 2009a). Of the baseline carbon footprint, 14% was ascribed to transport. The Plan referred to “the service and environmental benefits of providing electric bikes and pool cars for staff travel, reducing time spent in traffic/parking,
increasing staff mobility and reducing emissions”. The Plan cites a number of other benefits of reducing emissions generally, including cost savings and “unquantified benefits” such as reputation, motivating staff, and creating a better environment for patients and staff.

For the NHS as a whole, work travel by staff represented 26% of the baseline carbon travel emissions for 1990 (NHS et al, 2009). Despite this, several other NHS policies referring to travel plans focus on parking, travel to NHS sites by patients and visitors, and commuting by staff, with work travel often overlooked (NHS, 2006). For hospital based trusts, work travel represents only a relatively small proportion of the total: around 4% for Cambridge University Hospital, according to Brockway (2009), for example.

For trusts like AWP, whose primary role involves travel to clients’ homes, work travel would clearly be more significant. AWP’s Carbon Management Plan shows staff mileage accounting for 98% of the carbon emissions (AWP, 2009a). The other 2% applied to transport of patients (e.g. in ambulances): travel by patients to AWP’s sites was not included in the baseline measure, so it was not possible to assess the relative importance of each.

In 2010 AWP commissioned the Energy Savings Trust to assess the carbon emissions of its work travel (Anders, 2010). This was done by four categories of vehicle: employees’ own cars, 124 lease cars (available to high users, directors and consultants), 21 pool cars and 9 other Trust owned vehicles – mainly vans. The distribution of work mileage covered the previous year is shown in Figure 1.

![Figure 1 – AWP work mileage in 2009](image)

![Figure 2 – Emissions (g/km) of Car Categories](image)

Figure 2 compares the average carbon emissions of the three main categories of vehicle: the 90 g/km for the pool car is the current 2012 figure supplied by Golow. The other two are taken from Anders (2010). The average age of the employees’ cars was 11 years. The main recommendation of that report was that considerable carbon savings could be achieved by using pool cars instead of employees’ cars for work travel.

### 2.3 AWP Travel Plan and Survey

Interestingly, given the prominence which AWP gives to the Golow Scheme, AWP does not have a Trust-wide travel plan (Trust policies shown on: AWP, 2012). An informal travel plan, with a travel survey, was produced for the central and eastern parts of Bristol, at the instigation of the Zero Petrol Team manager, who was then beginning to take more responsibility for developing what became the Golow scheme (AWP, 2009b). This included
targets for those areas to reduce business car mileage by 10%, from 2003 to 2010, by increasing cycling, public transport and car sharing.

Trust-wide travel surveys were conducted in 2010, by the then Sustainability Manager, and in 2011 by the Golow manager. The results were circulated in raw form amongst the management team, but were not published. The 2011 survey was completed by 475 staff. Of particular relevance for this study were the responses about commuting shown in Figure 3:

![Figure 3 Responses about Commuting from AWP Travel Survey](image)

It should be noted when comparing Figure 3 to the findings of this study, that only around 40% of AWP’s staff are based in Bristol. The rest are based in smaller towns and cover more rural areas.

Issues of travel distance and compactness of areas will be relevant at several points in this report, so it is worth noting that Bristol is a reasonably compact city, though many others are denser. Part of its suburbs fall within the semi-rural unitary authority of South Gloucestershire. Most of the conurbation is covered by Bristol City Council, an area of 110 km² – similar to Liverpool or Belfast. With 411,000 inhabitants, it ranked 39th of the 445 first-tier UK local authorities in terms of population density in 2006 (ONS, 2008).

2.4 Outline of this Report

The next chapter will review: the literature on travel plans, travel by healthcare and similar mobile professionals, and the theoretical literature on social norms and work groups. Chapter 4 will outline the methodology used for the primary research. Chapter 5 will set out the findings from the online survey. Chapter 6 will draw on the telephone interviews, focus groups and analysis of the survey findings to address research questions 1 to 5. Chapter 7 will discuss the financial implications of the Golow scheme. The final chapter will draw conclusions and implications for NHS trusts, other employers of mobile staff, and transport policy more generally.
3 Literature Review

3.1 Travel Plans and Travel by Healthcare Professionals

Very little research has been done, and little has been written, about the travel of healthcare professionals, apart from the travel plans and travel surveys of individual trusts (in the UK). A search of the international literature revealed several papers about rural medical services in more sparsely populated countries, and some papers about the travel of patients to healthcare facilities, but none about the work travel of healthcare professionals in a comparable context to this study.

In a rare example from the peer-reviewed literature referring to the NHS, Cavill et al. (2007) surveyed the directors of public health in English Primary Care Trusts (PCTs – a tier of the NHS which will be removed from 2013) on issues related to cycling. Around a third of PCTs had identified someone with responsibility for cycling – covering the PCT’s own staff and/or promotion of cycling in the local population. 37% of PCTs paid staff a mileage allowance for cycling on trust business. 8% provided pool bicycles.

Following the discussion above, a review of NHS travel plans published online (see appendix) showed a general focus on commuting by staff and travel to NHS sites by patients and visitors. Staff travel surveys also tend to focus on commuting, with some omitting any mention of work travel. In some cases, all movements in and out of a particular site may be measured with no distinction between commuting and work travel, although it is not always clear whether the survey times might skew the results towards one or the other.

Publications of the twelve trusts in the Southwest and Southeast regions listed as mental health trusts on NHS (2012)\(^1\) were searched for references to travel plans or staff travel surveys. Where the online information was unclear, two Trusts were approached for clarification. Seven of these trusts stated that a plan was under development, or that they intended to develop a plan (some of these statements of intent had been made several years ago, suggesting either practical difficulties, or low priorities). One trust had a carbon reduction plan with a brief mention of travel. Only two: the Southern Health and the Surrey and Borders NHS trusts had published travel plans.

Of these two, the aims of the Southern Health NHS Trust’s plan were closest to those of AWP, with a specific aim to reduce the staff use of private cars for work travel. The two principal reasons advanced for this were to reduce carbon emissions and to reduce the legal risks involved in transporting patients (Hampshire Partnership NHS Trust, 2010 - the name changed following a merger). The Surrey and Borders NHS Trust’s published travel plan relates to one hospital site, so the emphasis is more on travel to that site, by patients and commuting by staff, although they also proposed a target to reduce business travel by car (Surrey and Borders Partnership NHS Trust, 2008).

A substantial literature exists on workplace travel plans and travel behaviour change more generally. The most comprehensive study conducted in the UK included information on the travel plans of 8 NHS trusts or sites (Cairns et al, 2004). Using a combination of published literature, interviews and some primary survey work, this study showed reductions in driving in 7 out of the 8 cases. The main purpose of that study was to assess the effectiveness of travel plans overall, so the published reports (Cairns et al, 2004, 2008) give very limited information about each case study.

\(^{1}\) Not including acute trusts, some of which also cover mental health.
Some more information, based on interviews and publications by the trusts is available for four of those case studies, covering five hospital sites, on NHS London Travel Network (2012, also mentioned in: Cairns et al, 2010). The reductions claimed in the modal share of car trips (by drivers and passengers) are shown in Figure 4. For Plymouth and Nottingham, these figures are based on staff surveys asking about the main mode of commuting only. The figures for Addenbrooke and Oxford were based on counts of staff movements in and out of the site for all purposes. It should also be noted that the periods examined vary substantially, from just one year to a decade.

![Figure 4 Staff Travelling by Car Before and After Travel Plans (NHS London 2012)](image)

The travel plan measures across the five sites included parking restrictions and parking charges for staff. In all cases, parking charges were increased during the periods shown in Figure 4, and parking controls were introduced or restrictions extended during the same period in four cases (the timing was not clear in the case of Nottingham). The travel plans also mentioned a range of other measures involving publicity/promotion and some minor improvements to facilities to encourage walking, cycling, public transport and car sharing.

None of the studies cited in this section attempted to assess the relative importance of the parking measures versus the positive measures to promote other modes. As these were often introduced simultaneously, this would be difficult, if not impossible, to do. Published travel plans tend to stress the positive measures. Whether these exert an independent influence on modal share, or whether their purpose is simply to make the parking measures more palatable to employees, is a question which has yet to be answered.

The reliability of evaluation studies in this area of is a contested issue, with some writers suggesting that the before-and-after surveys used in some of the examples cited above are vulnerable to self-reporting biases (the debate is summarised in: Melia, 2011, Section 5). The risk of these biases is easy to identify in theory but there is little specific evidence of their importance in practice. It may be noted that two of the examples shown in Figure 7 used physical counting measures, which are less susceptible to those forms of bias.

From interviews with 'expert' practitioners, Enoch and Ison (2010) note that travel plans have been widely implemented in public sector organisations in the UK, including the NHS, but
that they were often viewed as a marginal activity, poorly integrated with ‘core’ activities and systems. Cairns et al (2010) identify a number of factors important to the success of travel plans. They note that none of their case studies relied on awareness-raising alone: mode-specific measures can be complemented by marketing initiatives. Senior management support and dedicated staff time are both important. In a guide written for the Department for Transport, Taylor (2007) adds that: “a travel plan champion”, who can enthuse other staff and introduce creative ideas, is an important factor promoting successful implementation.

3.2 Mobile Workers and Cultures of Mobility

Most of the literature on mobile workers has tended to focus on commercial or managerial ‘business travellers’, often focussing on the influence of new technologies. As Cohen (2010) points out, the literature has tended to neglect “traditionally female” occupations: that study looked at mobile hairstylists; the same is true of nursing. Of more direct relevance to this study are a number of writings about ‘auto-mobility’ and the role of the car for social workers involved in home visiting.

A central role for the car as “comfort zone, a safe place” emerged unexpectedly from a qualitative study concerned with representations of fear amongst social workers and counsellors (Smith, 2003). Drawing on Sheller’s (2004) concepts of “automotive emotions”, Ferguson (2009, 2008) expands on this and outlines a number of other aspects of the relationship between mobile social workers and their cars. Cars are sometimes used as a place of tranquillity, of reflection after difficult encounters with clients, as well as a refuge from “office politics”. They sometimes act as a “mobile office”, providing confidential space for writing notes, using ICTs, supervision, peer support or debriefing. Cars can provide a “transitional space” which can help to achieve breakthroughs in relationships with clients by placing them in an environment of “encircling warmth”, where barriers to communication may be overcome.

Social workers’ cars can also be perceived by clients as representations of status and power, particularly as many clients are too poor to own cars themselves. Thus, “while cars bring worker and client together in ever speedier times, the momentum is for cars to drive professionals, so to speak, away from a deeper identification with and connection to their (“car-less”) clients” (Ferguson, 2009).

Ferguson (2008) notes that professionals’ experience of home visits had not been systematically researched: the observations above are based on limited research evidence. He notes that historically, mobile social work began with the use of bicycles in the late 19th century. As this study will show, bicycles continue to be used by mobile professionals in the NHS. No literature was found on this subject – for health or social work. Apart from passing references in the literature about travel plans described in the previous section, cycling for work purposes (as distinct from cycle commuting) is a little-researched area.

Some researchers have extended Sheller’s concept of automotive emotions to cycling, although this has usually focussed on the act of cycling rather than emotional connections to the bicycle as an object. Pelzer (2010) compared the cycling cultures of Amsterdam and Portland Oregon. Portland has several similarities to Bristol in that respect: it is a city with a hilly terrain, an extensive but incoherent network of cycle routes and a strong minority cycling culture, in a country where driving is perceived to be the norm. In these circumstances, Pelzer notes that cyclists are more likely to experience a sense of camaraderie. Factors such as health and sustainability exert an important influence on decisions to cycle (whereas in a city such as Amsterdam, practical considerations are more important). “The act of bicycling is in a constant interaction with both the material presence of the car and the experience of not being in an iron cage”.

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Aldred and Jungnickel (2012), who studied cycling cultures in Bristol and three other British cities, found workplaces (including AWP) where cycling to work had become “normalised”. The network of cycle routes offered a “unique way of experiencing the urban environment” with interviewees identifying emotional as well as practical benefits. They also note that clothing exerting an important influence on decisions to cycle, or not: of the four cities “we saw the most Lycra and helmets in Bristol and the least in Cambridge” – Cambridge had the highest level of cycling and Bristol the lowest of the four.

3.3 Environmental Behaviour, Social Norms and Work Groups

The Golow project followed responses by the NHS and AWP to environmental, as well as public health, concerns. In exploring the factors explaining staff participation or non-participation, the study will consider the influence of environmental attitudes. Social psychological studies have tended to find relatively weak associations between environmental values and specific behaviours. Surveying the literature, Bamberg (2003) concludes that the direct empirical relationship between environmental concern and behaviour is “low to moderate”. Several theories have been applied to these questions, such as the Theory of Planned Behaviour (TPB - Ajzen, 1991) and Value Belief Norm Theory (Stern 2000, cited in: Matthies and Blöbaum, 2007). These theories postulate indirect relationships between general environmental (or social) values and specific behaviours. Several factors intervene between the general values and the specific behaviour including norms, which may be personal, social or both. The TPB postulates that subjective norms, perceived social pressures and influence the intention to behave in a particular way, which may or may not lead to a specific behaviour.

Social norms within groups also exert a significant and lasting influence on the personal norms of group members. Several studies have illustrated how the political values of groups such as college sororities influenced members from differing backgrounds, in ways which endured long after the individuals left those environments (Newcomb 1943, Seigel and Seigel 1957 cited in: Hogg and Reid, 2006). Similarly, experimental studies have shown how a group norm, once established, can persist in the group even when the original members have all left (MacNeil & Sherif, 1976 cited in: Hogg and Reid, 2006).

Amongst the theories used to account for these observations, self-categorization theory explains these influences in terms of social identity. Individuals create or bolster their sense of identity through membership of “in-groups”, perceived in relative terms by contrast to “out-groups” with different characteristics. The process by which social norms evolve within groups is complex and not fully understood. Hogg and Reid (2006) maintain that both observed behaviour and communications within the group help to instil group norms within its members. Conformity to an in-group norm does not necessarily involve copying observed behaviour, however: the individual constructs a perceived in-group norm from observing behaviour within the group and in salient out-groups (Hogg and Abrams, 1988). To illustrate this, Hogg et al (1990) cite the example of a group of “moderate vegetarians” whose views may become more radical through interaction with carnivores, but less so, when confronted by vegans. To what extent perceptions of group norms are influenced by communications within the group (i.e. what members say as opposed to what they do) is an area where evidence is limited.

In an organisational context, it has been noted that employees tend to identify more strongly with smaller work groups or “sub-units” (Ashforth and Mael, 1989) because “people are more likely to identify with work groups with which they are familiar, and with which they perceive greater similarity. Experimental interventions which increase awareness of the
distinctiveness of a sub-group are likely to increase social identification, which may, in turn, increase “engagement and productivity” (van Dick et al, 2005).

Within groups, leaders may emerge who embody the prototypical norms. These leaders tend to identify more strongly with the group than others, and to behave in more group-oriented ways. This enables them to generate trust amongst other members, and to lead the group in new directions (Hogg and Reid, 2006).

Several of these observations will be referred to in Chapter 6, analysing the findings of the survey, the telephone interviews, and particularly the focus group conducted with the Zero Petrol Team, which pioneered the move away from use of private cars for work travel at AWP.

4 Methodology

4.1 Overview

The research questions implied a mixture of quantitative and qualitative methods. A four stage process was adopted, as illustrated in Table 1. The shaded squares show the main issues each method was intended to address.

<table>
<thead>
<tr>
<th>Research Question</th>
<th>1 Online Survey</th>
<th>2 Telephone Interviews</th>
<th>3 Focus group</th>
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<tbody>
<tr>
<td>1. What are the work travel needs and constraints of AWP’s mobile staff based in Bristol?</td>
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<td>2. How do they currently travel?</td>
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<td>5. What factors explain the participation or non-participation of staff in the scheme?</td>
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<tr>
<td>6. What are the implications of these findings for NHS trusts, other employers of mobile staff, and transport policy more generally?</td>
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</table>

Table 1 Methods Used to Address Each Research Question

4.2 Online Survey

The online survey was designed to ask about work travel, awareness and use of the Golow scheme, commuting, car ownership and the private travel of staff, with menus of reasons for modal choices and their advantages and problems. These menus included open text ‘other’ options, explored further in the telephone interviews.

The software permitted branching, so respondents were only asked questions which were relevant, based on their previous responses. Amongst the personal and demographic questions, the job categories and base locations were taken from previous AWP surveys and were intended to be familiar to all staff. Unfortunately, the combination of those two questions did not permit the identification of work teams, as most of these were multi-disciplinary and some locations were bases for several teams. This constrained the
analysis of work teams and their influence to qualitative information gleaned from the interviews and focus group.

Apart from the direct questions about travel behaviour and the GoloW scheme, the survey also included a series of statements, shown in Table 2, designed to assess individual attitudes towards transport and the environment with responses on a 5 point Likert scale (from ‘strongly agree’ to ‘strongly disagree’):

<table>
<thead>
<tr>
<th>Statement</th>
<th>Response</th>
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<tbody>
<tr>
<td>I need a car to do many of the things I like to do</td>
<td></td>
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<tr>
<td>Getting to work without a car is a hassle</td>
<td></td>
</tr>
<tr>
<td>We could manage pretty well with one fewer car than we have (or we already manage pretty well with no car)</td>
<td></td>
</tr>
<tr>
<td>Travelling by car is safer overall than riding a bicycle</td>
<td></td>
</tr>
<tr>
<td>I like driving</td>
<td></td>
</tr>
<tr>
<td>People should be allowed to use their cars as much as they like, even if it causes damage to the environment</td>
<td></td>
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</tbody>
</table>

**Table 2 Attitudinal Statements in the Survey**

These factors were used in the regression analyses, discussed in Section 6.6, which explores the influences on participation in the scheme. The last of these statements was drawn from the British Social Attitudes Survey (National Centre for Social Research, 2011) and enabled a comparison with the national population.

The researcher worked with the GoloW manager and AWP's IT staff to pilot the survey and disseminate the invitation to participate to all 1,658 staff based in Bristol and South Gloucestershire. The introduction to the survey explained that its aim was "partly to assess how much use has been made of the GoloW project pool cars and bikes and to explore more broadly the travel patterns and travel needs of different types of NHS staff." An incentive was offered involving entry into a draw for shop vouchers worth £100. Participants had the option of remaining anonymous although an email address was required for the draw, and a telephone number for those willing to participate in the second stage. It was explained that this report would be made available to AWP management and staff, but the individual responses would remain confidential.

### 4.3 Telephone Interviews and Focus Group

Participants in the survey were asked if they would be willing to take part in a second stage of telephone interviews. These semi-structured interviews were designed to probe particular issues arising from the survey. Some of the questions in the survey related to changes in behaviour such as commuting or car ownership since the introduction of GoloW. As the timing of the study did not permit ‘before and after’ surveys, the telephone interviews were partly used to probe some of the responses to those questions, to assess their accuracy and explore the reasons for any changes in behaviour.

The 15 people interviewed were selected for the following reasons:

- 5 stated that they had reduced or stopped commuting by car as a result of GoloW
- 2 stated that they had reduced their household car ownership as a result of GoloW
- 3 stated that the scheme was not practical for them, for different reasons
- 1 professional required to make home visits, who neither drove nor cycled
- 1 manager of a team with high use of GoloW pool cars/bikes
- 2 managers of teams with low use
• 1 manager of two teams, with higher and lower levels of use

They included: 4 multi-disciplinary team managers (who were asked both about their teams and their personal travel), 4 doctors, 3 nurses, one social worker, one non-clinical manager and two ‘allied health’ workers from the early intervention and drug and alcohol services.

A focus group was conducted with the Zero Petrol Team, where staff routinely use electric bicycles. The team manager participated: she also invited two other regular users of electric bikes, from another team with which they have regular contact, making a total of 7 participants (4 males and 3 females). The usual name for the ‘Zero Petrol Team’ is Bristol Vocational Service. Their function is to help clients obtain or retain employment during or after their treatment. The other two participants were social workers, employed by Bristol City Council, who work in Support and Recovery teams, helping clients who need longer-term support.

The focus group aimed to explore issues around the use of electric bikes and the Golow scheme, and group dynamics as discussed in Section 3.3.

The interviews and focus group were recorded, transcribed and analysed thematically using NVIVO, as described in Chapter 5.6. Some of the quotes have been edited for brevity.

The financial analysis in Chapter 7 was based on data supplied by AWP, and some prior analysis conducted by a finance officer. The aim of that chapter is to compare the costs of this scheme with the alternative of employees using their own cars.

The formal methodology was also supplemented by numerous telephone conversations and email exchanges with the finance officer, staff in human resources, and particularly the Golow Manager (who is now employed by the social enterprise) to clarify factual information and understanding of operating systems and the history of the scheme.

5 Survey Findings

5.1 Sample Demographics

The online survey was completed by 306 people, a response rate of 18.5%. Roughly three-quarters were female and two-thirds worked full-time; 18% worked shifts. Two-thirds were based at the three main hospitals (Blackberry Hill, Callington Road and Southmead) with the rest distributed across 10 smaller centres. The distribution of job categories and ages are shown in Figure 5 and Figure 6:
The age bands used by AWP’s HR department are slightly different from those shown in Figure 6 but suggest a broadly similar distribution. Administrative (19% of all employees) and Allied Health professionals (5%) were both over-represented in the sample whereas nursing staff (49%) were somewhat under-represented. This may reflect the lower proportion of time spent in the office by a group who are mainly community-based frequent travellers.

5.2 Travel Behaviour

The frequency of travel for work is shown in Figure 7. Two thirds of the nursing staff travelled at least once a week, compared to 19% of the administrative staff, so following the discussion above, the staff who did not respond would probably travel more frequently than shown in Figure 7.

As shown on Figure 8, private cars remain the main modes of travel for work, followed by employees’ own bicycles.
Household car ownership, shown in Figure 9, is similar to the city-wide averages for households containing employees in Bristol from the 2001 Census. The proportion of car commuters is also very similar to the Census average for Bristol. The main difference is the higher proportion cycling, and the correspondingly lower proportions walking or using public transport.

There was a very strong association between the main modes of commuting (Figure 10) and of work travel (Figure 8), significant at the 99% level. 93% of those who commuted by car also used it for work travel; 80% of those who cycled to work, likewise used the bicycle for work travel. The only exception to this pattern was for people who walked to work, 43% of whom walked as their main mode of work travel, with most of the rest driving their own car (on those days), or using a pool car.

Compared to the Trust-wide travel survey shown in Figure 3 (page 8), Figure 10 shows lower levels of driving and correspondingly higher levels of cycling and walking, as expected of a city-based sample, although the rate of commuting by public transport was similar.
Figure 11 and Figure 12 show the modes of personal travel outside work. Figure 11 was a multiple option question and Figure 12 was constrained to a single answer. These also show relatively high rates of cycling: in the National Travel Survey (2010) two thirds of respondents cycled “less than once a year, or never”.

5.3 Reasons for Modal Choices for Work Travel

Depending on the options selected, respondents were asked about their reasons for choosing their main mode of travel for work. Table 3 shows the menu responses for those who mainly drove their own car for work travel:

<table>
<thead>
<tr>
<th>Reason</th>
<th>No.</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>I often drive straight from home to a client or external site</td>
<td>64</td>
<td>37.4</td>
</tr>
<tr>
<td>I feel safer in a car</td>
<td>44</td>
<td>25.7</td>
</tr>
<tr>
<td>I prefer driving</td>
<td>34</td>
<td>19.9</td>
</tr>
<tr>
<td>I have to carry equipment or heavy files</td>
<td>31</td>
<td>18.1</td>
</tr>
<tr>
<td>I sometimes drop off other people on the way</td>
<td>27</td>
<td>15.8</td>
</tr>
<tr>
<td>The mileage rate helps towards the running costs of my car</td>
<td>4</td>
<td>2.3</td>
</tr>
<tr>
<td>Total Asked the Question:</td>
<td>171</td>
<td></td>
</tr>
</tbody>
</table>

Table 3 – Reasons for Driving for Work (multiple option)

A further 11 respondents (6.4%) cited other reasons, related to health problems, distance or children.

Table 4 shows the menu responses from those who cycled, walked or motorcycled to work. The responses to these multiple response questions were not obligatory and it is interesting to note that these three groups were more likely to respond to this type of question than the drivers. Note this did not include the users of the Golow electric bikes, discussed later.

<table>
<thead>
<tr>
<th>Reason</th>
<th>No.</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>I feel it is healthier than driving</td>
<td>43</td>
<td>69.4</td>
</tr>
<tr>
<td>I want to make a positive contribution to the environment</td>
<td>41</td>
<td>65.7</td>
</tr>
<tr>
<td>It avoids parking problems</td>
<td>36</td>
<td>58.1</td>
</tr>
<tr>
<td>I like spending more time in the open air</td>
<td>32</td>
<td>51.6</td>
</tr>
<tr>
<td>It is quicker than travelling by car</td>
<td>25</td>
<td>40.3</td>
</tr>
<tr>
<td>I only travel short distances for work</td>
<td>18</td>
<td>29.0</td>
</tr>
<tr>
<td>I don’t own a car</td>
<td>17</td>
<td>27.4</td>
</tr>
<tr>
<td>I don’t have a driving licence</td>
<td>11</td>
<td>17.7</td>
</tr>
<tr>
<td>Total Asked the Question:</td>
<td>62</td>
<td></td>
</tr>
</tbody>
</table>

Table 4 – Reasons for Cycling, Walking or Motorcycling for Work (multiple option)

Six respondents mentioned other reasons, mainly related to cost. Two of these mentioned the cost of paying for petrol “up-front”, which would only be reimbursed later.
Table 5 shows the single main reasons for the people who mainly used public transport (or taxi in one case) for work travel.

<table>
<thead>
<tr>
<th>Reason</th>
<th>No.</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>I don’t have a driving licence</td>
<td>7</td>
<td>41.2</td>
</tr>
<tr>
<td>I don’t own a car</td>
<td>5</td>
<td>29.4</td>
</tr>
<tr>
<td>I want to make a positive contribution to the environment</td>
<td>4</td>
<td>23.5</td>
</tr>
<tr>
<td>It avoids parking problems</td>
<td>1</td>
<td>5.9</td>
</tr>
<tr>
<td><strong>Total:</strong></td>
<td>17</td>
<td>100.0</td>
</tr>
</tbody>
</table>

Table 5 – Reasons for Using Public Transport for Work Travel

Those who mainly cycle, walk or use public transport were asked whether they ever used their own car for work. Those who said they sometimes did were then asked under what circumstances. Their responses are shown in Table 6:

<table>
<thead>
<tr>
<th>Circumstance</th>
<th>No.</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>When travelling to destinations not easily reachable by other means</td>
<td>19</td>
<td>59.4</td>
</tr>
<tr>
<td>When I have driven to work, so I already have my car with me</td>
<td>9</td>
<td>28.1</td>
</tr>
<tr>
<td>When travelling to several places in a day</td>
<td>8</td>
<td>25.0</td>
</tr>
<tr>
<td>In bad weather</td>
<td>7</td>
<td>21.9</td>
</tr>
<tr>
<td>When I have to carry equipment or files</td>
<td>4</td>
<td>12.5</td>
</tr>
<tr>
<td><strong>Total Asked the Question:</strong></td>
<td>32</td>
<td></td>
</tr>
</tbody>
</table>

Table 6 – Occasional Drivers – Circumstances for Driving for Work (multiple option)

5.4 GoLow: Pool Cars

76 respondents (25%) had used a pool car at some point. Of these, 36 respondents (47%) had used a car more than ten times. 10 had used a car only once.

Those who had used a pool car were asked about their experiences. The menu responses are shown in Table 7:
Sometimes unavailable - more pool cars are needed  
Generally good 
OK, but I prefer driving my own car 
There were problems with booking/administration 
There were problems with the car itself 
Total Asked the Question:  

<table>
<thead>
<tr>
<th></th>
<th>No.</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sometimes unavailable - more pool cars are needed</td>
<td>38</td>
<td>50.0</td>
</tr>
<tr>
<td>Generally good</td>
<td>35</td>
<td>46.1</td>
</tr>
<tr>
<td>OK, but I prefer driving my own car</td>
<td>11</td>
<td>14.5</td>
</tr>
<tr>
<td>There were problems with booking/administration</td>
<td>7</td>
<td>9.2</td>
</tr>
<tr>
<td>There were problems with the car itself</td>
<td>6</td>
<td>7.9</td>
</tr>
<tr>
<td>Total Asked the Question:</td>
<td>76</td>
<td></td>
</tr>
</tbody>
</table>

Table 7 – Experience of Using Pool Cars (multiple option)

15 respondents made a range of other comments. Three found the automatic gearing strange or difficult. Three people mentioned problems with the booking system, e.g. “only able to book with 15 minutes between bookings, which wastes valuable time”. Two mentioned that the new booking was an improvement, although one thought it was more complicated. Three mentioned that they had not re-registered, or had not used it since the system changed.

The same group was asked about the advantages of using a pool car; their menu responses are shown in Table 8.

<table>
<thead>
<tr>
<th></th>
<th>No.</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>It saves wear on my own car</td>
<td>36</td>
<td>47.4</td>
</tr>
<tr>
<td>It is simpler than filling in expense forms for private car use</td>
<td>29</td>
<td>38.2</td>
</tr>
<tr>
<td>I don’t have to drive to work on days when I use a pool car</td>
<td>23</td>
<td>30.3</td>
</tr>
<tr>
<td>I don’t put my own car at risk (of accidents, theft etc.)</td>
<td>16</td>
<td>21.1</td>
</tr>
<tr>
<td>It enables another member of my household to use my/our car</td>
<td>10</td>
<td>13.2</td>
</tr>
<tr>
<td>I don’t have a car of my own</td>
<td>8</td>
<td>10.5</td>
</tr>
<tr>
<td>The pool cars are better to drive than my own car</td>
<td>5</td>
<td>6.6</td>
</tr>
<tr>
<td>Total Asked the Question:</td>
<td>76</td>
<td></td>
</tr>
</tbody>
</table>

Table 8 – Advantages of Using Pool Cars (multiple option)

15 respondents added a wide range of other advantages, including: environmental reasons, the unsuitability of a large personal car, enabling commuting by train, and as an alternative to cycling in bad weather.

Five respondents said they had stopped, and 15 said they had reduced, commuting by car (30% including both) since the pool cars became available. 4 said it had enabled them to give up a household car. Some of these responses were explored in the second stage telephone interviews.

People who had never used a pool car were asked if they would consider using one. The responses are shown in Figure 13:
Those who answered ‘no’ were asked why not. Their menu responses are shown in Table 9:

<table>
<thead>
<tr>
<th>Reason</th>
<th>No.</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>I don’t drive</td>
<td>26</td>
<td>48.1</td>
</tr>
<tr>
<td>I prefer driving my own car</td>
<td>24</td>
<td>44.4</td>
</tr>
<tr>
<td>Booking a pool car would be inconvenient</td>
<td>8</td>
<td>14.8</td>
</tr>
<tr>
<td>I prefer using other means of transport</td>
<td>6</td>
<td>11.1</td>
</tr>
<tr>
<td>I would not be paid a mileage rate</td>
<td>1</td>
<td>1.9</td>
</tr>
<tr>
<td>Total Asked the Question:</td>
<td>54</td>
<td></td>
</tr>
</tbody>
</table>

Table 9 – Reasons for not Considering a Pool Car (multiple option)

Only three mentioned other reasons: two of these related to the need to drop off other household members (and hence drive to work).

Those who had used a pool car, or who would consider it, were asked if they would be interested in hiring pool cars for private use outside of working hours. 33% replied ‘yes’, 18% ‘possibly’.

5.5 GoLow: Electric Bikes

27 respondents had used the electric bikes at some point, of whom 10 had used them at least 10 times. Those who had used a bike were asked similar questions about their experiences and the advantages of using them. Their menu responses are shown in Table 10:
Generally good  
OK, but I prefer my own bike/car  
There were problems with booking/administration
There were problems with the bicycle

<table>
<thead>
<tr>
<th>Description</th>
<th>No.</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Generally good</td>
<td>18</td>
<td>66.7</td>
</tr>
<tr>
<td>OK, but I prefer my own bike/car</td>
<td>8</td>
<td>29.6</td>
</tr>
<tr>
<td>There were problems with booking/administration</td>
<td>1</td>
<td>3.7</td>
</tr>
<tr>
<td>There were problems with the bicycle</td>
<td>1</td>
<td>3.7</td>
</tr>
<tr>
<td>Total Asked the Question:</td>
<td>27</td>
<td></td>
</tr>
</tbody>
</table>

Table 10 – Experience of Using Electric Bikes (multiple option)

Three respondents mentioned other problems: the bikes were heavy, there were problems with battery charging (with the older style of bikes) and ‘people had removed the saddle bags’.

The stated advantages of using electric bikes are shown in Table 11:

<table>
<thead>
<tr>
<th>Description</th>
<th>No.</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>I want to make a positive contribution to the environment</td>
<td>14</td>
<td>51.9</td>
</tr>
<tr>
<td>I like spending more time in the open air</td>
<td>12</td>
<td>44.4</td>
</tr>
<tr>
<td>I feel it is healthier than driving</td>
<td>12</td>
<td>44.4</td>
</tr>
<tr>
<td>They avoid parking problems</td>
<td>11</td>
<td>40.7</td>
</tr>
<tr>
<td>They are quicker than travelling by car</td>
<td>10</td>
<td>37.0</td>
</tr>
<tr>
<td>None</td>
<td>2</td>
<td>7.4</td>
</tr>
<tr>
<td>Enabled me to reduce the number of cars in my household</td>
<td>0</td>
<td>-</td>
</tr>
<tr>
<td>Total Asked the Question:</td>
<td>27</td>
<td></td>
</tr>
</tbody>
</table>

Table 11 – Advantages of Electric Bikes (multiple option)

Eight respondents mentioned other reasons: 4 of these related to being quicker and one that it was more useful for longer distances than their own bike.

Nine respondents said the electric bikes had changed the way they commute. Of those, 4 had switched from driving, and 4 from using their own bikes.

People who had never used an electric bike were asked if they would consider using one. The responses are shown in Figure 14:
Those who answered ‘no’ were asked why not. Their responses are shown in Table 12:

<table>
<thead>
<tr>
<th>Reason</th>
<th>No.</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>I feel safer driving</td>
<td>58</td>
<td>35.2</td>
</tr>
<tr>
<td>I do not like the idea of cycling</td>
<td>44</td>
<td>26.7</td>
</tr>
<tr>
<td>Driving would be more convenient</td>
<td>37</td>
<td>22.4</td>
</tr>
<tr>
<td>Driving would be quicker</td>
<td>30</td>
<td>18.2</td>
</tr>
<tr>
<td>I wouldn’t want to get wet</td>
<td>29</td>
<td>17.6</td>
</tr>
<tr>
<td>I cannot ride a bike</td>
<td>20</td>
<td>12.1</td>
</tr>
<tr>
<td>I prefer driving or public transport</td>
<td>16</td>
<td>9.7</td>
</tr>
<tr>
<td>I would not be paid a mileage rate</td>
<td>5</td>
<td>3.0</td>
</tr>
<tr>
<td>The distances are short - it is easier to walk</td>
<td>4</td>
<td>2.4</td>
</tr>
<tr>
<td>Cycling would not create the right impression in my work</td>
<td>3</td>
<td>1.8</td>
</tr>
<tr>
<td>Total Asked the Question</td>
<td>165</td>
<td></td>
</tr>
</tbody>
</table>

Table 12 – Reasons for not Considering an Electric Bike (multiple option)

The ‘other’ option to this question elicited the largest number of responses: 88. Figure 15 shows a categorical grouping of these:
5.6 Attitudes to GLOW, Transport and the Environment

72% of respondents were aware of the GLOW scheme, 11% were unaware and 17% were “vaguely aware but I had not thought about using” the cars or bikes.

All those aware, or vaguely aware, were asked about the attitudes of their colleagues and ‘local management’ to the GLOW Scheme. Their responses are shown in Figure 16 and Figure 17:

The survey also included a series of statements, shown in Table 2, designed to assess individual attitudes towards transport and the environment. These were used in the statistical analysis described in the next chapter. One of these statements, shown in Figure 18, enabled a comparison with the British Social Attitude Survey, suggesting that the attitudes of AWP staff are considerably more pro-environmental than the general population.
6 Interview Analysis and Discussion

6.1 Travel Patterns, Needs and Constraints

Most of those interviewed, including the focus group participants, worked in multi-disciplinary community-based teams, with nurses forming the largest proportion. Visits to clients' homes occupied much of the working week for most of the non-managers, though for the doctors and the drug and alcohol worker, most consultations were in hospitals or clinics. Their travel, like those of the managers, was mainly between fixed bases. For the team managers these bases were relatively close, within the Bristol conurbation. The one non-clinical manager was required to travel to different locations across the whole area covered by AWP: the former County of Avon and Wiltshire including Swindon. Lift sharing was occasionally possible, though not always practical. AWP were keen to encourage virtual conferencing but attendance in person was a statutory requirement for some meetings.

Most of the teams covered sectors of the city, so most visits were in relatively compact geographical areas, although several interviewees mentioned that exceptions could occur – where a client moved house for example, and the same team continued to visit them for a transitional period. Some of the teams covered larger areas. Two crisis teams (for acute mental health and drug/alcohol problems) cover the whole of Bristol and the whole of South Gloucestershire.

Some interviewees referred to the unpredictability of their travel needs. This was particularly the case for members of the crisis teams, who could be called at short notice to home visits anywhere within their respective areas. They worked shifts and operated an on-call rota, where they could be called out during the night. Participants in the focus groups, by contrast, who work with clients with longer-term, less acute needs, were usually able to plan their visits to provide logical routes – though they also made occasional emergency visits.

Two other interviewees explained that they tried to cluster or chain their trips, but circumstances sometimes prevented this.

Amongst the reasons for driving for work shown in Table 1 (page 13), the most cited, by 37%, was the need to travel straight from home to an external site. Several interviewees mentioned that this was their normal pattern. In one case, a manager explained that he would work from home to miss the rush hour if required to travel to a meeting later in the
morning. Travelling straight from home for the first visit, or back home after the last one, was also mentioned in the focus group by people who travelled by electric bike.

Carrying equipment and dropping off other people were mentioned as reasons for driving by 18% and 16% of those who drove as a main mode, respectively. These issues were explored in the interviews. Most of those asked did not need to carry substantial amounts of equipment. Two exceptions were a nurse who ran a community gardening project, and sometimes carried gardening tools and a doctor who stated that she sometimes needed to carry “small equipment” such as a sphygmomanometer and blood taking equipment.

Nearly all of the non-managerial interviewees, and some of the managers, mentioned carrying other people, usually clients, at some point in their work. Most mentioned that this was an occasional need. This, and the 16% responding to the (slightly different) question in the survey suggest that whilst carrying of passengers is an occasional need for many, it does not necessarily require driving on a regular basis. For some of those who normally travel for work by other means, pool cars were used on those occasions where lifts were offered to clients. Alternatively, those with a personal car available, who usually commuted by other modes, would drive on those days when they expected to give lifts to clients.

One community nurse, who did not have a driving licence said she would never offer lifts to clients and that this had never “been an issue”, explaining that: “if they can’t come to me, I go and see them”.

The interviews did not attempt to probe the deeper psychological issues about attitudes to the car discussed in Section 3.2, but some of the issues identified by Ferguson (2009, 2008) were raised in some interviews. Two interviewees mentioned using the time spent with clients when driving them. One nurse explained:

“there will be somebody that I've got to take to a hospital appointment... and then we go off somewhere after in the car to talk so we have some privacy, 'cos he's at home with his parents, so there's a couple of times where the use of the vehicle is really important.”

Two other interviewees explained that they gave lifts to patients who were in a state of crisis or suffering from anxieties which might affect their willingness to travel. One interviewee and one focus group participant explained that they would normally encourage clients to make their own way to consultations, but sometimes a lift was required to ensure attendance.

The pros and cons of giving lifts to clients was a significant issue in the focus group, where participants all used electric bikes as their main mode, with occasional use of pool cars (including for a lift in the example above). This had reduced their propensity to offer lifts to clients. One participant expressed a view on this, which appeared to reflect a consensus:

“...in some ways that is good for the client because you are saying to somebody ‘you have to get there’ rather than just automatically say ‘I will give you a lift’. You are making them a bit more independent.”

6.2 Alternatives to Driving

As illustrated in Figure 8 (page 16), the most common alternative to driving for work purposes was cycling (15%). This – and the analysis below – does not include the use of the Golow electric bikes, discussed in Section 6.4.
To provide some context to this statistic, between 2008 and 2011 Bristol was designated a Cycling City by the Department for Transport, which provided half of the £22.8m cost of promotion and infrastructure improvements. The proportion of the working population cycling to work was higher than the national average (4.6% compared to 2.8%) at the time of the 2001 Census, and although directly comparable statistics await the publication of the 2011 Census, the City Council’s latest quality of life survey shows 7% (Bristol City Council, 2012). The city’s status as cycling city was mentioned several times in the focus group, with one participant explaining that cycling is “not seen as bizarre” in Bristol.

A binary logistic regression was performed with cycling for work as the dependent variable and four covariates: age, gender; frequency of travel and a binary job category (distinguishing the administrative staff and non-clinical managers/professionals, from those directly involved in health or social care). Of these, only gender was significant at the 5% level.

<table>
<thead>
<tr>
<th>Variables in the Equation</th>
<th>B</th>
<th>S.E.</th>
<th>Wald</th>
<th>df</th>
<th>Sig.</th>
<th>Odds Ratio</th>
<th>95% C.I. for EXP(B)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Step 1* Gender (female)</td>
<td>-.978</td>
<td>.365</td>
<td>7.183</td>
<td>1</td>
<td>.007</td>
<td>.376</td>
<td>.184</td>
</tr>
<tr>
<td>Constant</td>
<td>-1.156</td>
<td>.278</td>
<td>17.271</td>
<td>1</td>
<td>.000</td>
<td>.315</td>
<td></td>
</tr>
</tbody>
</table>

Table 13 Binary Logistic Regression Analysis of Cycling as Main Mode for Work Travel

11% of women and 23% of men reported cycling as their main mode. The analysis of age was interesting. The perception of cycling as a younger person’s activity was mentioned in the focus group. Although the difference was not statistically significant, the over 45s in the survey cycled slightly more than their younger colleagues.

Two of the interviewees cycled as their main mode for work travel. Both mentioned some circumstances where they would drive, such as bad weather or longer distances. One psychiatrist explained that he would cycle more in summer than in winter, but most of the interviewees who cycled said that they would only change to another mode (driving their own or a pool car) in extreme weather conditions. One woman mentioned circumstances where “it matters what I look like” and “turning up sweaty” would not be appropriate. Three of the other respondents explained that they would “not feel safe” cycling.

One psychiatrist explained that she would cycle in most circumstances but not in unfamiliar parts of the city where she might be unable to avoid main roads.

Table 11 (page 22) and Figure 13 show the reasons why many respondents would not consider using an electric bike. Apart from the 17 people who preferred riding their own bikes, the other reasons would apply to cycling in general. Safety concerns were the most cited, by 35%. Three of the interviewees raised this issue. One male professional referred to “near death experiences on road raged roads of Bristol and the cycle paths that tend to disappear as soon as you hit a busy roundabout”. A drug and alcohol worker said she had once witnessed a “nasty accident” involving a cyclist which had “put her off” cycling altogether.

Figure 8 (page 16) shows 6% of the survey respondents mainly walked for work travel. Four interviewees mentioned walking, particularly within the inner city and for shorter distances:
one nurse aged over 60 explained that she would walk for distances up to a mile as that was “about as much as I can manage on a workday at my advanced age!”

Two interviewees mentioned using buses for some work travel (the only mention of rail was one manager who complained that it was too expensive for journeys to London). One interviewee was selected because she did not have a driving licence, nor did she cycle. She was required to make frequent home visits across one sector of the city. She walked to work, and used a combination of walking and buses, including two-bus journeys in some cases. She lived within the area and would walk for 20 minutes to their base, or directly to her first visit, which had taken an hour that morning. She would occasionally take a taxi and colleagues would sometimes offer lifts if they were driving in the same direction. “I would not ask for a lift unless I was desperate” she explained.

She was asked whether anyone had ever suggested that she would visit clients more quickly if she drove, to which she responded: “I think yes, but I don’t take any notice”. No one in management had made any comments to that effect, she added.

Driving and recruitment policy was discussed in two of the interviews with multi-disciplinary team managers (and also in the focus group, discussed in Section 6.4). One stated:

“I think on the standard application form it says ‘do you have transport available or do you have a license?’ so we have an idea before they come for their interview. I would say they need some form of transport but it’s all negotiable really.”

He explained that one member of his team cycled for all his visits.

Another manager explained that she “wouldn’t want to discriminate” against non-drivers:

“So as long as they can cycle or get buses and they’re confident, you can plan the day around visits that are much more local. If someone is unfit or getting the bus...you’d look at visits around the centre of Bristol or ... places that are near and easy to get to”.

She was asked what would happen if a larger proportion of her staff did not drive. Her initial reaction was to say that would not be feasible, that a balance would be needed. On further questioning, she clarified that the electric bikes would be acceptable as an alternative to driving. The need for a balance (i.e. not too many in one team) would apply to staff such as the one cited above, who neither drive, nor cycle.

When advertising vacancies, AWP generally avoids requiring applicants to drive or own cars. Their Head of Employment Services explained: “I would expect the local manager to agree how [mobility] can be achieved locally during a recruitment process.” Some adverts for positions involving travel within Bristol make no mention of transport requirements. The typical formula used for jobs covering more dispersed areas, requires candidates to be: “mobile with the facility to move quickly across a geographically dispersed area with limited access to public transport.”

6.3 Experience of the Golow Pool Cars

Most staff who had used the pool cars were generally positive about the experience – and most interviewees expressed support or enthusiasm for the Golow scheme as a whole. The two advantages of the pool cars most cited in Table 7 (page 20) were that “it saves wear on my own car” and “it is simpler than filling in expense forms”. Both of these were mentioned in the interviews, with two interviewees explaining that the process of booking the cars was easier than claiming expenses.
Avoidance of parking constraints was not offered on that menu of advantages; eight people raised this in the interviews. Several of AWP’s sites are subject to parking restrictions. Employees commuting by car – and wanting to use it for work travel – are obliged to park their cars some distance from those sites. The Colston Fort clinic, located towards the top of a hill, is within a recently-created Controlled Parking Zone, with the spaces around it restricted to residents. Spaces are reserved for pool cars on several of the sites, which has encouraged their use. One interviewee explained that there were not enough parking spaces at Colston Fort (Figure 19) however, so the pool cars sometimes “get jammed in”.

Figure 19 Colston Fort Clinic in Kingsdown Residents’ Parking Zone

A range of opinions were expressed about the booking system. One interviewee explained that the new (online) system was easier than the previous paper-based system. Two others disagreed, saying that the need to go online had put some people off. In the survey (Table 6, page 19) only 7 of the 76 pool car users reported problems with the booking or administration of the system.

As discussed in Section 6.1, members of the Crisis Team explained that the normal system for booking pool cars was unsuitable for their purposes. A different system had been arranged for those teams, where the cars were booked out to the team as a whole, with no requirement for individual booking. The finance officer explained that these cars were amongst the most heavily used, covering between 11,000 and 17,000 miles a year.

One of the managers, responsible for several teams believed the system would not be suitable for managers with city-wide responsibilities, though she thought it was a good idea for community staff who covered smaller areas and had more predictable travel patterns. One psychiatrist commented that the need to return the cars to their original base made them unsuitable for her.

Half of the pool car users in the survey ticked that they were “sometimes unavailable – more pool cars were needed”. Nine of the interviewees, from across different locations and teams, mentioned this problem, explaining that the cars were popular and that demand was
not being satisfied. One female professional explained a particular problem for part-time staff:

“because I’m not in at the beginning and the end of the week, quite often when I come in on Tuesday, cars can already be quite booked up for the whole week.”

She and several others said that they would drive their own cars under those circumstances. One said that some people had “lost interest because they couldn’t get a booking”. A psychiatrist suggested this could be addressed by greater flexibility, moving cars which she believed were under-used elsewhere, to make them available to her team, based in one of the central locations with limited parking.

Only 6 survey respondents reported “problems with the car itself”. The interviews provided some more insight into this. As the (Smart) pool cars only have two seats, four interviewees reported occasions where they could not be used because more than two people needed to travel together. Three of these interviewees (two from the Crisis Teams) explained that “risky” patients need to be accompanied by two members of staff.

Only two of the interviewees mentioned that they did not like the cars themselves. One manager also reported that some of his team did not like them. One interviewee explained: “it’s not particularly a nice car to drive even though it’s automatic, it’s very bumpy and it’s a bit odd, it’s not like a normal car.” One non-clinical professional expressed the strongest views against the system, describing the Smart cars as unsafe: “just a motorbike with a plastic shell”, contrasting them with the “fancy lease cars” provided to senior management.

The Zero Petrol Team originally had one electric Smart pool car. This had suffered from frequent technical problems and had eventually been returned to the manufacturer. They reported that “we are all on electric bikes now”, though they would also have access to a conventional car from City Car Club – the main car club covering Bristol.

6.4 Experience of the Electric Bicycles

Of the 27 survey respondents who reported using the electric bikes, of which 19 (70%) were male, following a similar pattern to cycling in general. These 27 people were distributed across 8 different locations. They included 20 clinical/social work staff, of whom 16 travelled more than three times a week.

Table 10 (page 22) and Table 4 (page 18) show a similar selection of advantages cited in the survey by users of the electric bikes, and by those who used their own bikes or walked. The environment, health and open air all featured in the top four, along with avoidance of parking problems. The fifth advantage in both cases was that their chosen mode was “quicker than driving”.

Two of the interviewees used electric bikes, as did all seven participants in the focus group. The interviews and focus group expanded on some of these themes. There was unanimity in the focus group that the electric bikes were quicker than driving and one explained that the system had increased the number of visits she was able to make each day. One female nurse explained:

“I deal with a lot of crises and last Friday someone rang me and said I’ve lost my prescription, I need my medication, I need it for the weekend. Luckily I was in the office; I got the script from the Doctor, got on my bike, went to the chemist, got it dropped off and I was back here within half an hour... If I had to get in a car or walk or get on a bus it would have taken me an hour...”
This view was linked to a wider view that the change to using the bikes had brought a range of more or less tangible benefits to clients. Greater reliability was one:

Before I had the bike, I was always late, like at bus stops, and I would ring people and they would be like: ‘Yes, you are not coming are you?’ and I’d say ‘Sorry, I am just running late’ whereas now I know, if I am on my bike I might be five minutes late or ten minutes late but not an hour late. I think that is very important because people feel really rejected if they think you are not coming...”

Two participants expressed the view that the clients were more appreciative of, or responded better to staff who travelled by bike:

“They have never said it, but I do sometimes feel they might not have turned up if I had been driving there... because those people talked about me cycling and know that I cycle around quite a lot... it might have made them think: ‘Well actually I can do this’ because they know if there’s no-one there... I’ve travelled all that way for no reason.”

In a variation on the observations of Ferguson (2009, 2008) about car use by social workers, two participants mentioned that they had cycled with clients:

“I cycle with people in the summer mainly, and also I have got a few people, because... they haven’t got a bus pass so I have introduced them to the bike project down in Stokes Croft where you can volunteer and get a free bike.”

These impressions about advantages for clients were linked to others about advantages for staff, particularly related to health, fitness, mood and motivation. The “de-stressing” properties of cycling, particularly on the off-road paths (of which Bristol has several) were contrasted with the stress of driving in heavy traffic. The link between the states of mind of staff and clients was believed to be particularly important in a unit involved in support and recovery:

“we are trying to inspire people to move their lives forward and this all adds into it, you can’t separate that. We are much more invigorated in our work, and that is partly because of this... bike thing.”

Some participants including the team manager believed the scheme had reduced sickness absence, although it was not possible to obtain any quantitative data on this. Two male nurses said that it was a factor persuading them to stay in their current positions. One of them explained:

“the electric bike is a major consideration for me to stay in the job, believe it or not. When you see other jobs...” [which might be in a fixed location, so not requiring a car] then “you think: ‘Oh, but I am not going to be cycling, I am going to lose the use of the electric bike’. It is a consideration.”

Before the introduction of the scheme, some participants had driven and others had used their own bikes. The differences between electric and conventional bikes were discussed. The assistance on hill climbing was cited by several participants and one telephone interviewee, as a key advantage. Another added:

“I don’t think people realise how easy it could be, but I think you need to try it for a good week or two to realise how possible it is and that you are not going to get sweaty and it saves you a lot of time...”
One woman added however that: “I do get fed up with consistently looking like a barrel in all my layers ... but you just sort of break through that.”

In a reflection of Sheller (2004)’s observations on automotive emotions, there was evidence of emotional attachment to the bikes themselves. These were expressed explicitly by the three female participants who all said: “we love our bikes”. Two participants were social workers, employed by Bristol City Council, who had worked as part of the AWP team, but were about to be separated in a reorganisation. There was some uncertainty over whether they would be able to keep their electric bikes, and both of them made a strong plea to be able to keep them. Apart from the practical problems losing the bikes would cause, the demeanour of at least one participant suggested a possible emotional loss.

Referring to temporary and newly joining staff, it was noted that one past member of the team who had not embraced the concept to the same extent had been given a bike which had suffered from technical problems. Most of the student nurses had embraced the concept. One male participant, who did not express emotional attachment himself, referred to a student who: “loved the electric bike – she used it all the time, and at the end of it she was really sad to lose it” so “she bought her own on EBay.”

Further discussion around recruitment and team identity in the Zero Petrol Team is analysed in Section 6.6, below.

One factor promoting a degree of emotional attachment – as well as administrative simplicity – is that, unlike the pool cars, each electric bike in the Zero Petrol Team (and one other allocated to a manager elsewhere) was allocated to one person, who would ride it home at the end of the day, with no booking involved. One focus group participant commented that being able to ride the bike home was “what makes it work”. In other locations where electric pool bikes were made available, these were either used frequently by one person at a time, or else, were used only infrequently. One ‘short’ female professional, who made frequent use of the pool cars, had considered using an electric bike but found the frame too large for her.

A contract had been awarded to a local company for the repair, maintenance and cleaning of the bikes. One individual was known to the users as the main contact. One interviewee and several focus group participants commented positively on the responsiveness of the service. The interviewee said the bikes were “not as reliable as a car” but whenever one had broken down, or punctured, he had been able to continue by some other mode, and leave the bike locked for the contractor to pick up and repair.

The focus group was asked what lessons they would draw for other NHS trusts from their experience. One man commented on the importance of the service and maintenance arrangements. Another said:

“I would say it was an incredibly valuable thing, but I think it would be important for any other organisation to pilot it with a small group of people who are already into cycling ... to normalise the process and then use that as a way of expanding it...”

The manager added:

“...maybe some sort of buddy scheme. I would say people have just got to have a go... get on them, have a feel for them, because that is what got me out of my car. And... give staff the equipment they need...the waterproofs etc. and some sort of training if they want...”
6.5 Commuting, Private Travel and Car Ownership

As explained in Section 5.2, there was a very strong association between the main modes of commuting and of work travel. 30% of those who used the pool cars stated that this had enabled them to stop or reduce commuting by car. Four people stated that it had enabled them to give up a household car. Some of these issues were explored in the interviews.

Several interviewees said the availability of pool cars had enabled them to start or increase their frequency of cycling or walking to work. Those who made these statements implied that commuting in their own car was something they would prefer to avoid if possible, either because they preferred cycling or walking or because they wanted to avoid congestion or parking problems. One interviewee explained that commuting by electric bike took around 10 minutes, compared to 20 to 25 minutes by car – a recent experiment conducted by UWE staff provided some objective support for these observations, on another commuting route in Bristol during the rush hour (UWE, 2011).

Two interviewees explained that they commuted by car because they needed to take children to school. One nurse explained that he would drive on days when he was carrying children, and cycle on other days, particularly during the school holidays. At all times he would try to use the pool car or electric bike for work travel. A female professional explained that she would always prefer to commute in her own car, partly because it has a child seat, but would make use of pool cars, if and when available, for journeys during the middle of the day.

Two survey respondents who said they had reduced car ownership were interviewed. One of these, who now shared one car with a partner, had since experienced occasions where a pool car was unavailable and was wondering whether she had made a mistake in giving up her own. The other explained that she had not actually given up a car, but that the availability of pool cars had enabled her to avoid buying a second household car. She added: “I would have had to consider whether I could have taken the job if they hadn’t had the pool car”.

Several of the focus group participants mentioned that the electric bikes had altered their travel behaviour outside of work. The electric bikes were available for private use and several participants mentioned making considerable use of them. One had lived without a car for six months, but had reacquired one which was mainly used by his wife. One now used the electric bike instead of his own bike, and another had given up a moped.

6.6 Attitudes and Factors Influencing Participation

The factors influencing participation in the Golow scheme were investigated in two ways: through statistical analysis of the survey responses, and through the interviews and focus group.

As discussed in Section 4.2, the survey included several measures of individual attitudes towards transport and the environment, as well as questions on travel behaviour, demographic information and the attitudes of colleagues and management towards the Golow scheme. A binary logistic regression was performed with use of the pool car as the dependent variable. The covariates included the six measures of individual attitude shown in Table 2 (page 14) as well as the following binary variables:

- Frequent traveller (> 3 times per week for work)
- Management positive towards the Golow scheme
- Colleagues positive towards the Golow scheme
• Usually commutes by own car
• Car in the household
• Age (over/under 45)
• Job (clinical/support – the former includes a small number of social workers)
• Gender

The variables included in the resulting model are shown in Table 14:

<table>
<thead>
<tr>
<th>Variables in the Equation</th>
<th>B</th>
<th>S.E.</th>
<th>Wald</th>
<th>df</th>
<th>ρ</th>
<th>Odds Ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td>Step 4*</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Frequent traveller</td>
<td>1.047</td>
<td>.345</td>
<td>9.230</td>
<td>1</td>
<td>.002</td>
<td>2.848</td>
</tr>
<tr>
<td>Management positive</td>
<td>1.378</td>
<td>.361</td>
<td>14.618</td>
<td>1</td>
<td>.000</td>
<td>3.969</td>
</tr>
<tr>
<td>Colleagues positive</td>
<td>.837</td>
<td>.352</td>
<td>5.656</td>
<td>1</td>
<td>.017</td>
<td>2.310</td>
</tr>
<tr>
<td>Support job</td>
<td>-.982</td>
<td>.394</td>
<td>6.205</td>
<td>1</td>
<td>.013</td>
<td>.375</td>
</tr>
<tr>
<td>Constant</td>
<td>-2.130</td>
<td>.331</td>
<td>41.471</td>
<td>1</td>
<td>.000</td>
<td>.119</td>
</tr>
</tbody>
</table>

a. Variable(s) entered on step 4: Colleagues positive

**Table 14 – Binary Logistic Regression on Probability of Using a Pool Car**

Interestingly, none of the individual attitudes improved the fit of the model, whereas the perceived attitudes of management and colleagues are both significant: those perceiving a positive attitude amongst their management are nearly four times (3.969) as likely to use a pool car as those whose managers are sceptical, or unaware. Obviously, this does not explain what causes what: positive managers could encourage their staff; staff who use the cars could positively influence their managers, or some combination of both. These issues were explored further in the interviews. As expected, clinical staff and more frequent travellers were more likely to use the pool cars (those who never travelled for work were excluded from the dataset).

Although none of the individual attitudes were significant in the regression model, a bivariate cross-tabulation revealed a negative association between pool car use and agreement with the statement: “people should be allowed to use their cars as much as they like, even if it causes damage to the environment”.

<table>
<thead>
<tr>
<th>People should be allowed to drive as much as they like...</th>
<th>Disagree</th>
<th>Agree or neutral</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pool Car Use</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Never used</td>
<td>115</td>
<td>84</td>
<td>199</td>
</tr>
<tr>
<td>% of non-users</td>
<td>57.8%</td>
<td>42.2%</td>
<td>100.0%</td>
</tr>
<tr>
<td>Count</td>
<td>53</td>
<td>21</td>
<td>74</td>
</tr>
<tr>
<td>% of users</td>
<td>71.6%</td>
<td>28.4%</td>
<td>100.0%</td>
</tr>
<tr>
<td>Total</td>
<td>168</td>
<td>105</td>
<td>273</td>
</tr>
</tbody>
</table>

(Pearsons Chi square = 4.361, df = 1, ρ = 0.037)

**Table 15 Cross-tabulation of Pool Car Use Against Attitude to Driving and the Environment**
This is consistent with the literature, discussed in Section 3.3, which suggests that environmental attitudes exert an indirect influence on related behaviour (Bamberg, 2003, Matthes and Blöbaum, 2007). Further cross-tabulations revealed strong associations between the same measure of environmental attitudes and two of the variables included in the regression model: the perceptions of management and colleagues’ attitudes towards the Golow scheme. The results for colleagues are shown in Table 16.

<table>
<thead>
<tr>
<th>Attitude of Colleagues to Golow: Sceptical, mixed or unaware</th>
<th>Count</th>
<th>Agree or neutral</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>%</td>
<td>54.8%</td>
<td>45.2%</td>
<td>100.0%</td>
</tr>
<tr>
<td>Positive</td>
<td>Count</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>71</td>
<td>25</td>
<td>96</td>
</tr>
<tr>
<td></td>
<td>74.0%</td>
<td>26.0%</td>
<td>100.0%</td>
</tr>
<tr>
<td>Total</td>
<td>Count</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>168</td>
<td>105</td>
<td>273</td>
</tr>
<tr>
<td></td>
<td>61.5%</td>
<td>38.5%</td>
<td>100.0%</td>
</tr>
</tbody>
</table>

(Pearsons Chi square = 9.650, df = 1, p = 0.002)

**Table 16 Cross-tabulation of individual attitudes against perceptions of colleagues’ attitudes**

There are two plausible explanations for these associations, which are not mutually exclusive. The first is the ‘false consensus effect’ whereby people tend to “see their own behavioural choices and judgements as relatively common and appropriate to existing circumstances” (Ross et al, 1977). The mechanisms by which this occurs are many and complex, but a substantial body of evidence suggests that people’s perceptions are often influenced in this way (Mullen et al, 1985). So in this case, the environmental values would influence more specific attitudes towards the Golow scheme, and this in turn would influence how individuals perceived the attitudes of others towards the scheme.

The second explanation, which could be partly influenced by the first, relates to group norms as discussed in Section 3.3 (Hogg and Reid, 2006). These issues were probed in the interviews and focus group, discussed below.

A similar analysis was performed for use of the electric bikes. A binary logistic regression was performed with covariates including the six measures of individual attitude shown in Table 2 (page 14) and the following binary variables:

- Frequent traveller (> 3 times per week for work)
- Management positive towards the Golow scheme,
- Colleagues positive towards the Golow scheme
- Cyclist outside work
- Car in the household
- Age (under/over 45)
- Job (clinical/support)
- Gender

The variables included in the resulting model are shown in Table 17:
As expected, men were more likely to use the electric bikes as were people with no car and those who cycled outside of work. Again – whatever the reason – the perceived attitudes of management and colleagues were statistically significant, whereas the measures of individual attitude were not.

Only two of the 27 electric bike users in the survey came from the Zero Petrol Team. In that team, all the permanent staff, and most of those temporarily assigned there, used the electric bikes regardless of gender. Of the seven participants, all the men had cycled previously, whereas of the three women: one had not cycled, one was a “fair weather cyclist” and the third only cycled outside work.

As with the pool car use, the individual attitudes were not included in the final model, but a cross-tabulation showed a significant relationship between electric bike use and the measure of environmental attitude ($X^2 = 4.490$, df = 1, $p = 0.034$).

The interviewees were asked whether their teams discussed transport issues, generally. Most said they did. The most commonly discussed issues related to: parking, traffic – both significant problems in Bristol – buses, which four people said were expensive and/or unreliable, and the environmental impacts of transport. Six interviewees and several of the focus group participants mentioned that environmental issues were often discussed, and that many people (generally including the speaker) were concerned to reduce car use or find alternatives, for environmental reasons. The interviewees were a purposive sample: mostly users of the Golow scheme, so their views would reflect this, to some extent.

Some interviewees contrasted the minority of people who acted on environmental principles, particularly by cycling, with others who were “more wedded to their cars”. Only one interviewee expressed cynicism about the promotion of environmentalism by large organisations (the man who described the Smart cars as “plastic motorbikes”) saying: “there always seems to be somebody who’s getting a few back-handers...”. He added that he and his family always recycled and tried to reduce driving by trip-chaining.

Some interviewees commented on the differences in participation rates of different teams. A psychiatrist commented that her team, which had embraced the scheme, had already included a lot of cyclists. One manager was responsible for two teams, one of which made considerable use of pool cars and electric bikes. The other team made less use of both. In seeking to explain the difference, he described the low-use team as more of a “traditional team” – they were slightly older on average; more of them lived outside Bristol and commuted by car. Both areas were urban and compact, but the high users covered a more central area of the city. He also explained that the organisation of caseloads differed.

### Table 17 Binary Logistic Regression on Probability of Using an Electric Bike

<table>
<thead>
<tr>
<th>Variable</th>
<th>B</th>
<th>S.E.</th>
<th>Wald</th>
<th>df</th>
<th>$p$</th>
<th>Odds Ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td>Management positive</td>
<td>1.421</td>
<td>.636</td>
<td>4.988</td>
<td>1</td>
<td>.026</td>
<td>4.140</td>
</tr>
<tr>
<td>Colleagues positive</td>
<td>1.447</td>
<td>.625</td>
<td>5.360</td>
<td>1</td>
<td>.021</td>
<td>4.251</td>
</tr>
<tr>
<td>No car in household</td>
<td>1.505</td>
<td>.739</td>
<td>4.143</td>
<td>1</td>
<td>.042</td>
<td>4.505</td>
</tr>
<tr>
<td>Cyclist outside of work</td>
<td>1.651</td>
<td>.637</td>
<td>6.714</td>
<td>1</td>
<td>.010</td>
<td>5.215</td>
</tr>
<tr>
<td>Gender (male)</td>
<td>2.176</td>
<td>.569</td>
<td>14.640</td>
<td>1</td>
<td>.000</td>
<td>8.811</td>
</tr>
<tr>
<td>Constant</td>
<td>-6.168</td>
<td>.886</td>
<td>48.473</td>
<td>1</td>
<td>.000</td>
<td>.002</td>
</tr>
</tbody>
</table>

a. Variable(s) entered on step 5: No car in household.
between the two. In the low user group, clients were allocated to individual staff, whereas the high user group shared their caseloads, “so there’s more of a... philosophy of sharing things...”

The manager used an electric bike himself, and was “very much encouraging of green travel”. He had been managing the high user group for longer. As suggested by Taylor (2007), there was evidence of some local managers, often motivated by environmental considerations, providing leadership on these issues. Several interviewees praised the Golow manager, particularly in the focus group with the Zero Petrol Team, where he had originally been the team manager, playing the role of the leader embodying ‘prototypical norms’ discussed by Hogg and Reid (2006). Two male participants explained:

“Pierre is a passionate cyclist anyway and he is also quite ecologically minded... we imagined earlier he saw that quite a few members of our team were cycling a lot anyway and he saw that as an opportunity to say: right, let’s see if we can make this happen...”

“...it is really important to remember Pierre in that, because without his passion... this would never, ever have happened...”

Two participants mentioned that Pierre had helped members of staff to take up, or re-start cycling. One woman said:

“I was in my car all the time, these guys – Pierre definitely, Pierre got me out of my car and on the bike, and I have not looked back.”

Several participants mentioned varying levels of environmental commitment. One expressed strong personal convictions. Another explained:

“[Pierre] comes out of a pure green agenda. I don’t think I do. I think that’s good, but ultimately is it going to save me money, is it going to make me a bit fitter, is it going to make my job easier – those things first.”

There was considerable evidence that the use of electric bikes had strengthened in-group norms and the sense of group identity, partly by reference to salient outgroups, as posited by Hogg and Abrams (1988). For example:

“I think [people] used to think of us as... these crazy people who are really enthusiastic, who are really passionate about cycling... they seem to really like that and take that on board, but then probably just go away [and think:] ‘I am not doing that’... They are happy with what they are doing themselves...”

“It was part of the identity of the service you provide, identified as that, that’s why none of us would like to go back to our cars now, because that would feel like letting the team down.”

When the team was first established, the electric bikes generated interest in the media, involving the team with the Chief Executive. There was initially some concern about possible resentment amongst other the teams with whom they were to be “embedded”. These factors appeared to strengthen the group’s perception of other distinguishing characteristics:

“maybe other people... are thinking: ‘Oh you have got the easy side of mental health [support and recovery] so it is easier for you lot to do that...’"
“...they saw us with quite a lot of spare time and: ‘Oh they can just wander about on their bikes just doing these bits of jobs’ but [initially, we had to] break our way into the teams to try and get referrals, and it took us quite a long time to do that. I think now we are well established in teams and we are very busy and getting lots of referrals, we [are] seen as part of those teams...”

Nowadays, several participants added, the use of electric bikes was accepted as: “something that we do, part of our job”.

There was a consensus that the electric bikes had brought the team together in other ways – increasing their motivation (in the ways described by van Dick et al, 2005) and their socialising outside of work.

As discussed in Section 3.3, group social norms may persist, even when group membership changes. The way in which new members are inducted into the group is important to this process. The manager explained how she approached the issue with new recruits or temporary assignees:

“it’s done in a very matter of fact way. It's like: we are all on bikes and this is the way we operate. We have got one for you; here is the equipment; is it going to be a problem? Do you want a course, a safety course?... if there are health grounds or whatever, I am happy to talk about that but actually the whole team attitude, including myself, is: this is the way it is...”

7 Financial and Carbon Implications

This brief chapter is based on information supplied by AWP’s finance officer and telephone conversations with him and the Golow manager.

When the scheme was first established, it aimed to ensure that the direct costs were no higher than the alternative of employees using their own cars. The current re-imbursement rates are shown in Table 18:

<table>
<thead>
<tr>
<th>Regular Users:</th>
<th></th>
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</thead>
<tbody>
<tr>
<td>Annual payment</td>
<td>£740</td>
</tr>
<tr>
<td>Up to 9000 miles</td>
<td>44.0p</td>
</tr>
<tr>
<td>Miles over 9000</td>
<td>21.6p</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Occasional Users:</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>First 3500 miles</td>
<td>58.3p</td>
</tr>
<tr>
<td>Miles over 3500</td>
<td>21.6p</td>
</tr>
</tbody>
</table>

Table 18 AWP Mileage Rates for Employees’ Use of Private Cars
As these rates exceed the thresholds set by HRMC, they are partly subject to national insurance contributions. A previous study had established that the cost of reimbursing private car use across AWP averaged 60 pence per mile. This rate is used in the comparison shown in Table 19:

<table>
<thead>
<tr>
<th>Miles:</th>
<th>0</th>
<th>5,000</th>
<th>6,000</th>
<th>7,000</th>
<th>8,000</th>
<th>9,000</th>
<th>10,000</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pool car cost:</td>
<td>3,043</td>
<td>3,925</td>
<td>4,062</td>
<td>4,198</td>
<td>4,334</td>
<td>4,471</td>
<td>4,607</td>
</tr>
<tr>
<td>Employee mileage equivalent:</td>
<td>0</td>
<td>3,000</td>
<td>3,600</td>
<td>4,200</td>
<td>4,800</td>
<td>5,400</td>
<td>6,000</td>
</tr>
<tr>
<td>Cost / (saving of pool vehicle)</td>
<td>-3,043</td>
<td>-925</td>
<td>-462</td>
<td>2</td>
<td>466</td>
<td>929</td>
<td>1,393</td>
</tr>
</tbody>
</table>

Table 19 Comparison of Pool Car Cost versus Alternative of Private Car Use

A proportion of the mileage of the pool cars – estimated to be around 10% – was due to journeys which would not be reimbursed for private car use (e.g. driving for services and repairs). The variable costs of the pool cars have been adjusted to reflect this.

On this basis Table 19 shows the pool cars breaking even around 7,000 miles. The average annualised mileage of the cars last year was coincidentally, 7,100. From July 2013 the standard NHS reimbursement rates will change. The distinction between regular and occasional users will be abolished, and a higher initial rate paid to all staff. The exact figure will be re-calculated based on AA data nearer the time. It is expected to slightly lower the break-even mileage for the pool cars.

The estimated annual cost of each electric bike was around £1560. This does not include the variable cost of electricity, which is very small, typically costing a few pence to recharge the battery. On this basis, the electric bikes would break even if used for more than 2,600 miles a year, or 50 miles a week. Some of the bikes in the Zero Petrol Team cover more than this, but the overall average was 34 miles a week during 2011, making the average cost around 76p per mile – slightly more expensive than the alternative. Some of the pool bikes were relatively little used, which brought the average down.

These calculations do not take into account several other factors, most importantly, the costs of management/administration. Although there might be some potential saving on the processing of expense claims, allowing for a member of staff to manage the scheme would clearly add significantly to its cost. AWP already employed a lease car administrator and as they no longer employ the Golow manager they have not identified any specific additional staffing costs.

Another issue which may affect the viability of the scheme is the potential for private use of the cars. As revealed in the survey, the inability to drive the pool cars home has been a factor in some employees continuing to use their own cars. There was substantial interest in using the cars outside work. If this was charged at similar rates to the use of commercial car club vehicles, it would help to improve the financial viability of the scheme. When the vehicles were directly owned, insurance liabilities prevented this. With cars owned by the social enterprise, this would become possible.

The core costs of the Golow social enterprise have now been underwritten for the next 3 years by a grant from the Local Sustainable Transport Fund. They offer their service to any organisation, but their initial marketing is focussed on the public sector. Their pool cars are provided on a cost per mile basis. The prices are negotiable but aim to match or undercut the alternative of employee car use. Apart from offering to supply pool cars, Golow also provides advice based on the experience of the pilot at AWP. This may include, for example, how to analyse mileage records, to look for opportunities to reduce private car use,
and also for teams with the potential for a more radical approach, like AWP’s Zero Petrol Team.

The manager has noted a difference in approach between potential client organisations, and also between individuals in the same organisation, where some are solely interested in procuring pool cars most cost-effectively, and others are more receptive to the wider possibilities for modal shift.

Table 20 shows the estimated carbon savings from the Golow scheme, compared to the alternative of using employees’ own vehicles. This is based on the average carbon emissions estimated by Anders (2010 – see Section 2.2), the manufacturer’s estimate for the electric bikes, and the actual mileage covered by the fleet during 2011.

<table>
<thead>
<tr>
<th></th>
<th>Miles</th>
<th>g/mile</th>
<th>Carbon Kg</th>
<th>g/mile</th>
<th>Carbon Kg</th>
<th>Carbon Saving</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pool Cars</td>
<td>168,000</td>
<td>144.8</td>
<td>24,333.3</td>
<td>326.4</td>
<td>54,831.0</td>
<td>30,497.7</td>
</tr>
<tr>
<td>Electric Bikes</td>
<td>33,800</td>
<td>0.0</td>
<td>0.5</td>
<td>326.4</td>
<td>11,031.5</td>
<td>11,030.9</td>
</tr>
<tr>
<td><strong>Total:</strong></td>
<td></td>
<td></td>
<td>24,333.8</td>
<td></td>
<td>65,862.5</td>
<td><strong>41,528.6</strong></td>
</tr>
</tbody>
</table>

Table 20 Carbon Savings from the Golow Scheme

The saving of 41.5 tonnes represents a saving of 63% compared to the alternative. But it represents only around 4% of the total carbon emissions from work travel (based on Anders 2010), which is still predominantly conducted in employees’ own cars. This study has not tried to quantify the carbon implications of walking and cycling using employees’ own bikes. The survey findings shown in Figure 8 (page 16) suggest that would be more significant.

8  Conclusions and Recommendations

8.1 Conclusions

This study has focussed on travel within greater Bristol, a relatively compact urban area, by NHS professionals travelling between fixed sites and to clients’ homes. The first and most important conclusion is that much of this travel can be done by means other than the private car. The interviews revealed certain types of journey for which cars were needed or preferred but a substantial minority of both infrequent and frequent travellers including those regularly visiting clients in their homes, mainly cycle, walk and/or use public transport.

Many of the staff who mostly travelled by other means reported occasional needs for a car, when travelling outside their normal area, or carrying clients as passengers, for example. Although some of these people have a private car available, for others pool cars are essential – unless those journeys are allocated to another member of staff. The availability of pool cars has enabled many employees (30% of users in the survey) to reduce their commuting by car and in some circumstances, their household car ownership.
The need to reduce commuting by car, and promote travel by other means is particularly acute in those inner-city sites where parking is constrained at the bases and/or on the streets where the clients live.

The most common alternative to driving – both for commuting and for work travel – was cycling, using the employee’s own bike in most cases. A small minority of employees neither cycled nor drove and were able to fulfil the requirements of the job by walking and public transport. For operational reasons, any strategy to reduce private car use would need to largely rely on pool cars and cycling, with particular benefits from electric bikes. Public transport is appropriate for some longer and irregular journeys (e.g. to meetings) but would be less relevant for the daily travel of community-based staff.

The relatively small proportion of staff who had tried the electric bikes had found significant benefits from the assistance in hill-climbing and travel into strong winds. The reduction in sweating was an important benefit for experienced cyclists as well as novices. Although this study has not sought to quantify this, the users of electric bikes, including the manager of the Zero Petrol Team, generally agreed that this was quicker (and more reliable) than driving within the urban area.

The focus group also suggested a range of other less tangible benefits from the collective use of electric bikes. Some of these, such as the ‘de-stressing’ effects of exercise and fresh air between stressful visits, are inherent to the choice of mode. Others, such as the statements about motivation are probably at least partly due to increased social identification, as postulated by van Dick et al (2005). As discussed in Section 6.6, the perception of their modal choice as a distinguishing characteristic had clearly increased their sense of group social identity, although it seems that any concerns about this creating divisions in their work with other teams had not persisted. These two effects – the strengthened social identification and the acceptance by other teams – occurred in a context where cycling for work was already widespread in the organisation, but still a minority activity.

Team social norms are clearly an important factor in the acceptance and take-up of the Golow scheme and alternatives to private car use in general. The gender bias in cycling – also reflected in the use of electric bikes – is typical for the UK, though not in some other countries where rates of cycling are higher (Pucher and Buehler, 2008). Although it is a small-scale example, the experience of the Zero Petrol Team suggests that sub-groups may create new social norms which differ from those of the wider society and also provide practical support – in this case, to help female team members take up cycling, or cycling for work. The electric assistance appeared to facilitate that process.

At present, the Golow scheme represents a fairly small proportion of AWP’s overall travel – the electric bikes even smaller. The findings of this study suggest that its scope could be considerably expanded. Only 31% of non-users said they would not consider using one of the pool cars. 59% of non-users said they would not consider using an electric bike. For most of these people, the reasons (Table 12, Figure 15 – page 24) related to personal preferences rather than the nature of the travel itself. For those people who are not able or willing to cycle, a mixture of alternatives can still help to reduce private car use, where this is an agreed objective.

The financial analysis in Chapter 7 suggests that the pool cars cost roughly the same as reimbursement of employees using their own vehicles, not including any allowance for staff time. The electric bikes were slightly more expensive. In both cases the intensiveness of use was a key variable. There may be a trade-off between ensuring availability of pool cars (or bikes) for occasional use, versus maximising use of the asset.
Whereas replacing private mileage with pool car mileage would not, in itself, save money, replacing car use by walking and cycling (using employees’ own bikes) clearly would. AWP’s mileage rate for cycling is 20p (the NHS recommended minimum is 10p), around a third of the average cost for car use. Walking is not reimbursed. Although this study has not attempted to quantify this effect, the availability of pool cars for occasional journeys is a factor which enables some staff to cycle or walk for other journeys.

8.2 Recommendations

Debate around the purpose of the NHS has often juxtaposed its role as a ‘national sickness service’ with a remit to promote health in a broader sense (Heath, 2007). The recommendations which follow start from the premise of the NHS’s Carbon Reduction Strategy that: “climate change is probably the most serious threat to life, our health, and our wellbeing” and that “as Europe’s largest employer, the NHS has a big opportunity to have ‘exemplar employees’ who are likely to have far reaching positive impacts, not only on the NHS supply chain, but also on communities throughout the UK” (NHS and SDU, 2009). They also recognise the change in context since 2009, with pressure on resources likely to intensify in the foreseeable future.

Encouraging and facilitating employees to switch from driving to cycling and walking, wherever possible, is one way to achieve both carbon and financial savings. This research suggests that considerable potential exists to do this, where community health professionals (or any professions travelling in a similar way) are required to travel to people’s homes within compact urban areas.

The main recommendation of this report is that other NHS Trusts, and other organisations providing services on an area-wide basis in urban areas, should examine their current patterns of travel, to identify where potential exists for a switch to alternative modes.

A substantial literature exists on transport behaviour change in general and specific guidance has been published for NHS trusts (NHS, 2006, NHS SDU, 2009). The findings of this study would reinforce some of those recommendations (e.g. the need to understand current transport patterns, and provide supportive facilities and equipment) and would add that organisations wanting to reduce emissions and promote more active travel should:

- Encourage local managers to set team transport norms, where travel by alternatives to driving become ‘normalised’. This may begin on a ‘bottom up’ basis, but senior managers may also help to set an example (and avoid perceptions of double standards).

- Ensure that recruitment and administrative procedures do not send out the message that driving is the normal option. AWP avoids unnecessary requirements for new employees to own cars. Other NHS trusts, and many other organisations, regularly do.

This study has suggested that occasional car use is important for most of the people who normally travel by other means, so the provision of pool cars should be seen as one element in a strategy to promote cycling and walking for work purposes – and to reduce commuting by car. Given the potential for cost and carbon savings from a switch to active work travel, a holistic approach of the kind offered by Golow makes more sense than a traditional pool car tendering arrangement.
The main recommendation for AWP management is that the scheme has brought significant benefits and that the potential demand exists to expand it. Ensuring that the cars and bikes are located in the most productive places, where they will be most intensively used will help to do this most cost-effectively.

From the perspective of local transport policy, the findings of this study add to a growing body of evidence that cycle routes which provide short-cuts and separation from general traffic are essential elements of any strategy to promote cycling in urban areas (Pucher et al, 2010). This appears to be the case even where the quality of the infrastructure is variable, and frequently criticised. Local transport plans, and local cycling strategies often focus on the potential for commuting. The potential for cycling for work is often overlooked, and could be more widely recognised. This would have implications for network design. Whereas infrastructure for commuting tends to focus on radial routes, cycling for work purposes in inner city areas would benefit from more selective filtering, where some roads are closed to through traffic, and short-cuts are created for cyclists and pedestrians.

The findings also suggest that parking restrictions can be a powerful motivator for modal shift within urban areas. As with cycling, most local transport plans focus on the effects of commercial parking on commuting, and residential parking on household travel behaviour. This study suggests there may be significant potential to reduce work-related traffic in inner city areas. This issue should also be addressed in local transport plans.

8.3 Areas for Further Research

This study has not sought to quantify the overall cost effectiveness of staff travelling by different modes (or different combinations of modes). The key issue, which would merit further research, is the ease and speed of travel between locations, and the implications for the number of visits feasible in a day.

The partial study of NHS travel plans discussed in Section 3.1 revealed that those trusts which have a travel plan have mainly focussed on commuting and visitor travel. The potential for promoting active work travel has been largely overlooked. A nationwide study of travel by healthcare professionals would reveal the extent of the potential for change.
## Sample of NHS Travel Plans Published Online

<table>
<thead>
<tr>
<th>Trust or Site</th>
<th>Year</th>
<th>Primary Focus</th>
<th>Pool Cars</th>
<th>Travel Survey Coverage</th>
<th>Work Travel</th>
</tr>
</thead>
<tbody>
<tr>
<td>Derby City Primary Care Trust</td>
<td>2010</td>
<td>Reduce car commuting</td>
<td>Investigate</td>
<td>Commuting only</td>
<td>Mentioned in passing</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Commuting and work travel</td>
<td>Mentioned with plans</td>
</tr>
<tr>
<td>Macclesfield District General Hospital</td>
<td>2007</td>
<td>Reduce car commuting</td>
<td>Planned</td>
<td>Commuting only</td>
<td>Not mentioned</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>No mention</td>
<td>Commuting and work travel</td>
<td></td>
</tr>
<tr>
<td>Northampton General Hospital</td>
<td>2002</td>
<td>Reduce car commuting</td>
<td>Investigate</td>
<td>Commuting only</td>
<td>Mentioned</td>
</tr>
<tr>
<td>Rotherham, Doncaster &amp; South Humber</td>
<td>2009</td>
<td>Parking management</td>
<td>Planned</td>
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<td>Mentioned with plans</td>
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<td></td>
<td></td>
<td>Travel to redeveloped site</td>
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<tr>
<td>Torbay Hospital</td>
<td>2007</td>
<td>Reduce car commuting</td>
<td>Provided</td>
<td>Commuting and visitors</td>
<td>Mentioned with plans</td>
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<td></td>
<td></td>
<td></td>
<td>No mention</td>
<td></td>
<td></td>
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<tr>
<td>Southwest London St George's</td>
<td>2006</td>
<td>Travel to 5 sites</td>
<td>Investigate</td>
<td>Commuting only</td>
<td>Mentioned</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Travel to and from one site</td>
<td>No mention</td>
<td></td>
<td>Mentioned with plans</td>
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<tr>
<td>Velindre</td>
<td>2009</td>
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<td>Investigate</td>
<td>Commuting only</td>
<td>Mentioned</td>
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<td></td>
<td></td>
<td></td>
<td>No mention</td>
<td></td>
<td>Mentioned with plans</td>
</tr>
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<td>West Middlesex University Hospital</td>
<td>2010</td>
<td>Parking management</td>
<td>Investigate</td>
<td>Commuting only</td>
<td>Mentioned in passing</td>
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<tr>
<td></td>
<td></td>
<td></td>
<td>No mention</td>
<td></td>
<td>Mentioned with plans</td>
</tr>
<tr>
<td>Weston General Hospital</td>
<td>2010</td>
<td>Reducing SOV journeys</td>
<td>Investigate</td>
<td>Commuting, visitors, work</td>
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<td>Forth Valley (draft)</td>
<td>2010</td>
<td>Travel to a new site</td>
<td>Investigate</td>
<td>Entry to site, by all</td>
<td>Central to the plan</td>
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<td>Southern Health NHS Foundation</td>
<td>2010</td>
<td>To reduce staff use of own cars for work travel</td>
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<td>Mentioned with plans</td>
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<td></td>
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<td></td>
</tr>
<tr>
<td>Surrey and Borders</td>
<td>2008</td>
<td>Multiple</td>
<td>Provided</td>
<td>Commuting and visitors only</td>
<td>Mentioned with plans</td>
</tr>
</tbody>
</table>
References:


AWP, (2009b) *Travel within the Inner City and East Areas of the AWP Mental Health Partnership*. Bristol: Avon and Wiltshire Mental Health Partnership Trust.


UWE (2011) *Bristol UWE Travel Challenge*. Available from: