Transport Visions

Society and Lifestyles

The first of eight reports from the Transport Visions Network

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Preface

Futurology - *the study or prediction of the future of mankind.*

1. At the beginning of the 21st Century, the UK transport profession in all its guises is very active. *A Transport White Paper* in 1998 set a new agenda to address the burgeoning levels of travel demand and motorised traffic. In the face of short-term workloads and objectives it is tempting to put to one side the potentially distracting business of transport futurology. After all, has not the time for debate and imaginative forward thinking now passed with the publication of the new White Paper? Is it not now time to begin 'bedding in' the new policies and practices that will serve us for the next decade or two? The answer is no. While action and not debate is urgently needed to address present-day problems, complacency about the future and the transport challenges it will bring must be avoided at all costs.

2. Reports documenting attempts to set out transport visions are not new and examples are plentiful. Before the turn of the century many people contemplated the future of transportation and numerous documents were published presenting predictions and visions. In the UK, the RAC Foundation[1] convened an advisory group to assess the relationship between cars and the environment and to identify research priorities. The Engineering Council[2] set up working groups to examine challenges and solutions for the UK's future needs for transport. They started with a simple vision of 'access for all' and 'transport without costs' and identified what needed to be done to realise the vision, including a timetable for action. Within the Department of Trade and Industry's Foresight Programme, DTI[3] reports the work of a task force that examined the implications for transport of four different 'environmental' futures for the period 2010-2040. The task force produced recommendations for policy and research that were robust against each of the futures.

3. Meanwhile not directly concerned with transport, ESRC[4] explored trends in Britain up to 2010 from a social science perspective. The Institute for Transport Studies at the University of Leeds[5] attempted to provide a vision for the future of transport in Britain for the next thirty years by interviewing those involved in transport about what might happen and how it could be achieved. The Europe 2020 group[6] considered the future of transport and communications in Europe. They considered the impacts on population, lifestyles, economy, environment, regional development, urban and rural form, goods transport, passenger transport and communications of three different scenarios – a growth scenario, equity scenario and environmental scenario.

4. David Banister[7] has presented a 'Eurovision' for sustainable urban development and transport in 2020 developed via specifying environmental, regional development and efficiency

targets, tracing through two paths towards the targets and back-casting to determine actions required to achieve them. William Garrison and Jerry Ward[8] offer their visions of transportation systems that will better serve the needs of the United States in the future. They include better ways of managing congestion, new types of vehicles, new possibilities for cities designed to meet the varied needs of their inhabitants and new ways of moving people and freight over long distances.

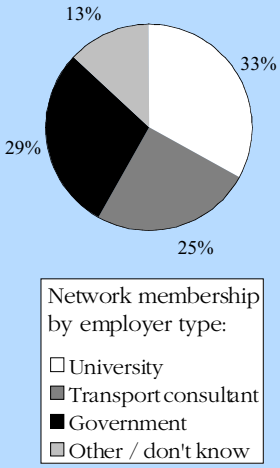
5. What, then, is the justification for yet another transport visions report and indeed a series of reports? There are three principal justifications. Firstly, the world is an ever-changing place. The future is not predetermined and waiting to be discovered, it only becomes reality once it becomes the present. As such, attempts at transport visions must be regularly revised in light of the changes we experience, such as the emergence of mobile communications. The uncertainty of the future also means that no single vision can claim to be accurate. The only certainty is that transport and travel patterns will always be dynamic. Visions from a variety of perspectives enable a more informed consideration of the future.

6. Secondly, we are at a rare point in time in the UK. The present and pending acuteness of car dependence and traffic congestion and their associated effects has pushed transport high on the public and political agenda. Longstanding solutions to problems are no longer appropriate (at least by themselves) and politicians and other key decision-makers are prepared to listen to new and possibly radical propositions. The time is ripe for the imaginative thinking and innovation that can be derived from transport futurology.

7. Thirdly, almost without exception, all previous vision documents have been the product of senior professionals. Listed in the acknowledgements of such reports are the likes of Professors, Chief Executives, Chairmen and Directors. Conspicuous by its absence is the explicit acknowledgement of young professionals. All the reports in this series have been produced exclusively by young professionals – men and women aged 35 or under. Being 'young' does not give any special insight into the future. However, with young professionals comes the prospect of new ideas and perspectives that can potentially challenge existing mindsets. Furthermore, the young professionals of today will be the decision makers of tomorrow with a responsibility for delivering effective solutions. It is hoped that the act of engaging young professionals in a transport visions debate will in itself be of value to the individuals concerned through assisting in their professional development and the forging of new professional relationships with important future influence.

8. This report and others in the series are a product of the Transport Visions Network. The Network was conceived by Drs Glenn Lyons, Kiron Chatterjee and Greg Marsden of the

Transportation Research Group (TRG) at the University of Southampton. The TRG has been responsible for securing funds for co-ordinating and reporting on the Network. Funding has been kindly provided by the Engineering and Physical Sciences Research Council, the Rees Jeffreys Road Fund and the Department of the Environment, Transport and the Regions. The Network was established at the end of 1999 and formally began its business in February 2000 with the aim of addressing and reporting on eight transport Themes during a 30 month period. Membership of the Network has been open to anyone aged 35 or under. The membership predominantly consists of transport professionals who have a range of background disciplines and experience. Membership of the Network has totalled around 200 people with local authorities, transport consultancies and universities all well represented alongside other organisations.



9. The reader will find that the discussion is focussed on visions for the United Kingdom, reflecting the fact that the Network's founders are UK based, as are the majority of its members. Nevertheless, Network membership also has representation from a number of other countries including: Australia; Austria; Canada; Chile; Czech Republic; Finland; France; Germany; Greece; Hong Kong; India; Italy; Japan; Netherlands; New Zealand; Pakistan; Portugal; Republic of Ireland; South Africa; South Korea; Spain; Sweden; and the United States of America. We feel that our visions could apply in many respects to other 'developed' nations and possibly also to less 'developed' nations, although the pace of their progress will depend very much on the development of the global economy and the extent to which it leads to greater or lesser disparities in wealth and economic development.

10. So, what do we hope the value and impact of our reports will be? Pragmatists might be anxious to determine whether or not the reports can shed any light on solving today's problems. Others might expect that our reports should abandon convention and offer truly provocative and far-fetched forays into a distant future. Perhaps we have been able to reconcile both of these aspirations. Our principal goal is to challenge existing mindsets and to reinforce the importance of forward thinking in transport research, policy and practice. We hope to reach a wide variety of audiences and provoke fresh ideas and perspectives. If we have been successful then our reports should help to influence current policy debate. We hope they will also inspire a stream of adventurous research proposals. Most of all we hope that our reports will enjoy a fruitful existence as reading material before being consigned to join their predecessors on bookshelves gathering dust.

1 Introduction

To the reader in a hurry -

This report does not purport to be a short, sharp account of society and lifestyles. We have not consigned material to appendices for fear you would not read it!

The report is intended to be a resource for forward thinking. We have structured it to allow you to take from it as much or as little as you wish.

The three main sections constitute consideration of different driving forces for the future of society and lifestyles. For each driving force a 'factsheet' is included outlining established trends. Each driving force is then discussed in the context of two (possibly opposing) scenarios. The scenario sections of the report reflect our debate about the future. They attempt to offer a representative account of a diversity of views and contributions. A commentary section for each driving force offers a résumé of key trends and issues.

11. To many transport professionals, a report that explores society and lifestyles might appear a fanciful distraction from the pressing transport problems that exist today. There are those who will argue that transport professionals should stick to matters that concern them such as how to ensure the production of a successful Local Transport Plan or how to develop next generation models to deal with multi-modal corridor studies. Yet, fundamentally, travel demand and traffic are derived from the need or desire to participate in activities. In turn, the patterns of activities arise from the fabric of our society and the lifestyles that prevail. As transport professionals we cannot have a direct or even perhaps an indirect influence on factors such as population growth or composition. However, such factors have a profound influence on national and local travel demand. If transport professionals are to develop effective and longstanding solutions to a burgeoning desire for mobility then it is important to consider trends in society and lifestyles and become involved in inter-disciplinary discussions.

12. 'Society and Lifestyles' is a potentially all-embracing topic to address. In this report we have attempted to identify and explore what we believe are many of the key elements of society and lifestyles that will influence future transportation requirements. Society in the UK is not a homogeneous entity. A broad spectrum of lifestyles and cultures exists. Diversity arises from an increasing opportunity to exercise freedom of choice. It is not therefore possible to foretell with any degree of certainty what lifestyles

will prevail in the future. Instead we have sought to offer pairs of alternative, and to some extent polarised, scenarios of the future. None of the scenarios are mutually exclusive but they serve to highlight differences or reinforce common features that are likely to shape future levels of mobility. We have explored society and lifestyles scenarios under three headings: social driving forces; political and environmental driving forces; and economic and technological driving forces.

13. As a precursor to each pair of scenarios, existing evidence and observations (many from recognised authorities) are provided as a present day account of key determinants of society and lifestyles. Much of our reference material has been drawn from Web sites - perhaps a sign in itself of things to come. Some Web pages are prone to be moved or removed (although Web sites themselves are longer standing). However, we anticipate that the use of Web references will make the information more accessible to a range of different readers than by referring solely to books or journals. The scenarios themselves are projections into the future. As such, their validity remains unproven. As William Jennings Bryan has observed "*Destiny is no matter of chance. It is a matter of choice: it is not a thing to be waited for, it is a thing to be achieved.*"[9] We have attempted to set out credible and accountable views. Nevertheless readers may choose to take issue with some of our views. We would encourage them to express their views when opportunities arise and thereby further enrich the transport debate in search for solutions.

14. Our visions relate to the 21st Century. We have avoided attaching more specific timescales. The practice of futurology is fraught with uncertainty and to refer to such timescales would be misleading. In particular, it might encourage the reader to assume issues on the 2020 time horizon are more pressing or important than those on the 2050 time horizon. This may be true but it wrongly assumes that we are able to accurately position events on a timeline. The pace of change of some aspects of society and lifestyles is dramatic. Who could have foreseen twenty years ago the arrival of the Internet and in turn the emergence of worm viruses that can, in a matter of hours, infect many millions of computers worldwide with potentially disastrous consequences? Who is to say exactly when in the future natural resources might be depleted to catastrophic levels? Will genetic engineering ever halt or rapidly slow down the process of ageing and if so when will the breakthrough take place? Who would have thought cloning of pigs and sheep and transplants of animal organs would take place? Are the recent demonstrations against capitalism in major cities in different countries the tip of an iceberg or will it be a short-lived and insignificant chapter in history? Futurology should not be trivialised by offering a pretence of definitive outcome. Therefore this report considers possibilities only.

15. We include some explicit reference to transport. However, the report's prime concern is to establish a context for subsequent consideration of more specific transport issues that will be documented in later reports in this series. We hope that the report will also prove informative and useful in its own right. It contains many facts and figures and many perspectives and interpretations. The future is ours to shape. Much of the shaping of society and lifestyles will be beyond the reach of transport professionals but transport professionals must play an important part in aspiring to a future in which transport systems are able to meet as well as influence the demands placed upon them by society.

16. Material contained within the series of reports is the result of extensive email discussions (over 250 email messages were exchanged in the course of the 'society and lifestyles' debate) and 'real' workshops and meetings. Credit is due to all those Network members who actively contributed. Special thanks must go to the Editorial Boards of the reports. As a network, we are conscious that we are unrepresentative of society at large. Our membership is drawn mainly from middle class UK based professionals with higher education qualifications. We have endeavoured to consider and to represent the needs and views of society in our visions and hope that readers will find that the visions consider the future faced by society as a whole.

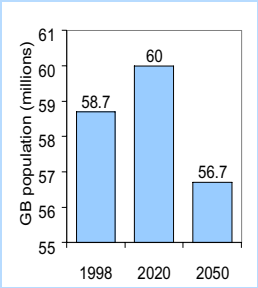
17. The report structure seeks to represent the views generated by the Network. Inevitably, these discussions ranged from some very detailed suggestions to more general and abstract ideas, and from major trends to new and untried inventions. The three pairs of scenarios presented seek to perform the delicate act of balancing a faithful representation of this wide-ranging debate whilst endeavouring to impose a degree of coherence and analysis on the material. The scenarios offer only a small selection from what could be an infinite number of potential futures. They are neither forecasts nor predictions but essentially planning tools to think about events that could happen in the future. The Network's vision-making seeks to open our eyes and minds to things that ordinarily we would not consider, sometimes to think the unthinkable.

2 Social Driving Forces

18. We have examined the current trends for social driving forces and present facts and figures below. Consideration has been given to the consequences for society and lifestyles of both the continuation of predicted trends and alternative outcomes. This process has led to the formulation of two prospective scenarios. The first scenario 'A Community Oriented Society' anticipates that Society will increasingly value family and community relationships and place greater emphasis on personal relationships and quality of life rather than on increasing wealth. By contrast the second scenario 'An Individual Oriented Society' anticipates that individual choice and personal freedom will be the dominant values and one way that this will be expressed is in the drive to improve the material standard of living, with an increasing reliance on personal and privatised resources, in place of universal welfare systems. We have tried to present the key issues associated with each scenario. Not all issues are exclusive to the scenario in which they are discussed. In some instances the scenarios share common characteristics such as the trend of increasing life expectancy.

Facts and Figures

Population Structure

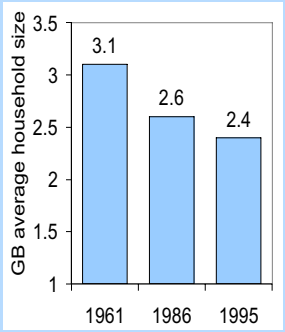


19. The UK's demographic structure is expected to change significantly during the 21st century. According to forecasts, the population will increase from 58.6 million in 1998 to 60.0 million in 2025 and then decline to 56.7 million in 2050[10]. This takes into account predicted trends in birth and death rates and net migration. Birth rates decreased substantially during the last century (for example, there were 2.43 children per woman in 1974 and 1.74 children per woman in 1994)[11] but they now appear to be decreasing very slowly or to be stable. Women who are having children are doing so at an older age. The most common age to have children in the UK is now 25-29. Women aged 30-34 have more children than those aged 20-24[12].

20. Declining birth rates are causing the UK to have an increasingly ageing population. Trends in life expectancy are accentuating this process. Life expectancy in the UK increased from 68.8 (male) and 75.0 (female) in 1971 to 74.3 (male) and 79.5 (female) in 1996[13]. These trends are expected to continue through medical developments and improved healthcare and lead to a predicted increase of over 65s from 12 million now to 16 million in 2020[14]. Population growth in developing countries provides the possibility of inwards migration to the UK to maintain the total population level. From 1986 to 1997 the annual

migrant inflow ranged from 250,000 to 285,000 and the annual migrant outflow ranged from 213,000 to 239,000[15]. Larger net inward migration may be considered desirable in future to maintain a balanced and self-sufficient population. The UK will be able to keep its population steady up to 2050 by raising immigration from an average of 73,000 a year to 88,000. The number of migrants needed to keep the working age population constant is about twice the level of the past decade. Without immigrants the retirement age would have to rise to 72 to maintain the ratio of workers to pensioners[16].

Homes



21. Average household size in Great Britain has decreased from 3.1 persons in 1961, to 2.6 in 1986 and to 2.4 in 1995[17]. It is predicted that by 2010 single person households will represent 40% of all households[18]. They represented only 10% of all households in 1984. These trends can be attributed to smaller families, single parent families, couples living together longer before having children, young people living on their own, older people being able to live in their own homes longer and the purchase of second homes. The increased ability to communicate by means other than face-to-face contact has also allowed for more dispersed households and living patterns. More women than men live alone and this is expected to continue to be the case with young women increasingly having the income to make this possible and with women continuing to outlive men in a context of lengthening life expectancy.

22. Total housing stock increased from 21.6 million in 1981 to an estimated 24.6 million in 1996[19]. The Government expects that 3.8 million new households are needed between 1996 and 2021[20]. 71% of the extra demand is estimated to be for single person households. The Government requires Regional Planning Bodies (RPBs) to review their housing strategies, setting out how they will provide homes to meet housing requirements in their area, at least every five years. 80% of the UK population live in urban areas. However, the numbers living in Metropolitan areas declined from 38.6% in 1982 to 37.4% in 1992[21]. The Government has set a national target that by 2008, 60% of additional housing should be provided on brown field sites and through conversions of existing buildings[22].

Relationships

23. Marriages have dropped from 459,400 per year in 1971 to 310,200 per year in 1997. Divorces increased from 79,300 to 161,000 between the same dates[23]. It is predicted that the proportion of adults never to marry is to increase from 32% to 39% for males by 2011 and from 24% to 31% for females. Government no longer positively discriminates in favour of marriage, by offering a married couples tax allowance. Cohabiting couples could increase from 1.56 million in 1996 to three million in 2021[24]. It has been found, however, that separation rates for cohabiting couples, net of the effect of new couples formed by remarriage or cohabitation, are much higher than for married couples[25]. The net increase in households due to

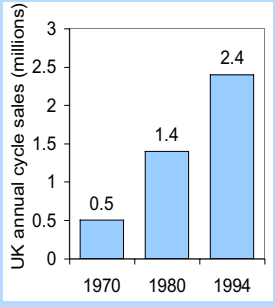
divorce and separation of cohabiting couples averaged about 70,000 a year in the early 1990's (representing 35-40% of the estimated annual average increase in all households) [26].

24. Evolving social attitudes, trends in adult relationships and a growing proportion of women in paid employment (women in full or part-time employment in the UK increased from 9.9 million in 1984 to 12.2 million in 1999[27]) have radically altered the ways in which children are cared for. In 1987 there were 62,000 all day nursery places, 153,000 registered childminders and 433,000 playgroup places. In 1998 there were 329,000 all day nursery places, 388,000 registered childminders and 410,000 playgroup places[28]. In 1972, 7% of children lived in single parent families. By 1998 the figure had risen to 21%. In 1970 there were 71,336 children of divorced couples, by 1997 there were 150,145. Increasing wealth has led the home to become increasingly 'individualised' with children's bedrooms becoming personal leisure centres equipped with portable TVs and cheap Hi-Fi systems. Such household conditions have stimulated greater independence amongst children although there are inherent tensions associated with such independence as parents are increasingly aware of the perceived risks of crime and seek to react by keeping their children under close supervision. Children are becoming an increasingly technologically literate and economically active section of society[29].

Standard of Living

25. The UK Government Statistical Service currently lists the following items as indicators of (material) standard of living: average weekly earnings; retail prices index; and percentage of households having use of a: car, television, telephone, central heating, refrigerator, freezer, dishwasher, tumble dryer, microwave oven, washing machine, video, home computer, compact disc player and second dwelling in the UK. Each of these indicators show standard of living is increasing[30]. Increasing affluence has led to dramatic growth in the leisure activities of the population. In 1971 British residents took seven million holidays abroad. In 1998 they took 29 million. In the same period holidays taken within Britain dropped from 34 million to 27 million[31]. Of people under 45, men have 12 hours and women 10.5 hours of leisure time on average a week. By comparison, of those over 45, men have 15 hours and women 13 hours. Almost 33% of men and 38% of women between the ages of 50 and 65 do not work. Within an ageing population this time rich and sometimes cash rich section of the population will grow in social and economic significance[32].

Health



26. The Human Genome Project that has been working to decode human DNA and thereby unveil the blueprint for humanity has been billed as "*the biggest thing to hit biology since Darwin*". Its imminent completion marks the "*end of the beginning*"[33] of a step change in medicine's ability to tackle disease. Despite such medical and technological advances, lifestyle choices also greatly influence the nation's health. In 1997 in the UK circulatory

diseases including heart attacks and strokes accounted for 41% of male and female deaths. Cancer accounted for 27% of male and 23% of female deaths[34]. In 1972 52% of men and 42% of women in Great Britain were smokers, falling to 28% of men and 26% of women in 1998/99[35]. In the UK during the 1980s the proportion of obese people doubled. It is estimated that by the 2005 about 20% of men and 23% of women will be obese[36]. The number of children who are very much heavier than would be expected for their height is about 2% in primary school children and 10% in secondary children[37]. The British Heart Foundation found that 33% of boys and 38% of girls between the ages of two and seven are not meeting the recommended physical activity guidelines[38].

27. By contrast, interest in the pursuit of physical fitness is increasing. The health and fitness group Holmes Place now operates over 40 clubs across England, whilst the leisure company Fitness First operated 60 clubs across the UK in January 2000, doubling in size since 1998 with a national membership of over 125,000[39]. Annual UK bicycle sales rose from 500,000 in 1970 to 1.4 million in 1980 and 2.4 million in 1994. Despite increasing ownership, cycle trips account for only 2% of UK journeys, compared with 10% in Sweden and 18% in Denmark[40].

Community Oriented Society

Population Structure

28. In this scenario we believe that there will be a revival in the importance of family and community life. For some people this will mean a revival in the popularity of marriage and/or similar forms of legal union. But there will also be a significant increase in the popularity of various forms of community living reflecting society's primary concern for sustainability, relationships and quality of life. Fertility rates will increase to at least two children per woman although parenthood will typically begin later in life. There will be a growing trend for parents to increase the size of their families with additional children in their late thirties or early forties as typified by Prime Minister Tony Blair. There will be a growth in the number of parents in their thirties with 'planned' and financially secure families.

29. These trends will be supported by government policy measures building on the UK Department of Trade and Industry 1998 White Paper 'Fairness at Work'[41]. Efforts will be made to address concerns about population decline and to effect a change of public attitude which restores children as a target for investment in the future of society. There will be more legislation for maternity/paternity rights and greater encouragement/enforcement of 'family-friendly' policies by employers. Immigration to the UK will be encouraged and the 'family values' and higher birth rates of some ethnic minority groups will help to reinforce the benefits of a society based around traditional family structures.

30. These demographic changes will be further stimulated by a significant shift in social values. *Quality of life* will replace material *standard of living* as the key test of a society's success. This will be reflected in the acceptance that resource consumption per head of population is a key factor in the world's major social and environmental problems.

Homes - Occupancy and Ownership

31. The government will adopt policies to influence how we live together, rather than predicting and providing housing. Measures such as the restructuring of Council Tax will be taken to encourage people to live together either as families or other forms of shared household. Long term empty properties and disused land between residential sites will be developed or compulsorily acquired for housing. Single people will be encouraged to live in one or two bedroom flats rather than five bedroom detached houses, thereby making appropriate housing stock available for families and groups.

32. Communal living through house or flat share arrangements will become increasingly popular and be encouraged by government through fiscal incentives. These types of households will reduce the need for certain types of travel as trips can be shared or will become unnecessary with similar people living closer together. Forecasts made in the late 1990's for growth in housing stock and travel demand will be seen as excessive and will be reduced[42].

33. Our scenario espouses the aspirations of urban renaissance. Government will tackle the economic obstacles to community living by providing the framework for developers to build higher-density social housing. This will offer homes that are big enough to accommodate groups of four to five people. Flats will not only be available in their typical present day form of two to three bedrooms/50-75m^2 but will also exist as four to five bedroom/100m^2 accommodation. Their land take will be economical, they will be more affordable and generally targeted towards providing a long term alternative to the traditional suburban home. Unused/unoccupied parts of any dwelling will incur a financial penalty. If, in the case of a family, the children leave then the parents might face a substantial cost for remaining. This social housing entity could be designed on a scale large enough to support schools, kindergartens, shops and all the basic services, lessening the need for (motorised) travel.

34. The growth in popularity of housing co-operatives will stimulate people to live in shared housing. Under this arrangement a group of people can buy a house jointly by setting up a co-op, such that the house is owned by the co-op. The original occupants of a co-op start with equal shares in the co-op, whose value is zero. As the shareholders start paying rent to the co-op and the co-op in turn uses the rent to pay off its mortgage, the value of the occupant's shareholding increases. If one member of the co-op later moves out and is replaced by a new occupant, the outgoing member's shareholding ceases to grow (and therefore starts to decline as a proportion of the total shareholding), whilst the new member builds up a shareholding from zero. Thus by the time the mortgage is paid off, everyone who has occupied the house has a shareholding in proportion to the time they spent living in the co-op. Mortgage companies will become increasingly receptive to this and other types of arrangement as shared housing grows in popularity thanks to the fiscal incentives previously outlined aimed at encouraging shared housing in preference to single occupant dwellings.

35. Britain will follow Denmark and Israel in the introduction and popularity of co-housing[43]. Neighbourhoods of homes with shared resources such as dining areas, kitchen, communal living areas and shared childcare will meet the desire for community/family living. Urban design will change to reflect these aspirations, taking lessons from office design in how to ensure provision of multi-use during the life of the building.

Houses and flats will have at least two bathrooms and moveable internal walls for changing family structures so that young adults can have flats in their parent's homes. Large empty commercial buildings will be converted for co-housing rather than for executive flats.

36. We believe there will also be a return to employer provision of housing to attract employees and enable a more sustainable distribution of population across the country. This will come as a response based on the example of Japan where there is greater cultural acceptance of the employer as part of the extended family. However, there will be a need for planning legislation to ensure changes do not increase social segregation. In Yorkshire where the mines once provided housing there are now enormous areas of deprivation, with high levels of endemic unemployment. If employer housing is adopted on a large scale there will be a need to try and ensure an inter mingling of the social classes to create a balanced and inclusive community.

Homes - Density

37. Planners and government will look to replicate the example of three to five storey tenement housing in Edinburgh and Glasgow, popular with people covering a range of incomes. Maximum room and total floor space thresholds will be applied by local planning authorities to achieve more economical internal configurations. A study of the situation in Europe shows that England and Wales are exceptional in largely ignoring this form of housing. Integral to the success of such housing will be quality of design and materials. Tenements in Glasgow and Edinburgh are lofty, spacious, architecturally stunning and of sandstone construction so that they are incredibly soundproofed. They are more akin to town houses than the traditional perception of tenements.

38. Inherent social difficulties with high-density living will be addressed. Cultivating a sense of community in high-density accommodation will require careful planning particularly to accommodate families and groups of friends. For example, noise nuisance between units will be eliminated through better construction techniques. Provision for children will be made, particularly through safe play areas on largely brownfield sites. Community living will benefit from the provision of spacious communal gardens around courtyards offering a more economical land-take than individual front and rear gardens.

39. With high density living in urban areas, people are closer to their regular trip destinations, making journeys shorter than in non-urban areas. The UK's first car-free housing estate has been developed in Edinburgh. Residents sign a pledge not to keep a car on site. Land is freed up to provide more green space and safe play areas. Residents enjoy better local air quality and less noise. Home Zones[44] will also prove popular, these being residential areas where the streets are transformed (and the regulatory framework amended) so that cars cede priority to pedestrians, including children playing in the streets. Home

Zones and car-free residential areas are popular for many reasons: enabling children to play outdoors benefits their health and social development whilst creating stronger social bonds throughout the neighbourhood. An added benefit is that having 'eyes on the street' leads to lower crime rates. Innovations such as these will become widely adopted and commonplace in areas where low cost and reliable public transport alternatives are available. The communal housing arrangements of housing co-ops contribute to a reduced need for car ownership, whilst car-free areas and Home Zones help to reduce car use generally, and its impact on residential areas specifically.

40. Another complementary development to all of these innovations is the CityCarClub[45], in which a fleet of cars is owned by the neighbourhood, and available for rent. This arrangement is already popular in Germany and Switzerland. This means that residents are able to have access to a car without having to pay the substantial fixed costs of car ownership. They pay more than the petrol costs for any journey so the perceived costs of a single trip are higher. However, this in turn means that the residents are less inclined to use cars unnecessarily (e.g. for trips which are short enough to walk or cycle), hence they end up saving significant sums of money overall. Swiss and German experience suggests that each car in a CityCarClub results in between five and six cars being taken off the road. This in turn reduces the demand for parking space in the neighbourhood, thus increasing still further the scope for achieving high-density settlements whilst also maintaining a high environmental quality within those settlements.

Education

41. Emphasis on local communities will see children educated at the school nearest their home. Technological developments will be utilised to promote group interaction and learning. This will see emphasis on video and group Internet conferencing with schools and communities around the world rather than individual PC based learning, which will be largely used for homework. Technology will not replace real schools with virtual equivalents as it is increasingly recognised that only the former can properly offer young children the opportunity to acquire vital social skills. Technology and the information exchange opportunities it offers will encourage local communities to use their local schools by reducing the variability in (perceived) quality of education between schools.

42. The education which school children receive will reinforce the values of community and quality of life. Local schooling will be bolstered by the implementation of stringent and heavily enforced parking controls on roads around schools to make walking and cycling more attractive than car use. Schools will be increasingly located near to community telecottages (see below) allowing simple transportation and close parental access. For those who have to travel from more rural areas, public transport terminals will be located at such places.

Employment

43. The workplace environment will change to reflect the values of family and community. This will lead to an increase in teleworking in its various forms. Home working will seek to accommodate working and family life although its inherent difficulties will be appreciated. For example, it can lead to the blurring of the distinctions between work and leisure with detrimental impacts upon both. Also, while home working might prove attractive to company high flyers, it may exclude lower skilled staff. A more successful adaptation of the workplace will be the community telecottage. People will work in local community office facilities irrespective of their employer. These centres will also provide a range of community facilities such as post office, bank, crèche etc. Such forms of working are already practised today and developments are discussed in more detail later in this report[46].

44. The emphasis on community in this scenario would also help to regenerate rural communities with a greater value being placed on smaller businesses, and local food production being particularly valued (not least due to the quality of local organic produce). There would be close links established between rural and urban communities, through institutions such as farmers' markets[47] and LETS (Local Exchange and Trading Systems)[48].

Social Organisation

45. In this scenario we believe a cultural realignment will take place by which loyalty between employer and employee will be restored on a large scale. As a result companies will invest in their staff's long term needs, providing family oriented facilities including accommodation and community buildings. There will be inherent dangers as well as benefits with these schemes. If the companies faltered there could be dramatic social consequences akin to the mining communities in the past.

46. Businesses will remain competitive within the family orientated model as a balanced work and home life will be seen to be more productive and effective. Indeed the community centred outlook will lead the UK to produce a high quality service industry sector in the global economy. We do not believe, however, that Britain can or would pursue such an economic strategy in isolation. There will be a complete overhaul in international trading institutions and policies as the world will consciously pursue sustainable community living. Europe will become more unified and work as a community and this example will be followed on a global scale. Globalisation of sustainable community living will not be solely top down. Protest and action at local and national levels will become increasingly influential. Change will be stimulated by individual action as people will choose which country to live and work in according to the country that offers the best social values. Language barriers will do little to inhibit such action as global communications via the Internet will create a universally used language.

47. New sorts of communities will emerge such as campaign type groups and networks, perhaps centred around particular interests.

They will not necessarily be traditional rural idyll type communities, but new types interacting at different levels, not necessarily living in close proximity, and it is likely that individuals will belong to a number of different communities. New technology will link up and reorientate people at different levels. In this sense communities will not only be based on narrow geographical criteria. It will be important to ensure that everyone is trained to be technologically literate to avoid increasing social exclusion for certain groups. There will be a need to address political and social order dangers associated with communities based around a single issue or with shared interests and viewpoints which might conflict with those of other communities.

Individual Oriented Society

Population Structure

48. In this scenario we consider a trend of increasing individualism. The only qualification is that this will depend on social, political, religious and economic factors of the individuals concerned. Those belonging to higher social classes, with increased financial independence, will choose to have (fewer) children later in life and those from lower social classes with taught/enforced low expectations will continue to become parents at a young age. These trends will be reinforced by a moral and social climate that values individual choice and personal freedom most highly. This will include widespread public acceptance of different lifestyles (sexual orientation, faith, interests etc.) and less social pressure to have children. Women will have much greater control and choice over giving birth. Women will choose to have fewer children (of the sex they choose) and have them later in life to accommodate career and other lifestyle aspirations. Later parenthood will mean more years with greater mobility, freedom and increased possibilities of changing home and work locations including living and working overseas.

49. Family values will continue to be eroded. Parents will still have responsibilities to children, but fewer children. Maintenance laws will change. At present an ex-partner must remarry in order for maintenance payments from the first marriage to cease. In future, people may take out insurance against unplanned births. Marriage will continue to decline in popularity and transience will become the norm, evidenced in multiple partners and relationships. Marriage will remain popular in some areas of society, principally amongst some religious and ethnic communities.

Health and Life Expectancy

50. We believe that life expectancy will be polarised. The wealthier sectors of society (those having access to the best healthcare, including the benefits of biotechnology) will reap the benefits in terms of extended life expectancy. For society overall this will be offset, to some degree, by the situation of poorer sectors of society. They will continue to experience poorer diets, worse air quality and greater exposure to health risks in their home and neighbourhood environments. There is uncertainty as to what impact this will have on population structure. With the whole span of life extended (to in excess of 100 years for men and women in the latter half of this century) people may have their first child aged 35-40 when financially secure. They could choose, through the assistance of medical advances, to have children when aged 50 or even over 60. Alternatively, with the

stigma of illegitimacy and single parenthood a thing of the past, people may have children while young and then marry later (as Double Income No Kids (DINKS)) when the children have grown up.

51. Medical advances will deliver the prospect of longevity for some sections of society (as outlined above), but long-life will also demand attention to personal fitness, particularly amongst those over 60. This age group will have more leisure time and resources to pursue fitness. To some extent this will result in a much higher practice of cycling and walking for local trips. However, this will be countered by increases in the number of (motorised) trips to fitness centres. Somewhat perversely, individuals drive to a fitness centre to then complete a five-mile cycle ride or a five-mile run on the treadmill only to then drive five miles home.

52. Independence in old age will be prolonged to some extent by technological support. With regard to healthcare for example, an electronic chip attached to or implanted in the body will monitor health and detect any serious deterioration, automatically alerting appropriate parties. Private health care will be accepted and demanded as the primary source of treatment for most people in society. A universal 'free at the point of delivery' National Health Service will no longer prove viable. People will frequently travel internationally to receive cheaper and more efficient treatment. Life expectancy could equate to 'survival of the wealthiest' with a dependence upon an individual's ability to pay for health care as well as the nature of the physical demands/conditions of employment. Genetic technology offers the prospect of a 'nightmare scenario' in which a wealthy elite reap the benefits, placing their cloned headless bodies in cold storage whilst the poor get zero health care or take considerable personal risks by entering a black market of back street, illegal medical treatment.

53. The potential social and economic consequences of an ageing, and eventually dependent, population could be somewhat offset by a radical moral step change in society allowing for the ultimate in individual choice and personal freedom: a future where we decide how long we live. Life expectancy would no longer be held in the hands of a medical profession that aims to prolong life at all costs. With the problems associated with longevity, life quality, pensions, burden on society, there may come an acceptance that living longer is not always living better. This would be facilitated by a change in the ideology of the medical profession, promoting quality and increased patient control. This would be prompted by a change in society, as those who witness the humiliating decline of prolonged old age may react against quantity, promoting quality. We may take control of our life and death as euthanasia and declining the opportunity of treatment become socially and politically acceptable. The issues surrounding the introduction of 'living wills' are already being discussed today.

Homes

54. The consequences for housing occupancy, density and ownership of an increasingly individually oriented society are difficult to predict. One view is that if three-quarters of the projected 3.8 million new households are expected to be for single occupancy then planners and architects will simply provide sustainable ways of accommodating these homes. The 50% Council Tax rebate available to owners of empty properties will be ended. There are 770,000 empty homes in England, some are beyond repair or in no-go areas, but many are habitable[49]. Land is scarce, particularly for house building, landowners will be penalised for leaving properties empty for more than a short period, via increased Council Tax.

55. With ambitions motivated by choice, freedom and material standard of living, there may be a stigma attached to high-density living. Large houses and gardens may be the norm. For many people, gardens have come to signify social status and are fashionable lifestyle accessories. A rare border or 'water feature' can be seen as comparable to trends such as the use of balsamic vinegar, sun dried tomatoes or anything Thai in the early nineties. Gardens have become a cultural issue, accentuated by notions of the home as a castle.

56. Similarly, aspirations to own rather than rent may remain strong. People crave the security and freedom of their own place and their own kind and resist sharing. This is epitomised by examples in America where communities are segregated and people buy into 'whites only' suburbia[50]. Most people dislike the idea of sharing in adult life (at least beyond their immediate partner or family). The house owning culture may continue to exist primarily because of the prospect, after 25 years, of acquiring a substantial asset that could be used to provide financial security during increasingly long lifespans.

57. Alternatively, an individual oriented society could lead to a mixture of low and high housing densities. If people are more individual, flexible, transient and mobile the future may be one of renting and low cost, high-density living. People may be located closer to their place of work if they are not reliant on accommodating the potentially conflicting workplace constraints of a partner. This could lead to a socio-economic segregation in housing. Families and older people may want to move further out of the cities, valuing gardens and a slower pace of living. Inner-urban areas would then be populated by single people of working age. These people may move around on efficient public transport while families and older people on the suburban and rural periphery will be more car-dependent.

58. Renting could simplify some of the problems of increasing rates of divorce as there would be no proceeds to share beyond the contents of the home. Renting meets the needs of the mobile younger working generation who live with friends. It creates continually varying trip distribution patterns, as people move rapidly in this sector due to the limited commitment it affords.

Education

59. Technology used in education will facilitate a culture of individuality from an early age. Telecommunications will see 'distance learning' extended beyond its traditional scope of supporting dispersed rural communities. Internet access will facilitate personal advancement from an early age, although the social interaction provided at schools will see the continuation of traditional venues of learning. Virtual university education will prove popular because of the increasing costs of traditional university education. Virtual learning will be more compatible with the lifestyles of those wishing to combine study with full or part time work. The University of the Highlands and Islands in Scotland already offers teaching via the Internet, although this has as much to do with the geographical remoteness of communities in rural Scotland as any socio-economic factors[51]. The facility will serve the need for life-long learning as demands for flexibility in the workplace render the acquisition of new skills essential. Internet based learning will not prove a wholly isolated individual experience as online conferencing and chat facilities will be utilised to provide e-seminars and virtual tutorials. Moving away to study will remain popular with those who can afford to. There will be an initial social stigma associated with 'Internet Degrees', although in time this will be replaced by the recognition that the acquirement of knowledge should be judged by its demonstrated quality and not the physical location of its source.

Employment

60. We believe that longer lifespans will lead to a restructuring of lifestyles and conventional expectations. People will use time in their younger life to pursue leisure interests knowing that their careers will be much longer, affording ample time to pay off debts incurred. Retirement age will be raised to 70 (British Gas has already done this) or higher to ensure that most people spend at least half of their life in employment and paying taxes to the exchequer. Technology will make physical attributes less important. Those formerly considered of retirement age will have the experience/social skills deemed vital commodities in many industries, including the flourishing service sector. The government will end the state pension so that barriers to employing people on age grounds will be removed. The need for economic security will determine that people work on into their seventies if they lack the resources to fund a lengthy retirement. There will be consequences of social exclusion for those without the means or inclination to embrace an IT oriented economy and society. Government may respond to such concerns by intervening in the market to force down the costs of IT in a similar fashion to the pressure that has been placed on British Telecom recently to bring down the cost of Internet access.

61. The values of individual choice and freedom will serve to shape the economy with the service industry sector enjoying substantial growth. People will demand goods and services 24 hours a day. Demand will be met by the growth of Internet shopping and home delivery and the development of niche services such as domestic help to accommodate working patterns

and lifestyles. Leisure and entertainment facilities will adjust to accommodate 24 hour demand. Creative individual professions such as sport and the arts will be highly prized and prove increasingly lucrative.

62. Working practice will change to accommodate individuality. Teleworking from home will be popular as technological advancement and management culture change makes the practice both practically and culturally acceptable. This will serve to blur the distinctions between work and leisure, reflecting a culture in which materialism and self advancement will render work the central facet of most people's lives. These values will be further reflected by career mobility across companies, industries and countries. Ethics of company loyalty will be replaced by the notion that everyone is effectively self-employed with personal control and responsibility over their career path. Perhaps we will all have sessions with personal career advisors analogous to the use of therapists in the US today. Workplace flexibility will be further reflected in working hours. In a global economy traditional nine to five working will be deemed anachronistic. People will work the hours they want as flexi-days, similar to the system operated in local government in the UK, become more commonplace. The Norwegian telecommunications company Nortel has developed this approach by allowing its employees to start/finish their working day at anytime during a 24 hour period[52].

63. Many of the attitudes prevalent in an individually oriented society will be influenced by international political and economic developments. This has been exemplified in the ways in which the Japanese have delivered a new age of efficient working. The West has tried to compete and the Japanese responded leading to an escalation in efficiency and productivity demands to retain profit margins. This has passed increasing pressures onto the workforce. To cope we have become and will continue to be a convenience society preferring 'make, break, throw away' to alternatives that resemble sustainability.

Immigration

64. Immigration has had an important role to play as a means of maintaining working populations in many developed countries. We may choose to encourage more immigration markets following the examples of Spain where the Government has decided to allow one million more North African workers. It is unclear whether we will require migrant workers only to do the low paid jobs as was seen in the 1950s or whether there will be a demand for migrants with IT skills. India, for example, is currently providing a source of cheap and skilled computer workers either who move to a host country or who (tele)work remotely from India.

65. Manual workers will become a scarce resource as fit and young people become increasingly unwilling to undertake such work, preferring the IT and service sectors, pushing labour costs up within traditional manual trades. However, will immigrants

come to the UK? They may prefer to contribute to the development of their own country in an increasingly global economic environment. Mobility and globalisation might exacerbate Britain's problems as people may leave to work wherever they might feel they have the potential to make a greater impact or have a better lifestyle.

Commentary

66. The table below distils our interpretation of trends in social driving forces according to our two prospective scenarios.

Present and Projected Social Driving Forces	Community Oriented Society	Individual Oriented Society
Population will decrease	✘	✓
Net inwards migration will continue	?	?
Life expectancy will increase	✓	✓
Women will have children later in life	✓	✓
Legal union (e.g. marriage) will decline	✘	✓
Continued major increases in housing stock	✘	?
Average household size decreasing	✘	✓
Increasing use of childcare facilities	✘	✓
Overseas travel increasingly common	?	✓
Personal fitness increasing	✓	✓
Prolonged personal independence	✓	✓
Increasing (material) standard of living	?	✓

✓ - agree ✘ - disagree ? - uncertain

67. In neither of our scenarios do we expect the UK population to increase. Population decline will be arrested in a community oriented society as lasting relationships and family units become more commonplace and fertility rates stabilise as a result and potentially increase. The prospect of any population increase in this scenario will be countered by the population's collective reproductive rate as women have children later in life. With an individual oriented society population is much more likely to decline. For this scenario especially, globalisation (which will reduce differences between cultures and societies in different countries) will erode net migrant inflows thereby impacting upon population as young, single people in particular are uninhibited by the prospect of living and working outside the UK. Current predictions are for an initial increase in population before a decline. Whether or not this occurs will depend upon how quickly and to what extent one or other or a combination of these scenarios prevails.

68. For a community oriented society material standard of living will not decline. In fact, it may increase, although any increase would be much smaller than for an individual oriented society.

In the community oriented society there will be a greater emphasis on quality of life. In both scenarios there will be greater freedom and mobility in early adult life coupled with prolonged health and independence in later life.

69. Forms of housing that might support a future population are less certain: they are dependent upon lifestyle changes. High density, high quality housing is possible in both scenarios but more so in the community orientated society. Densities will be achieved both in terms of building design as well as more efficient use of dwellings. Continued increases in housing stock appear unlikely and a possible decline in housing stock might arise in the community oriented society. In this scenario average household size has a strong likelihood of increasing in sharp contrast to the individual oriented society.

70. The proportion of women in the workforce is likely to increase in both scenarios, although in the community oriented society, working practices that accommodate family life (e.g. part-time working and job-share arrangements) will be much more common allowing women or men to combine working and family roles. This will reduce the need for childcare facilities, although their use within high-density developments will still be significant. In contrast, use of childcare facilities in the individual oriented society will increase despite diminishing fertility rates.

71. Stemming from an interpretation of trends in social driving forces it is possible to introduce some initial commentary on the possible implications for transport. Firstly, it appears that total population will not in itself place an additional burden on the transport system in terms of the *number* of potential tripmakers. However, the lifestyles adopted by the population will greatly influence travel demand and the use of different modes of transport. In both scenarios people will delay having children resulting in a longer period in early adult life of high levels of mobility and home relocation.

72. The individual oriented society is characterised by personal flexibility coupled with increasing affluence. This will result in a greater dependence on personal forms of transport. Ownership or long-term rental of a car or other personal vehicle is likely to increase. Highly individualised pay per ride systems, equivalent to taxis, may also become appealing and affordable as alternatives. If urban renaissance is realised in a community oriented society then high density public transport corridors will become much more viable than today and indeed the need for private transport will be further diminished because the size of housing developments will be sufficient to support local amenities and activity centres.

73. The importance of personal fitness in both scenarios offers the prospect of cycling and walking becoming the preferred modes for short distance trips, providing that indoor fitness centres are not a substitute for the use of such modes. The impacts of an

ageing population will be significant, even in the short and medium term. Understanding the travel requirements and limitations of the over 65 group is essential in providing a 'mobility for all' strategy. Other concerns relate to the increasing reliance of the over 65 age group on the automobile, particularly as the baby boom generation reaches retirement age.

3 Political and Environmental Driving Forces

74. Following the facts and figures set out below concerning political and environmental driving forces we have considered the consequences for society and lifestyles of the continuation of existing trends and alternative outcomes. This process has led to the formulation of two distinct prospective scenarios. The first scenario 'A Free Market Society' anticipates a future in which market forces will increasingly determine the way in which decisions are made. By contrast the second scenario 'A Government Interventionist Society' envisages a society in which it becomes accepted that government at different levels will intervene in many aspects of our lives. As with the previous scenarios relating to social driving forces, these two scenarios are not mutually exclusive. Some characteristics will prevail in both. The future reality might reflect either scenario or, as is more likely, a combination of the two.

Facts and Figures

Politics - National Government

75. Representatives are elected to the House of Commons of the UK Parliament in London using a 'first past the post' (FPTP) system. Some countries, including Germany and Italy, use forms of proportional representation (PR) to elect their national representatives. All members of the European Parliament are elected using a form of PR. Reform of the UK House of Lords has removed the voting rights of the majority of hereditary peers. It is proposed that the Prime Minister's powers of patronage are removed and that the second chamber be composed of members appointed by an independent appointment commission, with a limited number of elected positions.[53]

76. In 1997, three quarters of Scottish voters who participated voted in favour of the creation of a Scottish Parliament (convened in 1999). The Parliament has responsibility for limited tax-varying powers, criminal justice, education, health, housing and the environment. The Parliament has some responsibility for transport, including Scottish roads and bus policy. It does not

have the power to influence the railways[54]. In 1997, the majority of Welsh voters who participated voted for the creation of a National Assembly for Wales (convened in 1999). The Assembly's powers include limited responsibility for education, the environment, social services and transport (excluding the railways) and roads[55]. Members of the devolved Parliament in Scotland and the Assembly in Wales are elected using a form of PR.

Politics - Local Government

77. Local governments in the UK have responsibilities for the provision of local services including transport, environmental health, leisure amenities, policing and waste disposal. Local councils are responsible for the representation of community views to higher bodies and have the power to grant planning permission. They set local taxes (Council Tax) and spend the revenues. Councillors are elected by the local population. Central Government has powers to intervene in decision-making regarding planning and extensive powers to restrict/amend spending by local authorities [56].

78. The election of a Mayor of London and of a London Assembly in May 2000 is likely to be the first of many regional English assemblies. The London Assembly has powers over police, fire, transport, planning, economic development and the environment. The Home Secretary will have the power to overrule the assembly on spending[57].

Politics - International Government

79. The UK is a member of the European Union, World Trade Organisation (WTO) and the United Nations, each of which influence UK law. There are many treaties to which the UK is signatory, whose targets are not binding in law and which come into conflict with other treaties and/or rulings from international organisations. Many environmental treaties that set conservation or pollution targets conflict with treaties on free trade[58]. The tuna-dolphin dispute of 1991 ruled in the favour of free trade, rendering illegal "*trade measures applied by individual nations to conserve wildlife and ecosystems beyond their national boundaries*" [59].

Political Participation

80. Voter turnout in the UK has been in steady decline in the post-war period. At the 1997 UK General Election turnout was 71%, in 1992 it was 78% whilst in 1950 it was 84%[60]. Just 23.3% of the electorate voted in the 1999 European elections compared to 36% in 1994[61]. Turnout for the devolved assembly elections was: 59% in Scotland[62] and 46% in Wales in 1999.[63] Voter turnout in the 1998 local elections was 26%[64]. This trend mirrors other Western countries: in America, less than 25% of the electorate voted in the 1996 Presidential election (turnout amongst 18-24s was 30%)[65]. In Australia and some other countries it is illegal not to vote.[66].

Environment - Global

81. The Intergovernmental Panel on Climate Change predicts that if no action is taken to limit greenhouse gas emissions,

temperatures will rise in the range of 1-3.5°C by the end of the 21st century. This is a faster rate of warming than at any time since the end of the last ice age, 10,000 years ago. The whole pattern of the world's weather could change, increasing the frequency and intensity of heat waves, floods, droughts and storms. Sea levels would rise by between 15 and 95 centimetres[67]. 98% of greenhouse gas emissions are natural, 2% are man-made. Global air temperatures show an increase of 0.45°C over the past century. 70% of this rise occurred before 1940[68]. Current extinction rates are 100 to 1000 times higher than pre-human levels. 58% of the world's reefs and 34% of all fish species may be at threat from human activity[69].

Environment - Transport

82. Passenger cars are responsible for about 15% of the emissions of CO_2 in the UK. In 6000 miles a car will produce roughly its own weight in CO_2. Compared to improvements in the emissions of toxic pollutants, there has been less progress on reducing CO_2 from cars. While engines have become more efficient, the demands placed on them have increased, with vehicles acquiring additional features to meet crash safety requirements as well as power assisted steering and air conditioning[70]. 761 road links (10% of major urban roads), will break pollution standards for NO_2 in 2005. Almost two-thirds of these are in London[71]. From 2001, road tax will be related to CO_2 emissions arranged according to four bands. The lowest band will pay £90 (e.g. Ford Ka) whilst the highest band will pay £160 (e.g. Peugeot 406). From 2002 company car tax will be based on the price of the car and its emissions[72]. The most recycled products in the world are passenger vehicles. About 75-80% of the vehicle is recycled. 95% of vehicles on the road enter the recycling process[73].

83. Green policies to promote public transport, cycling and walking could lead to the creation of 130,000 new jobs by 2010, more than offsetting the loss of around 43,000 jobs in the motor industry as a result of decreasing car use. If measures were taken to encourage the use of cleaner, more efficient vehicles and leasing rather than car ownership, another 35,000 jobs could be created[74].

Environment - Households

84. Over 70% of UK householders admit they have never examined their homes for ways to save energy. In the winter of 1998 UK households wasted nearly £4.3 billion in excess energy costs. On average, every household could have saved as much as £185 on energy bills. Through energy use the average home emits more CO_2 than the average car[75]. If everyone in the UK turned off the tap while brushing their teeth they would collectively save as much water in a week as it would take to fill the Millennium Dome[76]. Only 61% of aluminium cans, 30% of paper products and 20% of glass products are recycled from households in the United States[77].

Crime

85. The 1998 British Crime Survey (BCS) estimates that 16.5 million crimes were committed in 1997. The percentage of the

population who were victims of crime fell from 39% in 1995 to 34% in 1997)[78]. Of these, 21% were violent crimes and 4% involved serious injury. It is estimated that only one fifth of violent crimes are committed by strangers. However, the latest Government figures reveal a dramatic rise in violent crime (a 16% increase in 1999 compared to 1998) with overall crime increased by nearly 4%[79]. Perceptions of risk are also increasing. That is, more people feel more vulnerable to attack. Groups most likely to experience violence are young people aged 16-24, single mothers and the unemployed. Recorded offences per 100,000 households in England and Wales in 1998 were as follows: vandalism – 1345; burglary – 756; vehicle thefts – 2122; and all household offences - 4914[80].

A Free Market Oriented Society

Global and National Governance

86. In this scenario it is envisaged that the free market will increasingly determine the way in which decisions are made. It will be accepted that this provides the best basis for prosperity. There will be an international consensus that government intervention and spending on a large scale, similar to the American New Deal in the 1930s, is inflationary and therefore undesirable. Any political tendencies to move away from the free market model will be 'trampled over in the rush' as countries from the developing world mature economically and follow the free market model. Their adherence will be in response to the promotion of the free market by international institutions and organisations such as the World Bank and International Monetary Fund whose financial support helps to stimulate economic growth in these countries. The developing world will increasingly seek to emulate western ideals, seeing the United States as the ideal model for economic and political development. As a by-product of globalisation and the cultural assimilation brought by free market values, the concept of the nation state will continue to become less relevant.

87. In a scenario of economies competing for growth, governments will use their admittedly weakening powers to support industries that produce profits. Oil companies and the motor industry produce profits that in turn produce tax revenue. In this context, support for more environmentally friendly but largely unproven and unprofitable industries (e.g. renewable energy and non-motorised transport) will be slow in coming. Traditional industries such as manufacturing will utilise new technology to become more flexible and fluid. Businesses will be able to change almost seamlessly the nature of goods they produce according to market demand. Businesses, including traditional forms of agriculture, which prove resistant to adaptation will be marginalised and rely upon unskilled transient labour.

88. The move to a free market oriented society will in part be a reaction to the perceived failures of government intervention. The British people will become increasingly disillusioned with predictable and adversarial political debate and national government that will be seen as secretive, weak willed and inefficient. Efforts to revive local democracy through devolved local government and elected mayors and assemblies with little real power will be met by declining public interest and acceptance. Local government will be seen as a further inefficient and bureaucratic extension of central government. Cynicism about the motives and behaviour of politicians and the electoral

system will further encourage people to look to the market to address society's needs as people will demand actions not words.

89. Globalisation and weakened government control might lead to a situation where a limited number of players are able to obtain control of certain consumer goods markets which could potentially work against the best interests of society. In such conditions there are genuine prospects for monopoly situations and prevalent anti-competitive behaviour. Governments will have only limited ability to prevent such situations by anti-trust legislation, but the public will be more aware of their power as consumers through education and communications and will use this power to influence commercial behaviour. Such corporations have the potential to eventually assume roles of implicit if not explicit governance, though not necessarily defined by national or continental boundaries. Although the integrity of large organisations might initially remain attuned to society's best interests such integrity will come under increasing pressure from conflicting demands for profit.

Population Movement and Lifestyle

90. A free market oriented society will contribute to increased levels of migration as people will move as freely as goods and services. Migration will not be based solely on economic grounds as countries/regions will have to offer other social and lifestyle based incentives to attract migrants. The social consequences of this are unclear. One view is that it could take the form of cultural imperialism with the West influencing the developing world. An alternative view is that there could be an exchange of culture where the West learns from traditional societies in the developing countries who would perhaps bring alternative values that could be very positive for UK society. Given the assumption that market based economic and social values will be prevalent worldwide, we believe that the former view is more credible. Migration could, nonetheless, stimulate social responsibility. As individuals come into contact more frequently with people from other parts of the world they may be more inclined to show consideration to each other's fortunes.

91. Migration within Britain will increase substantially. The South East of England will continue to be an economic hot-spot of a high growth service economy. However, high growth and the reduced dependence on physical location that telecommunications affords will result in a growth of some metropolitan areas as competing centres of commerce to London. In spite of opportunities for high-density living, a significant proportion of those who cluster in these areas will have the money and inclination to demand spacious living. As a result social segregation between cities and regions of economic prosperity and less successful areas will become increasingly marked and a large proportion of the population will lack the financial resources to migrate to the more attractive areas. This will have implications for the economic landscape of Britain with failing industries including some types of manufacturing and

agriculture being increasingly pushed to the geographical margins.

92. Leisure migration will become popular. People will retire in increasing numbers to areas like Mediterranean Europe in search of a better climate and escape from the pace of life associated with the highly competitive economies of the Northern European region. This will result in a similar form of economic clustering as people of similar social class will congregate to share in this leisured lifestyle.

93. We believe that the social implications of a free market oriented society will be profound. In a free market a lot of groups will be unable to access the economic and social benefits. These may include elderly and disabled people as well as those without formal education and those in areas of economic deprivation. The market will provide employment opportunities for some of these people as the wealthy will continue to seek to pay the poor to perform low paid and low skilled jobs. Those with the means to exercise choice in terms of health care and pension provision will be able to ensure a prosperous and secure later life. For others the future will be less appealing. Measures to mitigate against social exclusion will be largely consigned to the history books.

Environment - Global

94. The free market economy has great potential to inflict damage on the environment and in particular resource consumption. It is possible that pricing mechanisms and the profit driven self-interest of market forces will naturally control environmental exploitation. It could be that markets will level off as depleted resources become so expensive that new solutions, innovations and products are developed and targeted as alternatives and then consumption steadies (although by this stage a great degree of the damage will have already been done). For example, with escalating oil prices would come a relative decrease in the cost of solar panels to provide domestic and industrial heating. In addition, increases in production efficiency will slow resource depletion as the principle of '*cutting costs means cutting waste*' is applied.

95. On the other hand, it could be that scarcity would add to the profitability of controlling certain resources, such that there was intense competition to sell, for example, the last available North Sea cod stocks. Companies controlling non-renewable resources might actively seek to stifle competition from more sustainable rival products, for example, oil companies might buy up and patent solar technologies, so that exploitation of its full commercial potential is held back whilst there is still money to be made from the more profitable activity of oil production.

96. We believe, however, that the free market will also have the capacity to accommodate environmental consumerism. This is tentatively evidenced in the realm of food. We have seen the market driven rise of organic produce. As people are becoming

Environment - Transport

more environmentally aware in respect of organic produce and opposing developments like GM foods, consumer power has served to prevent the creation of an economically viable market in this country for GM foods. In a free market there will always be the capacity for developments such as that in organic produce as niche markets are exploited. Consumer demand will then convert such niche services into the mainstream. This has been achieved with vegetarian prepared foods which are now readily available and comparable in range and price with other foods.

97. Optimism at the beginning of the 21st Century that new sources of oil will continue to be found will prove to be misguided. As fossil fuels become more scarce and OPEC nations begin to (further) control and limit supply and inflate prices to protect their own economies, motor industry players will accelerate development of alternative fuels with the prospect of huge market gains as consumers seek to escape stifling petrol prices. The free market will drive technological innovation leading to the creation of environmentally friendly cars as a niche service which will subsequently develop into a mass service along the same lines as vegetarian and organic foods. The physical dangers associated with cars will be dramatically reduced by developments in material and sensor technology. Environmental dangers will be addressed by the introduction of fuel cell and organic waste powered cars. Vehicle emissions will also be dramatically reduced, regardless of any increase in total vehicle traffic, by the introduction of zero emission vehicles (ZEVs). The concern that ZEVs involve a transfer of air pollution from the vehicle (point of use) to the source of energy production (e.g. electricity power station) will be addressed to some extent through parallel technology and science innovations to deliver clean(er) energy production. The capacity for recycling of cars and roads and the upgrading of old cars will be exploited.

98. Business will protest at the cost and inefficiency of road congestion and convince government and the public that free flowing roads at a cost are better than congested roads. In response the government will auction off roads to private companies. This will provide a context for road user charging. Any lingering cultural opposition to such moves will be overcome by practical experience of the benefits. When congestion does occur the experience will be dramatically improved by in-vehicle infotainment including Internet access and roadside environments that have been improved to be more scenic and interesting.

99. The experience of public transport under a free market will be mixed. Where a market exists such as in large cities and main inter-urban routes, services will improve as companies compete to operate profitable services. This will be evidenced in the re-branding of public transport by private operators using commercial marketing techniques. Buses and trains will be recognised as being lucrative (and captive) advertising markets

stimulating investment partnerships between operators and other commercial organisations. This will result in email, television, radio and other forms of interactive entertainment being standard on-board facilities. These facilities will improve the perception of public transport making its use more socially acceptable within major urban areas. Less profitable services, particularly those in rural areas will struggle to survive in a culture where government subsidy of unprofitable services meets with strong disapproval.

Technology

100. The transport of information will be considered as important as that of goods and people in the free market oriented society. The telecommunications industry will experience problems of traffic and congestion comparable to those faced by the transport industry. Although fibreoptic cables have huge capacity to transfer data, the volume of data traffic will increase exponentially. Bandwidth (cf. roadwidth) will be overwhelmed by increasingly high volumes of data bits (cf. vehicles) moving across the network as high-quality video streams are transferred and gargantuan data warehouses exchange data with other warehouses and users. This will lead to congestion charging on the Internet with two-tiered (or more) access and express services. Space is finite and will become an increasingly scarce resource becoming more expensive. The consequence will be that access to knowledge will be restricted, even more than at present, according to means to pay rather than there being a free information market. Information will be seen as the currency of a free market economy with knowledge increasingly being seen as a weapon as well as a resource. Those with access to valued sources of information will be successful. Other people will be excluded and marginalised.

Crime

101. Social exclusion will have stark consequences in this scenario. Market forces will increase the divide between the 'haves' and the 'have nots'. As a result the 'have nots', in the face of diminishing state support, will have an increasing propensity to turn to crime. Rather than recognise and take actions to avert such a trend in the interest of its impact on national economies, industry will seek to prosper through the exploitation of the fear of crime among the 'haves'. There is the potential for police services to effectively become privatised as companies, communities and individuals establish their own protective measures in terms of manpower. As the State becomes incapable of responding with resources to tackle crime it will have a reduced capacity to uphold existing legal systems that many believe at present often make it difficult to bring criminals to justice.

A Government Interventionist Society

National Government

102. In this scenario we believe that there will be a transformation in the political process of national government to accommodate increasing levels of intervention. This will require strong leadership at a national level ignoring adverse public and media opinion and taking serious decisions in the long-term national interest rather than in the interests of party politics and commercial lobbyists. This will reverse the culture in which measures that will provide for a better future are hampered by short-termism as expressed through public resistance and voter outcry which lead politicians to tinker with the system rather than making radical changes. This transformation will be driven by the success of international examples of more authoritarian yet benevolent governments such as that currently championed in Singapore. There was uncertainty about the method by which this transformation could be achieved. One view is that the electoral system with its four to five year political cycle would have to be changed. Another view is that the electorate could be educated to think more long term, recognising that policies often only take full effect after ten or more years.

Local Government

103. National government will increasingly see decentralised local government as the preferred mechanism for intervention. Even a strong central government will recognise that some decisions have to take account of specific local circumstances and are therefore best taken at a local level. Elected mayors backed by assemblies in both the major cities and smaller towns will use new found authority to create sustainable urban environments through measures such as congestion charging and car free housing estates. Incentive based policies to encourage sustainability will also be introduced and made possible by national government providing the legal framework and devolved local government discussing the issues with the public and developing consensus. This approach to decision-making (embryonic at present) will increasingly serve to allow new initiatives to be tested in a particular location, benchmarked by others and then implemented more widely if deemed successful.

104. Powerful elected individuals (bearing substantial accountability) will have a greater incentive to make a difference than an elected body. Their effectiveness and public support will be heightened by the fact that they will opt out of national party sparring. Nevertheless, governments will need to be wary of the

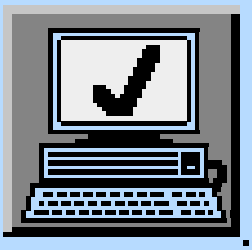
risks associated with continually 'passing the buck' to local authorities for difficult or unpopular policies. The patchy implementation of such policies by local authorities may limit the effective delivery of measures such as sustainable transport policies across large parts of the country.

International Government

105. At a European level we will see the EU investing in large-scale urban redevelopment as it becomes accepted that a free market approach is incapable of being socially responsible. This intervention will be expressed through the expansion of regional funding to even out differences between countries and regions. This will reflect the EU's long term strategy to create a Europe of regions rather than nation states. Regional assistance through development agencies and national government matched-funding will be extended in scope. Within the EU economic centres (city-regions) joint administration and development planning will break down traditional national/state/local boundaries.

106. These political developments will reinforce cultural changes particularly relating to identity. People will increasingly define their identity in terms of region rather than nation. This process will go even further with identity expressed in terms of ethnic groups or communities leading to a highly diverse society. This diversity will not be seen as insular but as cosmopolitan and internationalist. Population mobility and migration will reinforce these cultural developments as intermarriage and transience cultivates a changing and diverse rather than traditional and segregated society. The high level of mobility will aid the transfer of ideas across borders and facilitate quicker adoption and implementation.

Political Participation



107. In this scenario the creation of a more consensual form of politics that is based on intervention for the public good and the experience of effective local and international government in improving everyday life, will revitalise political participation. Compulsory voting will ensure that the electorate as well as the politicians will be expected to be more accountable and socially encourage the belief that every vote will count. Voting will become more convenient. In the short term, voting booths will be brought out of the school or church hall and into the town centre, post office or supermarket enabling the electorate to vote during the working day, or whenever it is convenient. Eventually, however, polls will take place electronically making use of secure data transfer and electronic signatures to identify voters. As a result government will be able to regularly poll its electorate where appropriate. People will be educated about the importance of participation in the political process from an early age through citizenship classes in schools.

Crime

108. Government intervention will serve to dramatically reduce crime in society at the expense of a measure of individual freedom which will be considered acceptable. This will be in response to the examples of Singapore and the 'zero tolerance' measures used in New York to create a safer society. The

definition of antisocial behaviour and crime will be widened with greater enforcement of harsher penalties. Programmes of community involvement in crime awareness, prevention and self-defence will serve to avoid a breakdown in community spirit and trust. Technology will have a strong role in facilitating a safer society particularly through the universal application of CCTV and security staff presence in urban areas.

109. A process of personal identification will begin with the introduction of compulsory ID cards necessary to access all domestic and commercial buildings. This process will be extended to electronic tagging and then in the longer term to the implanting into people's bodies of an ID chip. The technology will encounter the threat of a thriving trade in copied and fake chips. Public resistance to ID chips will decline with recognition of the inability of police forces to control crime with available resources in the absence of using such technology. Further legislation stemming from the 1998 Data Protection Act will seek to appease concern and protect against invasion of privacy. While this may appear to reduce individual freedom on one count, people will feel safer to utilise spaces previously considered dangerous, in effect providing greater freedom of access and movement for the majority. Feeling safer to walk the streets could lead to a reduction in short journeys currently made by car, particularly at night and in the shepherding of children.

Environment-Transport

110. The transport sector will be the first industry to be taxed directly by the EU due to the inherently international nature of its operations. This will address the anomaly that 3rd country cabotage transports are de facto not subject to VAT in the EU. Similar problems will be addressed in all areas of trade with the emergence of E-commerce systems with sophisticated sourcing logistics. The harmonisation of systems will address some of the bureaucratic obstacles that currently hinder trade.

111. The environmental and economic advantages enjoyed by city centres that have pursued extensive pedestrianisation (in conjunction with other measures such as provision of extensive public transport services) will lead local, regional and national governments across Europe to legislate for and enforce pedestrianisation in all city centres and encourage similar measures in towns.

112. National government will empower and encourage local government to implement further extensions and improvements to traffic calming measures in operation today. These will include a drop in speed limit by 10mph in all 30mph areas, dramatically reducing fatal accidents. Rat running along these built up roads will become increasingly socially unacceptable and impractical with calming schemes. Pedestrians and cyclists will have a more elevated status in these areas and will receive improved facilities. Technology will reinforce government measures making evasion virtually impossible. All cars will be fitted with an ID chip and speeding or dangerous driving will be recorded and universally

prosecuted. Cross-reference to personal ID chips will be made to avoid error.

113. National government will enforce responsible advertising standards for cars, warning of the physical and environmental dangers analogous to those used in cigarette advertising. This will be necessary until the universal introduction of ZEVs has been achieved. There will be a message on the dashboard or window, not the back of the manual, of all new cars advising drivers to use them responsibly by driving safely and not causing unnecessary traffic congestion. This will include green labelling by which the customer will know the pollution potential of their vehicle based on a simplified fuel consumption system. A CO_2 clock and a £s spent on fuel clock will be placed alongside the mileage clock to further reinforce the 'real' environmental and economic costs of car travel. A wider audience will be influenced by an educative media campaign developing the successful example of anti drink-driving campaigns.

114. The legal driving age will be raised first to 18 and then subsequently to 21. People will gain vital experience in the early years of adult life of exercising mobility without dependence on a car and will not subsequently feel a stigma about using other modes. Such legislation will stimulate a substantial increase in public transport demand restoring the commercial viability of many services. Vehicle licensing will allow commercial vehicles to be separately identified so that younger people could drive company owned vehicles for work, but get the bus home. The government will also introduce measures, prior to the introduction of ID chips, to target one of the most dangerous groups of drivers, professional males between 22-30 who drive high-powered cars[81]. Government will introduce financial penalties on high-powered company cars and license to drive such vehicles will be dependent on the passing of an advanced driving test.

Commentary

115. The Table below distils our interpretation of trends in political and environmental driving forces according to our two prospective scenarios.

Political/environmental driving forces	Free Market Oriented Society	Government Interventionist Society
Reform of political process/structures	?	✓
Increased political participation	✗	✓
Local level decision making will prevail	?	✓
Increasingly dynamic patterns of migration	✓	✓
Regions will gain increasing social, economic and political significance	✓	✓
Sustainable resource consumption	✗	?
Social segregation and economic division accelerates	✓	✗
Crime levels increasing	✓	✗
Personal freedom increases	?	?

✓ - agree ✗ - disagree ? - uncertain

116. The nature of future political processes and the strength of governance that prevails will have a decisive influence on society and lifestyles. Responsible governments have the power to reconcile social, economic and environmental objectives in a way that would not be likely in a free market oriented society where financial objectives would predominate. In the government interventionist society we believe that new political structures will emerge, based on devolved decision making, that are able to deliver more appropriate and longer term policy setting. The public will respect a greater control by government providing it no longer suspects gesture politics are at work. Electronic means will allow authorities much greater access to their electorate for consultation. As trust and partnership are nurtured long term decision making will be seen as a vote winner and not a vote loser. The electorate may in time be prepared to entrust the government with increased revenue streams through higher taxation.

117. In a free market oriented society it is more likely that decay of political processes and structures will prevail as major conglomerates become increasingly powerful in both national and global economies. A disenchanted electorate will pay greater attention to responding to the persuasive market research 'polls' of businesses than to registering their votes within the ailing

political process. The markets of large commercial organisations are increasingly unlikely to match geographical distributions of population and as such influential decisions will be made on an international basis rather than on a more localised basis.

118. It is not a certainty that the government interventionist society can achieve a point of sustainable resource consumption. The rate at which such a point might be reached is certainly questionable. Government can attempt to control or encourage businesses to adopt sustainable operating and production practices, but whilst it continues to support principles of freedom of choice, attitudes of the public to environmental issues will be particularly significant. The latter is true of both scenarios.

119. The two scenarios are particularly polarised in their perspectives on social exclusion. Exclusion in the free market oriented society is highly probable. Social and economic clustering will lead to geographical pockets of depravity as the 'have nots' are pushed out by those who are striving to protect their own security in a society where the state is no longer able to provide safety nets. The government interventionist society is unlikely to be able to eradicate segregation and exclusion, but it should be able to ensure that socio-economic polarisations do not prevail.

120. Social exclusion to the extent envisioned for the free market oriented society scenario will provide a breeding ground for crime in addition to causing a heightened fear of crime and actions to protect against it amongst law abiding citizens. The fear of crime and crime itself may also have serious implications for land use and housing densities and patterns. The government interventionist society scenario anticipates a future in which growth in crime is prevented and even reversed. This will be achieved primarily by addressing many of the factors that constitute social exclusion and which contribute to the cause of crime. Government intervention within the context of a partnership and trust between the public and the governing authorities will also enable the interpretations and boundaries of invasion of privacy, data protection and civil liberties to be redefined, thereby affording authorities greater flexibility and powers to deal with crime prevention and the solving of crimes.

121. It is unclear for both scenarios whether or not personal freedom will increase in the future. Although in the free market oriented society it may be perceived to have increased, freedom of choice is likely to be the preserve of only part of society and such freedom is not likely to act as a proxy for the collective quality of life for society as a whole. Conversely, in a government interventionist society personal freedom of some individuals might be compromised as social exclusion is diminished, but the collective quality of life of society has greater potential to increase.

122. The nature of future political processes and the strength of governance that prevails will also have a decisive influence on the scale and effectiveness of transport policies and solutions pursued. Some preliminary commentary is offered below.

123. A government interventionist society will promote a wider recognition of environmental and societal impacts of road transport. Recent examples of co-operation between the European Governments and vehicle manufacturers have secured reductions in CO_2 emissions and this process will provide a fast track to the development of more sustainable modes of transport. Whilst, to some extent, a free market oriented society will achieve the same goals through efficiency and consumer demand, it has the potential to be a longer term and more environmentally damaging process.

124. Both scenarios recognise a future increase in the dynamics of migration patterns. It is unclear on what scale migration will occur and in turn what impacts it will have for travel. If, for example, a significant proportion of the retired population of the UK were to migrate to continental Europe in pursuit of more favourable climates then the predicted boom in leisure travel associated with this age group may not arise. Of greater significance perhaps is the potential for more dynamic and widespread patterns of migration to stimulate change and the acceptance of it. This could enable new transport policies and practices and other areas of policy change impacting upon transport to be introduced with reduced public resistance. As people migrate so too will examples of successful practice in travel demand management from around the world.

125. In the free market oriented society, transport developments seek to support freedom of choice as far as such choice relates to the commercial and financial benefits of those investing in solutions. Support of the mobility needs of the financially weak members of society is unlikely to be tenable. Public transport will evolve to serve niche markets of financially well-off sections of the population thereby pricing off those unable to pay and further reinforcing social exclusion through diminished accessibility. Exclusion is also likely to extend to electronic communication mobility and accessibility. This may have even more serious consequences for those excluded than for physical mobility and accessibility as the functioning of society relies increasingly on telecommunications.

126. Crime and the fear of crime in the free market oriented society will be detrimental to advances in transport solutions as communal means of travel are seen as a threat to personal security and the insularity afforded by private vehicles becomes even more prized for the protective environments they provide.

127. Acceptable compromises in invasion of privacy, data protection and civil liberties in the government interventionist society might release a generation of more effective transport

solutions as information about individuals and their movements becomes available to transport system providers and authorities and enables them to better influence and control travel demand.

4 Economic and Technological Driving Forces

128. In response to the economic and technological driving forces below, we have considered the consequences for society and lifestyles of the continuation of existing trends and alternative outcomes. This process has led to the formulation of two distinct prospective scenarios. The first scenario 'Workplace to the Workers' argues that technological and social change will lead to the decline in importance of the location of the workplace for a large proportion of society as increasing numbers of people regularly work from home or local community offices (see below). By contrast, the second scenario 'Workers to the Workplace' predicts that workplace location will maintain its importance and even serve to determine lifestyle choices to a greater extent than at present as employment becomes increasingly important in people's lives and working hours increase in some sectors. Some issues discussed within a scenario could prevail in both scenarios. The future might reflect either scenario or, alternatively, a combination of the two.

Facts and Figures

Employment

129. Overall labour force participation in the UK increased by 5% to 60% between 1976 and 1985 with female participation increasing from 36% to 48% and male participation constant at 73%[82]. An increase in the numbers of working people has helped achieve/sustain economic growth. Between 1984 and 1999, the total number of people in employment increased from 23.9 million to 27.2 million. The number of men in employment increased from 14.0 million to 15.0 million and the number of women in employment increased from 9.9 million to 12.2 million[83]. The ageing population will lead to a decrease in the size of the working population unless there is an increase in the participation of certain segments of the population (unemployed, women, older people). In recent years, the percentage of the population between 16 and retirement age has remained stable (61.2% in 1986, 61.4% in 1998) but this will decrease sharply soon[84].

130. The average unemployment rate nationally for the UK is 4.3%, whilst in some parts of the country it is over 10%. Almost a third of men over 50 but below pension age have no paid work and most have given up seeking it. The trend indicates that there will soon be at least as many women past 50 at work as men. Among women in their 50s, the proportion with a paid job has increased steadily from 55% in 1986 to 62% in 1999, although almost half work only part time. The fast growing trend of early retirement can provide dangers as well as benefits. Whilst a cash and time rich generation will enjoy a leisured lifestyle and niche services, there is a risk of creating a group of two million men in their 50s and early 60s without such resources who are doing little with their lives and whose inactivity may jeopardise their health[85].

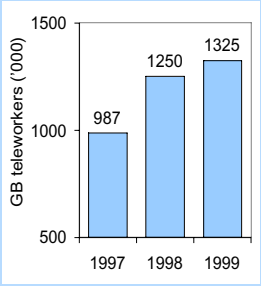
131. The labour market is likely to see a continued growth in the number of self-employed people over the next decade. The current national level is 13% of the labour market with strong growth in the number of self-employed manual workers and managerial and professional workers. It is anticipated that a growing number of women will break the 'glass ceiling' and obtain senior managerial posts and that those who continue to be thwarted will set up their own business[86].

Working conditions

132. In 1995 approximately 18% of employees held a particular job for between ten and 20 years, exactly the same as in 1975. The number of people in the same job for more than 20 years has fallen to 10% from 15% in 1975 but this change had taken place by 1985. In 1975 the average job lasted six years one month and now it is five years six months. Young people are changing jobs more rapidly in their 20s and 30s. A 16-24 year old of today can expect to be on their fourth job after three years in the labour market. School leavers will have an average of 11 jobs over their lifetime, compared to today's retired population who averaged seven jobs[87].

133. In 1980, 21% of all employees (and 42% of employed women) worked part-time. By 1995, this had risen to 25% but has remained static since. Part of this increase is due to the number of students now working part-time. Nearly 90% of part-time workers are employed on permanent contracts and have stable relationships with their employers although it is common for those on part-time or short-term contracts to be excluded from or receive much more limited employment welfare rights [88].

134. In 1983 23% of British men worked over 48 hours per week and by 1992 it had risen to 28%. In no other EU country had the figure reached 20%. The 1983 average for the EU was 10% and in 1992 it was 12%. This situation is being compounded by the declining importance of specific location in employment leading to the blurring of distinctions between work and non-work activities[89].



135. Although the Transport White Paper allowed only a short section of text in its consideration of teleworking, certain forms of teleworking are on the increase. In defining a teleworker as someone who works at least one full day at home per week and uses a telephone and computer for the work done at home, the Spring Labour Force Survey estimated there to be 987,000 teleworkers in Great Britain in 1997 (4% of all in employment). In 1998 this figure had increased to 1.25 million and the figure for 1999 was 1.325 million. Of the latter, 225,000 worked at home, 693,000 used their homes as a base and 357,000 worked occasionally from home. Teleworkers are much more likely to be married than non-teleworkers[90]. More than half the UK's call-centres are experiencing severe recruitment problems and need more skilled staff to keep up with expanding customer demand. Only 4% of call-centre managers currently employ teleworkers although 42% expect to do so in the near future[91].

Industrial performance

136. Output of the service industries in the UK increased by over 8% between 1990 and 1997 with more than a 2% increase in 1996/97. In contrast, manufacturing output increased by less than 2% between 1990 and 1997[92]. Throughout Europe there has been a decline in the traditional manufacturing industries during the last few decades. The service industry now forms the most significant sector of employment in European countries. This has been stimulated in Britain by a marked increase in disposable income. Between 1981 and 1998 average weekly earnings in Britain have risen by 310% (from £124.9 to £384.5). In the same period the Retail Prices Index has risen by only 220%[93]. There are currently three times as many public relations assistants as coal miners. More people work in Indian restaurants than the coal, steel and shipbuilding industries combined[94]. Small firms make up 93% of all enterprises in the European Union[95]. The number of agent positions in UK call-centres is expected to grow to 274,000 by 2002 - this means that more people will work in call centres than in farming and teaching combined. The UK has over 37% of all European call-centre agent positions[96]. It is estimated that call centre staff will represent 5% of all employees in the UK by 2010[97].

Leading Growth Industries

137. International air travel is amongst the world's leading growth industries and the rate of growth far outstrips any other mode of transport. Amongst the top criteria for selection of choice of business location (where the choice is global) is access to world markets. Air coverage of world markets is vital and 80% of the world's economies are accessed by daily direct flights from London, considerably more than any other city. Another high priority is people and their ability to communicate globally through a range of languages. About 300 languages are spoken in London[98]. Below are the statistics of International flights, landings and take-offs at UK airports[99].

	1976	1981	1991	1997
Scheduled flights	284,000	301,000	551,000	811,000
Chartered flights	141,000	194,000	237,000	271,000
All flights	425,000	495,000	788,000	1,082,000

138. 67% of micro-companies (one to nine employees) and small and medium sized companies (10-250 employees) now own PCs with modems and 44% have access to the Internet. Both Website ownership and the use of the Websites to sell goods and services on-line have more than doubled since 1997[100]. In 1999 Internet shopping accounted for 0.2% of total retail trading, by 2003 it is predicted to represent 2.5% or some £6 billion. Airline operator Easyjet conducts 60% of sales online and the Internet grocery market is currently worth £200 million a year. In two years it is expected to reach £1 billion[101]. The soaring share prices at the beginning of 2000 of so-called 'dot com' companies underlined the very high expectations for the growth in on-line business. However, some share prices subsequently tumbled with examples of spectacular failures of new companies such as the online sportswear retailer boo.com as the investment of new companies in marketing and advertising consumed start-up resources more quickly than income streams from on-line sales could be established. The industry remains optimistic but will now need to found its development on a more robust business strategy.

Workplace to the Workers

Teleworking

139. In this scenario we believe that teleworking will become a very widespread practice significantly impacting on the way we work and the culture of work. The term *teleworking*, which currently signifies to many a fringe form of working practice, will disappear as it will become a common working practice with no need to highlight the significance of workplace location. Large sectors of employment (such as primary and manufacturing industry, health services and retail and leisure services) will be unable to shrug off the significance of workplace location. However, some sectors of the expanding service sector (which, with the conventional concept of a daily commute, would have accounted for a substantial share of (company) car traffic) will become ideally suited to teleworking practices.

140. Early pioneers of teleworking practice who involve high proportions of their staff will achieve substantial savings in the historically fixed infrastructure costs of expensive and large office buildings and associated parking spaces. Such savings will be invested in the provision of high quality teleworking facilities in other locations and in increased salaries and other employee benefits. The uptake of teleworking practice will then accelerate as early adopters are seen to thrive commercially because of the high quality staff they can attract.

141. Technological developments will enable employers to pay the energy costs of working from home and this will be accepted as parallel legislation to charge employers for the transport, time and environmental costs of commuting comes into force. A primary cause of concern will be the impact on stimulation and creativity in work arising from reduced levels of human face-to-face interaction. An initial response to this will be that offices will continue to exist although on a substantially reduced scale and employees will commute to work one or two days a week.

Community Office

142. The long-term solution to the problem of social interaction will be the community office or telecottage. These already exist in growing numbers today. People from different organisations will work in their local office. Offices will be more sophisticated than examples of telecottages seen today. A community office will contain a number of 'worker cells'. These will be self-contained, insular, miniature working environments with high quality telecommunications media to enable remote virtual interaction with other company staff in other such offices. Such 'cells' will ensure that information security within a multi-company office is

maintained. The office will provide the context for the rediscovery of local communities. Sharing with different disciplines will be stimulating, aiding community integration as people will be grouped by locality and not corporate colours. This will lead to less hierarchical work structures as people from different ranks interact on a more equal basis.

143. The community offices will form part of a community centre with broad social functions. These will include after school clubs for children, reducing social exclusion and promoting fun education. Many centres will function as a transport interchange, lying on bus routes/rail lines. These interchanges will also serve as kiss and ride centres, where people will be dropped off in the mornings and collected in the evenings.

144. In a future where all monetary transactions are electronic there will be no need for centres to provide cash machines. In the shorter term they will provide terminals for electronic banking although in due course all banking will be possible through the use of commonplace hand-held communications devices akin to the forthcoming third-generation mobile phones. Centres will perform the function of a supermarket drop-off point. Home delivery will only be seen as cost-effective within a certain radius. Having a common delivery point will extend the radius. Deliveries will be made once or twice a week and groceries left in refrigerated left-luggage style lockers with each customer given an access code for their lockers.

145. The 'worker cell' will come to be seen as the workplace for a large proportion of people. Worker cells will not only exist in community offices. A growing proportion of dwellings will also have them, as will transport interchanges. Further into the future worker cells will be compatible across different countries thereby rendering the physical location of the workplace even more insignificant. With physical location of work becoming increasingly flexible for a large proportion of workers, many people will be able to exercise choice and flexibility in their working environments. This choice could be exercised according to the nature of the task in which they were engaged, which could vary from day to day. They might, for example, stay at home for the ability to work in full isolation. They might go to the community office to make use of higher quality worker cells or to combine their day's work with making use of the social facilities at the office. Whilst people will tend to stay at home or go to community offices to work, they will carry out greater amounts of out-of-home activities. The pursuit of leisure activities will increase substantially.

Technology

146. Technological developments will serve to facilitate and even stimulate teleworking. The qualitative standards of electronic telecommunications will improve so greatly that travel and the printed media will become non-essential, largely leisure based pursuits. Communication between employer and employee via video conferencing will be highly realistic and effective,

eliminating the need for a large proportion of physical meetings. Realism is likely to extend to video quality immersive virtual reality, particularly for the 'executive worker cells' in community offices. Users will no longer face the clumsiness of today's videoconferencing that cannot accommodate eye contact and body language (and which appears, as a result, to be largely ineffective as a means of travel substitution). Text and voice message communication will become more efficient as personally determined screening criteria will be intelligently employed to categorise messages according to their importance and to weed out unwanted 'junk mail'.

147. There will be a sea change in the use of computers so that the near 'paperless office' finally becomes a reality. Electronic paper and the electronic book are starting to revolutionise the ways computers are used. Two dedicated reading devices for E-books and E-zines, the SoftBook Reader (from SoftBook press) and the Rocket-e-Book (from Nuvo Media) have reached the market place so far whilst at least seven other products, including the much vaunted Glassbook, await release[102]. These hand-held books will become increasingly user friendly, allowing people to load up documents from their computer into the E-book from the comfort of their own armchairs. Visual technology will make the reading process equivalent to reading an ordinary book, rendering paper print outs for proof reading purposes unnecessary. These books, with built-in hidden components, will eventually become as flexible and powerful as the latest PCs and will replace them in the long term.

148. Today's embryonic development of technology that can project computer display information directly onto the retina[103] will become fully developed, requiring the user to wear only a lightweight headset to attain a fully immersive view of computer displays and videoconferencing links. Other computing hardware components will reduce in size (without compromising performance) enabling vastly improved portability and flexibility. Mobile devices will be able to interface with fixed multimedia telecommunications consoles that incorporate the functionality of today's computers, phones, Internet access, televisions etc.

149. Publicly accessible communications points (akin to phone boxes) will be commonplace and will contain many of the communication features of the worker cells. As with today's technology there will continue to be a range of quality in facilities available. Nevertheless, multimedia communications facilities will be used by all or the vast majority of the population, irrespective of age and of whether or not they work in the service sector. The almost universal access and use of technology will serve to expand the range of jobs which prove compatible with teleworking as all manner of service industries will advertise and consult using communications technology. Staff productivity monitoring technology will also ensure that teleworking is not

confined to 'high flyers' as management will effectively assess remotely the performance of staff such as call centre operatives.

Travel

150. Teleworking will have a mixed impact upon travel and traffic. It will take only a small proportion of people to telework to have a positive impact on traffic levels, but this only presents half of the story. In place of commuter journeys, there will be an increase in discretionary travel, especially leisure travel. The demand to travel for leisure and shopping purposes will remain high (despite the facilities of the Internet) and international travel will be stimulated by improved communications. Indeed, the Internet is likely to increase demand for long distance travel by generating international business and trade networks, particularly with developing countries, which never existed previously. Many jobs which are suited to teleworking may be equally dependent upon travel. These include consultants and many forms of self-employment which require physical contact with clients (until such time as clients all own worker cell type facilities and can be met virtually).

Teleworking and Lifestyle

151. Generally, in this scenario, information and communications technology will be used to facilitate more efficient and sustainable use of resources, whether they be people, time or energy. The philosophy would be extended into transportation. This would include slot booking management of roads as well as other forms of transport. Charging for use of roads would be managed in a similar way as charging for use of telecommunications cables or radio frequencies. Road users would pay according to levels of traffic and could pay less if they give advance notice of their trip, as is currently the norm for rail travel. They could also make advance block bookings in this manner. At the same time, use of time spent travelling would be enhanced through better systems for communicating with colleagues, friends and family and through infotainment systems.

152. The consequences for housing and land use of increased teleworking will be mixed. Companies will not need as much office space, which will free up space in urban areas for housing, leisure, open space and other uses. The more intensive use of smaller buildings, made possible by accommodating work and home in the same building, will lead to some higher density living. However, homes that accommodate workspace will have to be bigger than those which do not. Generally, buildings may be utilised for larger amounts of time. Instead of sharing time between the office and the home, people will spend more time at home. This is more energy efficient.

153. The reduced need for office space will enable greater numbers of people to be accommodated in cities who will, in turn, work in community offices as they will be prevalent in cities as well as villages and towns. This will provide a better opportunity for mass transit systems. People will want services close to their homes so that they do not have to travel far to access them. This will result in a greater proportion of non-

motorised trips. In contrast, as people don't need to travel (regularly) to the workplace they will have more flexibility in terms of living place. Whilst this will support greater family life it could also encourage the dispersal of homes for those who can afford to live in more remote areas where they may become more car dependent.

154. The use of community offices and centres will encourage people to take greater interest in their local areas. They will spend more time exploring and enjoying local features. Towns which previously served primarily as dormitories for commuters will be revived as community centres in their own right with a positive impact on local democracy and the local economy. International travel will remain of significant interest, particularly as communications technology increases awareness of conditions in other countries. However, in this scenario it will not increase as much as predicted, since local areas will be a focus for many aspects of people's lives, communications technology, to an extent, having reduced the impact of mystery as an attraction for international travel.

155. Although the issues of social interaction and exclusion associated with teleworking will be partially addressed in the ways already outlined, problems will still occur. The culture of teleworking, where it leads to a reduction in travelling and social interaction, will encourage the creation of insular communities and something of the cultural diversity of these areas will be lost. Despite Government and commercial efforts some people will still be excluded from the culture of knowledge and technology. This will polarise and segregate society with inequality of treatment, opportunity and expectations still prevailing.

Employment

156. The 'workplace revolution' described in this scenario will impact upon a number of aspects of the nation's workforce. The erosion of the importance of physical location will enable a more effective and sustained match between employment supply and demand (at least in the service sector). This will be in contrast to today, where the geographic patterns of supply and demand are not fully compatible, leading to unemployment and staff shortages. As a result, the total working population will increase in size. This will also be fuelled by an increase in the retirement age and an increase of women in the workforce. These increases will result from the greater opportunity to work on a part-time basis and to job share. The older workers will be able to continue in employment longer as a consequence of homeworking and the flexibility of workload they can choose to sustain.

157. Couples are less likely than today to face the problems of conflicting workplace locations and commute requirements. Childcare will be rendered more flexible through the presence of one or both parents working in the home. However, as women increasingly take advantage of the opportunity to develop 'tele-careers' on a full or part-time basis, the need for independent childcare facilities will remain or even increase. Although

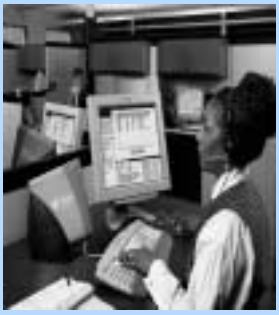
teleworking will substantially dampen the rate of change of home location, it is likely to sustain or increase the rate at which workers change employer, particularly with the prospect of sophisticated means for companies to identify and head-hunt high quality staff. Companies will equally strive to retain high quality staff.

158. Such increased dynamics of the employment market have the potential to lead to further increases in working hours, particularly with an almost seamless boundary between work and home. However, because workers will be able to be more selective with employers and can change employer without disruption to their domestic circumstances, they will demand acceptable working conditions, including hours worked.

Workers to the Workplace

Employment Culture

159. In this scenario we believe that the workplace will remain important and indeed grow in importance for a large proportion of the population. Trends in working culture will serve to assert the primacy of workplace location. Management culture and job insecurity will continue to encourage longer hours and to place a premium on time. Government legislation to limit the working week to 48 hours will prove difficult to enforce and companies will still have the option to operate longer working hours if employees consent. Many employees will consent because they feel it is the only way to ensure career progression. Time pressures will increase, working hours will lengthen and the notion of having hours of leisure will become increasingly illusory to many people. Workplace stress will increase and resultant relationship break-up and divorce will be more common. Time pressure will drive people to live and work in close proximity, or demand convenient and fast modes of travel.



160. There will be a clear recognition that (regular) homeworking does not provide a viable alternative to the office for the majority of workers. Developments in workplace technology will demand that people travel to work as the costs of support staff and training for newly acquired technology will be cheaper if centrally located at a single site. Home working will be seen to be detrimental to both work and home life. Concern for social and familial duties will compromise working efficiency. The use and benefits of childminders will become more widely accepted as the benefits of full-time care and interaction with other children at an early age is recognised in the face of increasing work pressures for both parents. Employers will recognise that employees who work two rather than five (or more) days a week are just as valuable to the company and job sharing will not prove a barrier to career progression. Government may have to address the problem of reduced tax revenue from an increase in job sharing, caused by single posts generating two personal tax allowances.

Business Environment

161. The workplace will adapt in response to increasing time pressure and longer working hours. As the workplace becomes increasingly important, companies will take responsibility for provision of services not normally associated with the traditional working environment. Employers will provide a range of leisure facilities on site such as bedrooms, gyms, shops and restaurants. This process has already begun, exemplified by the London office of Arthur Andersen which contains an Austin Reed clothes store for exclusive use by its staff[104]. This is the 'business village' concept in which smart card technology is utilised to purchase a

lifestyle package where everything is obtainable under the one roof[105]. Such provision will expand to encourage people to remain in work rather than taking time off for children by including crèches and the siting of schools in close proximity. As more leisure facilities become available the distinctions between work and leisure will become increasingly blurred leading to an almost subconscious acceptance of longer working hours. It is possible that provision will extend a stage further into employer owned towns, but this would only be viable with the largest of companies.

162. New approaches to the culture of work will be reflected in the working environment. It will be recognised that communication and creativity thrives best in the communal social areas such as coffee bars and restaurants both within and outside of the business environment. Such places are centres for networking and the flow of information and ideas. Companies and city centre environments will be redesigned to reflect the importance of these areas, leading to even less formalised and rigid working environments than the open plan offices of today. Hot-desking will become the norm in most offices as the need for fixed workstations diminishes. It will be recognised that for cities and towns to remain economically competitive they must provide environments where people can easily access their place of work and their peers, moving simply and rapidly between work and leisure environments. Companies will recognise and promote lifestyle as integral to a contented workforce and their own prosperity.

163. The workplace will retain its importance across a range of industries. Major employers like primary and manufacturing industry, the health service, education and local authorities will remain highly location specific in spite of telecommunications developments. Many new service industries will be geared to the leisured over 50s who are mobile and prefer face-to-face contact.

Economic Trends

164. The importance of workplace location will be heightened by the driving forces of the global economy. City-regions will be seen as the dynamic centres of economic growth. In Europe there will continue to be a band of about 1500 kilometres in length of intense economic development stretching from Glasgow to Milan, following the Rhine. This is the famous *blue banana* of French geographer Roget Brunet. It contains about 70 million people and is the greatest single concentration of human beings in the world. *BUSWASH*, Boston to Washington, contains only 45 million people, Tokyo to Nagasaki has only 55 million people[106]. This enormous concentration of capital investment in people, buildings, telecommunications and roads will become increasingly dominant.

165. Government and private companies will continue to appreciate the logistical and economic benefits of the clustering of resources and workers buoyed by global patterns of development. This will be reflected in intense public and private

investment in business parks, science and technology parks and other campus type centres of industry. Government will continue to sponsor business incubation projects where new companies are sited in such parks where they can benefit from easy access to resources of expertise and technology. This will form part of a broader economic policy, which recognises city-regions as the engines of economic growth and therefore invests in regional development on a large scale.

Travel

166. The travel implications of a society where workplace location becomes increasingly important are mixed. People working in city centres and business villages will seek to minimise the time they spend travelling in the context of lengthening working hours and will increasingly choose to live in urban locations relying on efficient public transport. By contrast, campus based workers in business and science and technology parks as well as call centre staff and industrial shift workers will continue to be located outside of the cities and adjacent to major roads. They will continue to rely on private transport. Private transport will continue to be seen as the only viable mode for a large proportion of consultancies and burgeoning small and micro companies who rely upon irregular and varied trip making to visit clients. The growth in domestic passenger flights will continue apace. Businesses will increasingly view the mode as viable in terms of cost, speed and convenience as the competitive deregulated market sees niche business services develop with costs driven down and services increased.

167. The consequences for international air travel will be even more profound. Companies operating in the global economy will increasingly desire physical contact causing dramatic expansion in travel pressures on routes to airports and in the air. Business class flights will grow apace and regional airports will expand in size and services to meet demand. Air travel will cease to be considered seriously as a luxury for the few, but instead as a necessity for the many. Companies will increasingly see benefits in sending employees to work abroad and international business consultancy will be a major growth industry worldwide. Developments in communications technology will serve to increase the distance between companies doing business. Foreign companies will become highly accessible through the Internet. Face to face contact will be important, particularly in countries where knowing the culture is vital. Similarly the Internet and its capacity to offer goods and services from all over the world will stimulate rapid growth in freight traffic by air. In the global economy customer support will be a key issue as (simply) selling a product internationally will not be enough. Those companies that provide a good after sales service will prosper.

168. There will be serious economic and environmental problems associated with the growth in air travel. Congestion problems at airports will lead to the relocation of businesses to nearby sites and improved integration and efficiency of public

transport services to airports. Suggestions to relocate major international flights to alternative European cities such as Amsterdam, Brussels and Paris served by connecting flights to the UK will meet with overwhelming opposition from operators and businesses fearing for Britain's economic competitiveness. A similar outcry will cause the rejection of fiscal measures to try to discourage use of the mode by making prices take account of the environmental impact of air travel. New technology in airborne travel, particularly related to noise, landing/take off space requirements and emissions will become increasingly important to exploit in this context.

Commentary

169. The Table below distils our interpretation of trends in economic and technological driving forces according to our two prospective scenarios. The relationship between the worker and the workplace has a direct bearing on transport since it dictates the frequency and nature of employment trips. As such, transport issues have not been separated out in the following commentary.

Economic and Technological driving forces	Workplace to the Workers	Workers to the Workplace
Increasing size of total UK workforce	✓	?
Decreasing unemployment rate nationally	✓	?
Decreasing retirement age	✘	✓
Proportion of women in paid employment increasing	✓	✓
Workers changing employers more frequently	?	✓
Increasing level of part-time working	✓	✓
Increasing length of the working week	✘	✓
Increasing practice of teleworking	✓	✘
Increasing service sector employment share	✓	✓
Increasing level of disposable income	✓	✓
Increasing air travel	✓	✓

✓ - agree ✘ - disagree ? - uncertain

170. The workplace to the workers scenario has much greater potential than the workers to the workplace scenario to lead to an increased size of the total UK workforce (partly supported by an increase in the average retirement age) and thereby decreased unemployment. With the 'workplace to the workers' scenario, geographical patterns of staff supply and demand can be more readily matched through information travel rather than physical travel. The flexibility afforded to teleworkers is more conducive to both partners in a relationship being able to develop careers and accommodate childcare and domestic matters. With the length of the working week no longer increasing (and possibly even reduced from today's situation) and this increased flexibility, workers will find their careers less stressful. They will be more productive as a result and productive for longer (being willing and able to work for more years before retirement). An increased size of the UK workforce could potentially lead to an increased

number of individuals needing to make commute and business trips. In reality the actual amount of such travel should diminish as a result of teleworking. The travel demand implications of the workers to the workplace scenario are not, however, so straightforward to deduce.

171. In the workplace to the workers scenario the relative location of the workplace and home will remain much more stable than it is today. This may or may not be of benefit in terms of transport implications. Teleworking will reduce commuting distances. People will still wish to travel in order to undertake other activities such as leisure travel and these activities may increase.

172. Teleworking may assist in the rediscovery of local communities. This could result in higher concentrations of people which is conducive to public transport and potentially in very short home to community office distances suitable for cycling or walking. However, individuals may use teleworking to enable their pursuit of more isolated rural existences. A geographically dispersed pattern of households could result. Distances travelled from home to the community office may extend to match the average commute distances seen today. Working in the home will of course reduce the number of commute trips for the workplace to the workers scenario. It might also, however, result in more temporally dispersed commuting times to community centres thereby undermining the viability of public transport services. The policies of government will have a large part to play in determining the eventual transport consequences of the teleworking scenario we depict.

173. To date, evidence that demonstrates a reduction in travel as a result of telecommunications is scant. It does not appear that the telephone has dampened the need for business travel. If anything it has stimulated it. Videoconferencing and virtual meetings have not been able to deliver technologically an experience that matches the real thing. As a result the need for face–to-face contact in business has remained. The advances in technology we envisage have considerable potential to overcome this situation. However, particularly in the workplace to the workers scenario, a more fundamental issue might prevail, namely man's in-built desire for mobility and contact with others. If this is the case then the suppression of business and commute trips is likely to lead to an increase in leisure trips leading to far less predictable temporal and spatial patterns of travel and traffic. Nevertheless, the potential exists for peak congestion periods to diminish as conventional 'rush-hours' are replaced by a more even spread of traffic throughout the day. This may be seen as desirable in either scenario and planning permission for any new, large centres of employment may require working hours to be staggered throughout the day in order to reduce localised traffic congestion at peak times.

174. The workers to the workplace scenario has greater potential to stimulate regeneration of urban areas as the importance of the workplace increases alongside a growing need to reduce commute times to accommodate a longer working week. The importance of national centres of business activity to operate in an international business market linked by air travel will further concentrate people and commuting into urban areas and produce densities of commuting along corridors that can support high quality public transport.

175. Telecommunications has the potential to represent the ultimate mode of transport if it can substitute physical travel for information travel. However, whilst the characteristics associated with this pair of scenarios have the greatest possibility to influence levels of travel demand and patterns of travel, the actual consequences are the most challenging to predict with any certainty.

5 Conclusion

176. This report reflects the views of over 50 young professionals. We have attempted to ensure as much consistency as possible in representing the diversity of views and issues discussed by the individuals involved. Within the context of six scenarios we have sought to identify and explore factors that will define and shape the future of society and lifestyles in the UK and beyond. We have also tentatively set out some initial thinking on some of the transport implications of the scenarios. We must stress that such thinking is a precursor to more developed consideration in later reports in this series which will focus more specifically on transport issues and visions.

177. You will perhaps have judged for yourself as the reader whether or not the Transport Visions Network has delivered a visionary report. We hope it will at least have offered some enlightenment in areas of limited familiarity. Some of the future possibilities we have put forward are extensions of existing situations. Others might appear more far-fetched. In judging whether the latter are credible it should be borne in mind that those visions that eventually come closest to the future reality can often appear implausible or even ridiculous at their time of conception. Consider the following quotations:

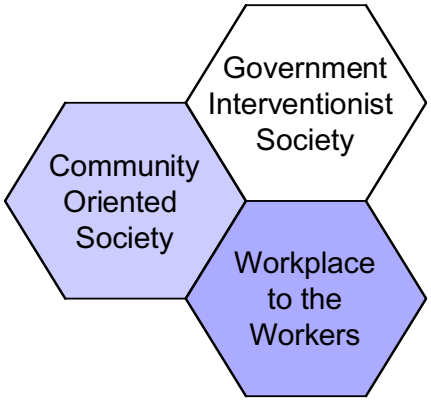
[1895] "*Heavier than air flying machines are impossible.*"[107]

[1949] "*Computers in the future may weigh no more than 1.5 tons.*"[108]

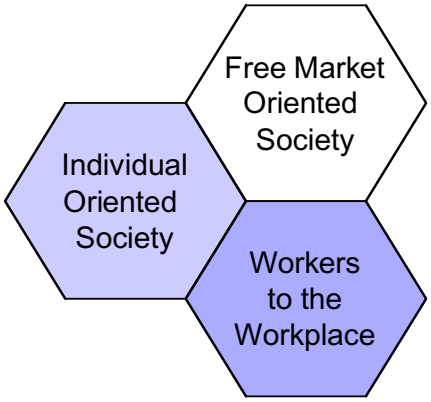
178. Imagine the public reaction of the time had a visionary of the late 19th Century suggested that 100 years later a European Superjumbo with the capacity to carry 550 passengers would be preparing to take to the skies! No doubt the suggestion that 1.5 tons marked the degree of technological advancement in computing was a bold and even contentious statement in its time yet it is a vision that, in the face of reality 50 years on, has been rendered almost laughably inadequate. The relationship between technology and changes in social practice is important to understand, especially when discussing new technologies and travel, so that a technologically deterministic viewpoint does not prevail[109].

179. In the commentary sections of this report we have attempted to summarise key 'society and lifestyles' trends and suggest whether or not such trends will prevail in the future. None of the six scenarios we have considered is mutually exclusive. Some issues will be polarised within a given pair of scenarios while others could prevail in several scenarios. We have not ventured to set out in conclusion how the scenarios are likely to interact or indeed which combination of scenarios is

most likely to become a future reality. We would, however suggest that, in terms of compatibility between scenarios, the following two alternative 'collective visions' have emerged:



Vision A



Vision B

180. An adjustment of values involving a trade-off between quality of life and material wealth that we see for the community oriented society is most likely to occur with government intervention whereby the electorate's desirable lifestyles are actively supported and to some extent guided. In contrast, a free market oriented society is likely to be driven by consumerism and in turn will emphasise material standard of living. Individuals will be 'swept along' by global competition and demands for greater efficiency and productivity. The potentially greater pressures in Vision B coupled with (perceived) greater freedom of choice will naturally promote society's pursuit of lifestyles as individuals rather than as couples or family units. The community oriented society would more naturally aspire to a diminishing of the importance of the workplace location enabling the workplace to come to the workers thereby supporting a more balanced arrangement between work and family life and encouraging more stable and cohesive communities to develop. In contrast the individual oriented society will demand greater social interaction with work and business colleagues to compensate for the lack of family and community interaction. Centralised working will remain desirable and the predominant focus of the workplace in urban areas will support business within the global free market.

181. It might naturally be assumed that Vision A reflects a sustainable future while Vision B is a less desirable future both environmentally and socially. This may be the case although our discussions have highlighted positive and negative aspects in both cases.

182. The pace of change and the extent to which our scenarios will evolve is dictated by two somewhat opposing forces. Technological advances are often termed *revolutionary* and advancement and change in this context is proving rapid. However human behaviour and habit are slower to respond and in contrast might be termed *evolutionary*. Technology can facilitate changes in behaviour and lifestyle, but it must be recognised that there is a need for social and political will to take on technological advances[110]. Whether such changes, if and when they occur, are positive or negative is dependent upon actions taken to control how technology is allowed to manipulate our existence.

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