

## Active Travel

### Introduction

Active Travel (walking and cycling) has the potential to achieve major population-wide health benefits. Inactivity is a major health burden, on a par with cigarette smoking, obesity and alcohol misuse. This chapter sets out the evidence how active travel is an ideal form of physical activity, and is probably the most effective way of generally embedding physical activity in people's lives. Secondly it sets out the evidence how cycling is vastly under-utilised in Bedford and Britain as a whole and how cycling, more so than walking, presents the most cost-effective way of achieving health benefits because it is also the most effective way of achieving a transfer from car use to active travel. Improving both walking and cycling will benefit everyone, but is also likely to improve most the lives of those in deprived areas.

Travel is essential for independent living and nearly everyone travels most days, for instance to work or school, to go shopping, to see friends, to go places or just to get out for a change of air. If people choose to make at least some, and at best many of these trips by active travel, it is an easy and effective way for people to find the time to be sufficiently physically active to stay healthy. More than two thirds of those who report doing any active transport are sufficiently active through active transport alone<sup>i</sup>. Therefore active travel has the potential to benefit the health of nearly the whole population of Bedford at all ages.

Inactivity (defined as doing less than 30 minutes in total of at least moderate activity per week) affects 25.6% of Bedford's adult population<sup>ii</sup>. In comparison with other local authorities, Bedford does relatively well. Bedford lies within the top quartile of the *least* inactive, significantly better than the national level of 29% inactive. Nevertheless, the costs of inactivity in Bedford to the local authority are still very high, estimated as £16.6 million<sup>iii</sup> annually per 100,000 population.

Physical activity guidelines recommend that all adults (18+) should undertake 150 minutes a week of *moderate* activity or alternatively 75 minutes a week of *vigorous* activity in order to stay fit and healthy. One way of achieving this is by doing 30 minutes of moderate activity or 15 minutes of vigorous activity a day over 5 days and this was previously included in the health recommendation. Children aged 5-18 years old should do twice as much physical activity per week as recommended for adults.

Sufficient moderate or vigorous physical activity is essential to maintaining good health and preventing a range of illnesses – poor mental health, several types of cancer, cardiovascular disease (including coronary heart disease and stroke), weight gain and obesity, type 2 diabetes, and as well as contributing to maintaining bone density (preventing falls in later life)<sup>iv</sup> and delaying or preventing the onset of dementia.

Adults who are physically active are 20–30% less likely to die early (premature death) and have around half (50%) the risk of developing major chronic diseases such as coronary heart disease, stroke, diabetes and some cancers.

Inactivity represents a significant cost burden for the NHS and the wider economy. Estimates of the annual costs to the NHS as a result of inactivity are between £1bn and £1.8bn. However, the impact goes much wider – the costs of lost productivity to the wider economy have been estimated at around £5.5bn from sickness absence and £1bn from premature death of the working age population<sup>v</sup>. Inactivity also affects a larger percentage of the population than other risk factors, such as smoking, obesity and alcohol abuse.

**Table 2: Inactivity is a major public health threat**

	Alcohol misuse	Smoking	Obesity	Inactivity
Percentage of adult population affected in England	6–9%	20%	24%	61–71%
Estimated cost to the English economy per year	£20 billion	£5.2 billion	£15.8 billion	£8.3 billion
Estimated cost to the NHS per year	£2.7 billion	£2.7 billion	£4.2 billion	£1–1.8 billion

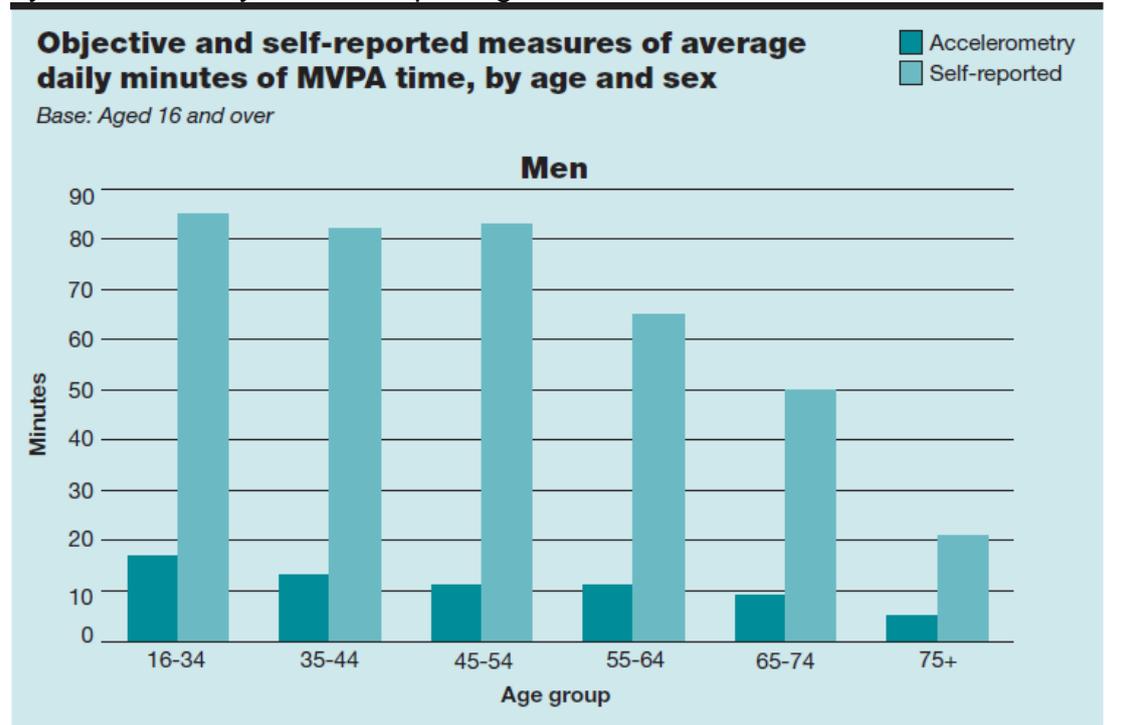
Source: Adapted from a number of reports of official statistics and other published work

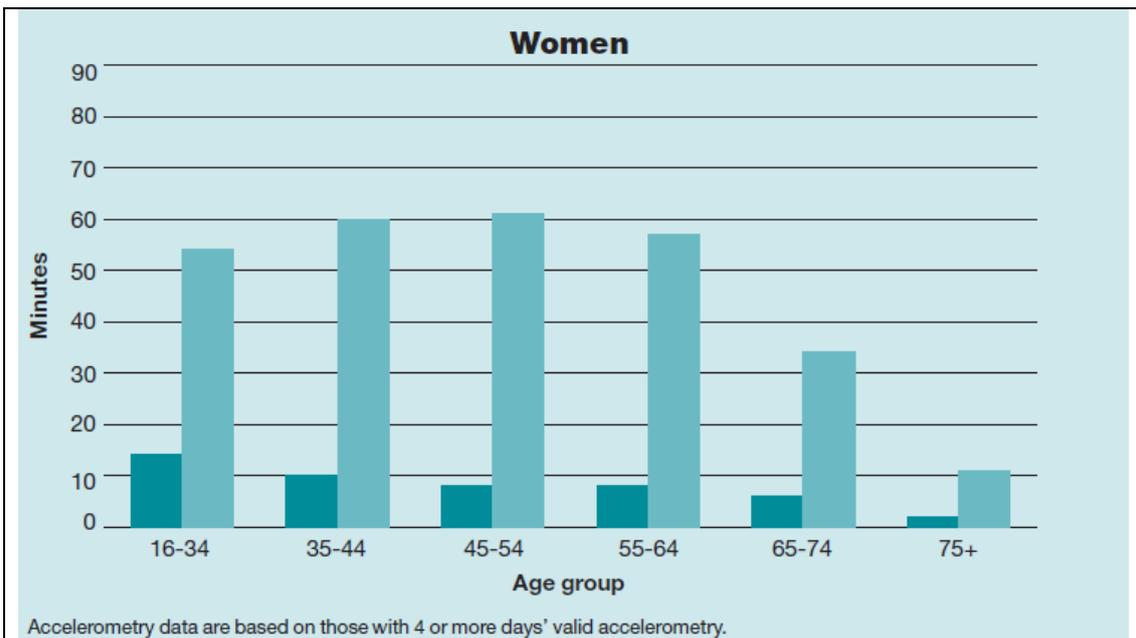
The Health Survey for England (HSE) 2008 found that 39% of men and 29% of women (based on self reporting measurements) met the Chief Medical Officer's (CMO) minimum recommendations for physical activity. However, a different measure in the 2008 HSE, based on a large sample of respondents wearing an accelerometer to objectively measure activity levels for a week, found that only 6% of men and 4% of women met the CMO's recommendations for physical activity. This survey found that on average men did 31 minutes per day of moderate to vigorous activity (MVPA) and women did 24 minutes, but in sporadic very short bouts of activity rather than in bouts of at least 10 minutes length, which is defined as the minimum length to count.

Accelerometers are recognised as being more accurate than self reporting<sup>vi</sup>, though they have some deficiencies and are unable to accurately record certain activities, such as those without vertical hip movement (like cycling), those involving water (like swimming), contact sports (like Karate), nor can they distinguish between walking on the flat and walking uphill or walking carrying heavy loads.

The conclusion is that levels of physical inactivity are much lower than typical headline figures from self reporting. As the charts below show, levels of activity also decline to very low levels with increasing age. Among those aged 65 and over, only a small minority met recommendations whether measured by self-report or objectively (16% self-reported and 5% by accelerometry for men, 12% and less than 0.5% respectively for women).

2008 HSE comparing minutes of moderate and vigorous activity as recorded by accelerometry and self reporting.



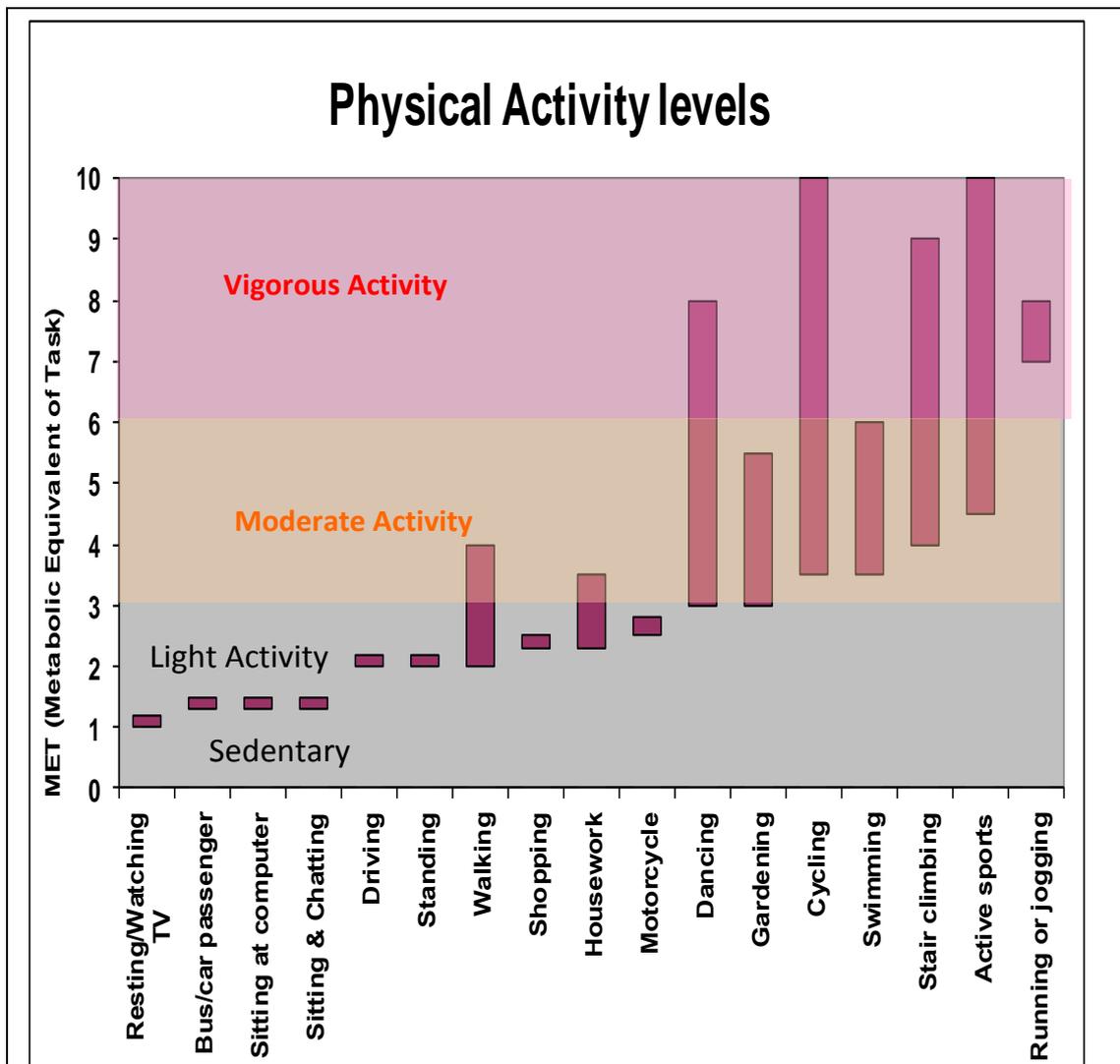


In 2011 physical activity guidelines were changed to be more flexible removing the requirement for activity to be over 5 days. The 2012 HSE (based on self reporting and the new guidelines) found that that 67% of men and 55% of women met the new aerobic guidelines. The guidelines also included 2 new recommendations – firstly 2 sessions per week of muscle strengthening activity for all adults and secondly 2 sessions per week of activities to promote balance for over 65 year olds. Both these recommendations included cycling and hill walking as appropriate activities, but not general walking. Only 33% of men and 23% of women met the muscle strengthening recommendations. Only 5% of over 65 year old men and 6% of over 65 year old women met the recommendations for balance activities.

The challenges are 1) to encourage those most inactive and most at risk to take up some activity and 2) to encourage most of the population to engage in CMO recommended levels of activity for maximum health benefit. The main focus of this chapter is on the second priority of encouraging the general population to maintain health through regular brisk walking and cycling. The barriers to participation in sport and/or physical activity in adults can be practical, psychological or physiological. The two barriers most frequently mentioned by respondents to the Health Survey for England 2007 were work commitments and lack of leisure time.

### **What activities are health promoting?**

The graph shows typical energy levels or typical ranges of energy levels for common everyday activities<sup>vii</sup>.



The floating bars represent the typical level of energy used by a person (measured in Metabolic Equivalent of Task (MET) which is a measure of energy expended per person per hour irrespective of their size or weight). A MET score of one represents your core energy expenditure - the level you would expend sleeping, resting or watching TV. MET scores of 1 count as sedentary and 2 to 3 as light activity. These confer little or no benefit in terms of maintaining aerobic fitness and health.

MET scores from 3 to 6 equate to moderate activity and 6 upwards equate to vigorous activity. Many activities are shown as a range depending on how much effort you put in. For instance slow walking speed is at the bottom of the scale (a light activity) whereas brisk walking is at the top of the scale (a moderate activity). Slow cycling is a moderate activity and fast cycling a vigorous activity.

Research shows that the mean average walking speed is 3mph<sup>viii</sup> and average cycling speed is 10-12mph<sup>ix, x, xi</sup>. Typical MET values for different

walking and cycling speeds are shown below:

Walking: ambling <2mph) 2 MET; slow walking (2.5mph) 2.5 MET; walking dog 3 MET; medium walking (3mph) 3.5 MET; walking briskly (3.5mph) 4 MET; hiking/Nordic walking 5 MET; running or jogging 7-8 MET.

Cycling: Very slow (6mph) 3.5 MET; slow leisure (9mph) 6 MET; typical (10-11mph) 7 MET; brisk (12-14mph) 8 MET; fast (14-16 mph) 10 MET.

The graph above shows that active travel (brisk walking and cycling) are the only health giving modes of travel. Travel by car, bus or train as passengers and driving all count as sedentary or light activities with no health benefits (though brisk walking or cycling to/from bus stops or train stations as part of longer journeys will do so).

Physical activity is good for you because it improves your fitness and can improve mood. But fitness and good mood cannot be stored up. You need to be active nearly every day to maintain good health. So a strategy for population-wide health needs to encourage activities which can be embedded in people's lives and are:

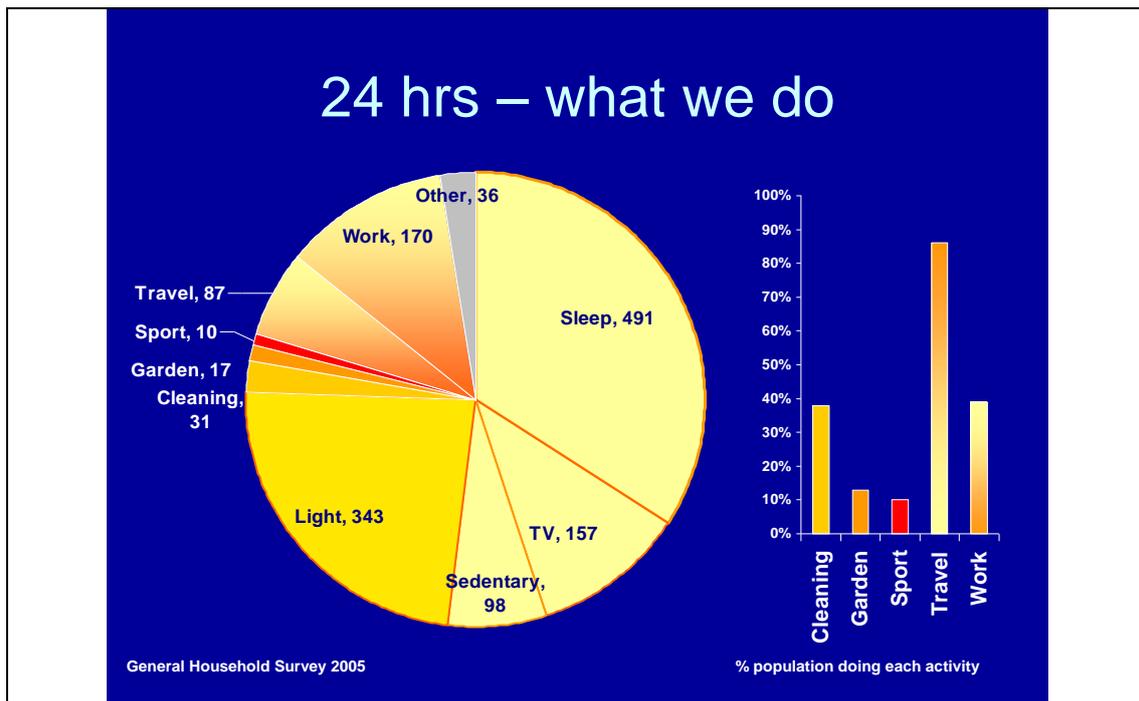
- Of moderate or vigorous intensity
- Undertaken most days
- Undertaken throughout the year, not seasonally
- Undertaken throughout life, from childhood to old age

Active travel (brisk walking and cycling) is a form of moderate to vigorous physical activity which can have population-wide benefits, unlike many other forms of physical activity such as sport. For instance, an analysis of gym membership found that 90% of participants gave up membership after 24 months.<sup>xii</sup> Walking and cycling are:

- Open to nearly all the population without cost or special resources
- Suitable for and potentially attractive to children and adults of all ages
- Can be embedded in people's every day life, as most people have to or choose to travel every day

All these elements are important in encouraging population-wide participation. The evidence is that with the right urban planning and transport policies, active travel can become natural choices.

The pie chart in the graph below <sup>xiii</sup> shows on average how long (in minutes) of each day adults spend on each activity. Activities are colour coded by level of physical activity. [Red = vigorous physical activity, orange = moderate activity, yellow = light activity and pale yellow = sedentary]. The small bar chart to the right shows the percentage of the population who undertake each activity.



Travel is one of the few activities where

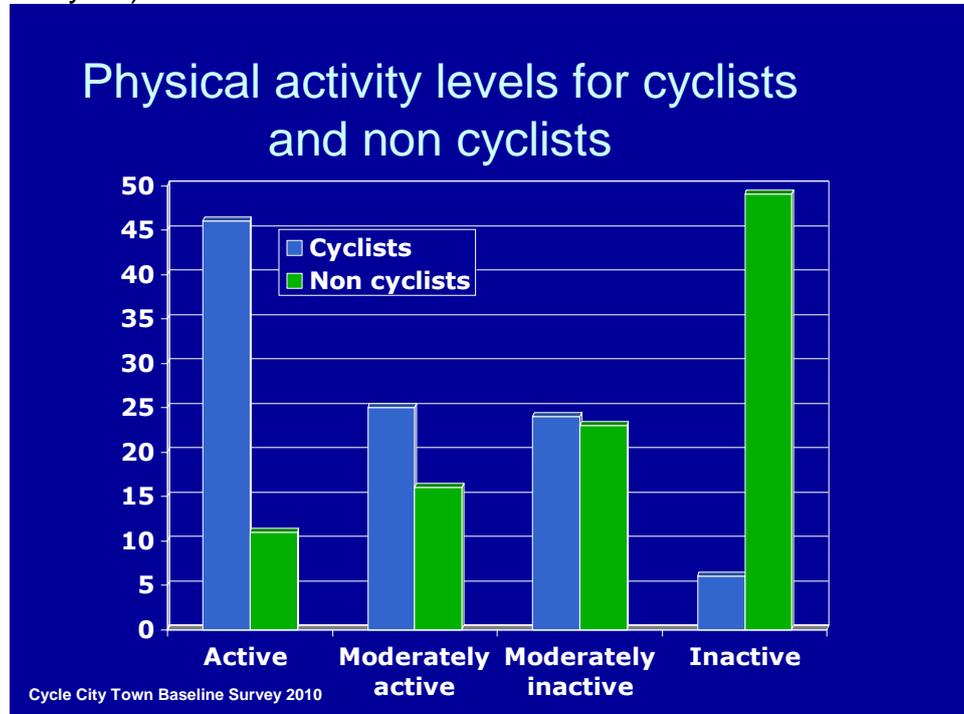
- we have a choice and can choose physically active modes (walking and cycling) rather than sedentary modes (car or bus),
- we spend enough time each day on average (over 30 minutes) to get a health benefit and
- nearly all the population undertakes on a daily basis.

On average we travel for 87 minutes a day (pie chart) and nearly 90% of the population (bar chart) travel each day. Active travel is potentially therefore a population wide activity which we could undertake every day for more than 30 minutes. As such active travel is one of the very few activities which has the potential to maintain health at a population level. The pro-active approach of encouraging everyone to maintain health is better than treating illnesses once they have developed, because many illnesses, such as coronary heart disease do not display symptoms before onset.

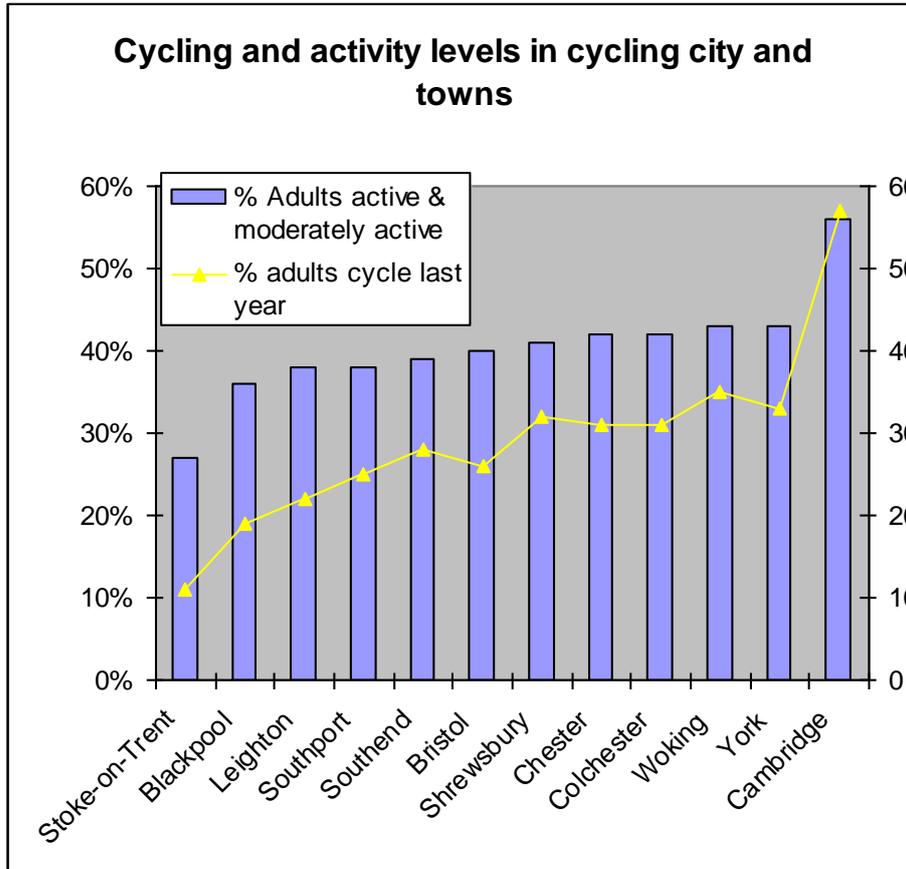
#### **Evidence that cycling encourages town wide physical activity**

There is relatively good evidence that cycling for transport is an effective way of maintaining population physical activity levels. The next graph illustrates evidence<sup>xiv</sup> from 12 towns as part of the Cycle City Towns (CCT) research, in which a representative sample of the population in each town was surveyed in terms of the total amount of physical activity respondents did throughout the week (e.g. when at work, when travelling, when at home and at other times for leisure or sport). The research found that 70% of cyclists\* achieved the recommended levels of physical activity (classed as “active” and “moderately active”), whereas 70% of non-cyclists did not. In terms of “inactivity” (the most at risk group), only 5% of cyclists were classified as inactive, compared to

50% of all non-cyclists. This research is important in that it reinforces the argument that replacing other modes of travel by cycling could help most people meet national physical activity guidelines. (\*Cyclist = any cycling in the previous year)



In line with these findings, there was a strong correlation found at an individual town level in the CCT baseline survey between town-wide levels of cycling and the percentage of adults who met national physical activity guidelines. This reinforces the finding that encouraging cycling is an effective way for a town of promoting healthy physical activity at a population-wide level.



Active Travel has the potential to replace sedentary travel behaviour, in particular travel by car, which not only has its own negative health impacts to the user, but also creates additional public health impacts to the wider population through air pollution and accidents.

Active Travel is currently funded and managed by the Council’s transport section and has not traditionally been a focus of direct health funding or management. Historically the Council has applied different priorities, prioritising car use in terms of funding and road and junction allocation, which often run counter to policies to encourage active travel. [NICE Guidance PH41](#) “Physical activity and the environment” sets out what measures need to be introduced to encourage more walking and cycling. In particular it recommends that transport planners should

- ensure pedestrians and cyclists are given highest priority in developing and maintaining streets and roads
- reallocate road space to support physically active modes

A higher priority to the health benefits of active travel has the potential to shift overall transport priorities.

**What do we know?**

### **Facts, Figures, Trends**

Walking is reported to be the most common and cycling the fourth most common recreational and sporting activity undertaken by adults in Britain<sup>xv</sup>. Nationally, walking accounts for over a third of all moderate physical activity (between 37% and 45% for women and between 26% and 42% by men) in terms of total time spent for all ages<sup>xvi</sup>. The share of walking in Britain is equal or greater than many European countries. In stark contrast, the share of cycling is very low in Britain, much lower than nearly every north European country. This demonstrates that the greatest potential is to increase the share of cycling.

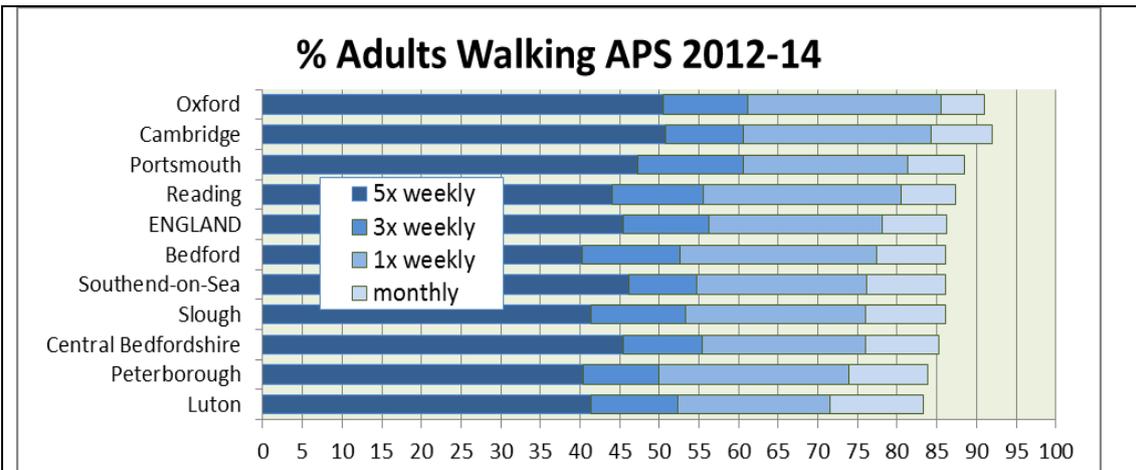
### **Local data on walking and cycling prevalence**

There are various sources of data on walking and cycling. There are 5 main local datasets:

- Active People Survey (APS) – very large rolling national annual survey with a sample size of over 160,000 people. The survey asks adults (over the age of 16) questions on how many days a month individuals undertake cycling journeys (of any duration) or walking journeys over 10 minutes. This is the only source for all walking and cycling journeys for all purposes, which is statistically reliable and comparable at local authority level.
- Census 2001 and 2011 – national survey asked of every individual conducted every 10 years. The survey asks one question on mode of travel for the longest part of the journey to work. The survey therefore does not record walking and cycling journeys as access modes to train stations, nor any journey type other than the journey to work. It is useful in allowing analysis of journey patterns at Council Ward level.
- Bedford Inner Cordon Counts – annual one day survey of all traffic (including pedestrians and cyclists) entering Bedford town centre. This is useful for monitoring local changes in cycling and walking.
- Bedford automatic cycle counters – network of sites with continuous monitoring of cycle journeys along off road cycle paths only. This is useful for monitoring background levels and trends, but most cycling is on-road and cannot be monitored in this way.
- Hands up school surveys – conducted until 2010 but not after that year. These gave local data on children’s travel to Bedford schools.

### **Local Walking Levels**

The graph below shows walking levels in Bedford borough and a selection of other towns/districts (using the Active People Survey average of 2012/3-13/14 data<sup>xvii</sup>). Walking is fairly uniformly high across all the towns. Bedford has similar levels of walking to England as a whole.



In Bedford 52% of residents walk at least 3 times weekly and 77% walk at least once weekly. That equates to around 100,000 Bedford adults walking at least weekly. This level of walking represents a significant public health benefit

Frequency	>5x weekly	>3x weekly	>1x weekly	>monthly	<monthly/don't walk
% walk	40.3	52.6	77.4	86.1	13.9
	133,800	53,975	70,390	103,524	115,224

The 2013/4 APS survey also looks into the question of whether *those who do not walk* compensate by undertaking other moderate physical activity, as the APS surveys include all forms of physical activity, including sport and work. Over a month, nationally 54% of all adults undertook moderate physical activity and 46% no moderate physical activity. For all those who walked, 59% undertook moderate physical activity whereas for non-walkers only 22% undertook moderate physical activity. In other words, walking is for many people the main form of physical activity.

There are, however, 2 caveats in terms of the health benefits of walking. Firstly the benefits of walking depend on intensity. Few studies have addressed whether people habitually walk at a pace that meets the public health recommendations for moderate intensity exercise<sup>xviii</sup>. HSE 2008 found that 84% of men and 97% of women require moderate exertion to maintain 3mph, but that 32% men and 60% of women were not fit enough to walk at 3mph on a 5% incline (=6 MET at the transition point to vigorous activity). Surveys have shown that average walking speeds are usually around 3 to 3.5mph, but 15 percentile speeds are typically below that<sup>xix</sup>. Many walk journeys may have limited health benefits to the individual as the chosen walking pace is too slow to reach moderate intensity.

A research review<sup>xx</sup> found evidence (see chart) that walking is effective in reducing coronary heart disease (CHD), but recognised that there is strong

and consistent evidence that coronary vascular disease risk declines with increasing walking pace, and that walking pace needs to be of moderate intensity to increase aerobic fitness<sup>xxi</sup>. In general, it was found that walking was ideal as an intervention for inactive, older adults or those already with conditions such as CHD or diabetes, but the role of general walking for transport as a way of maintaining general public health and meeting CMO recommendations on health is still not entirely clear.

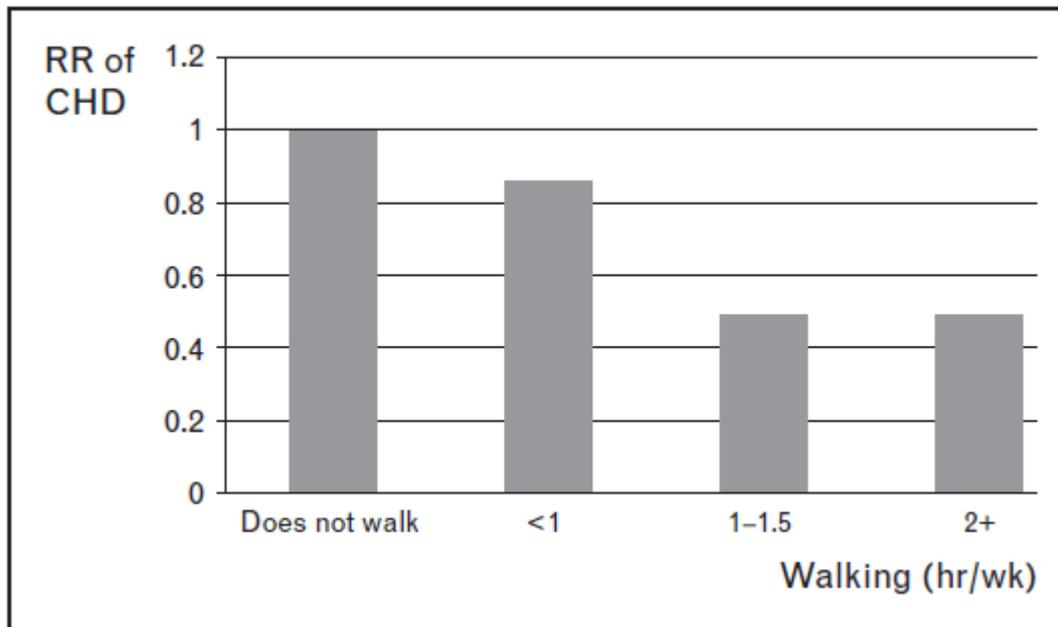
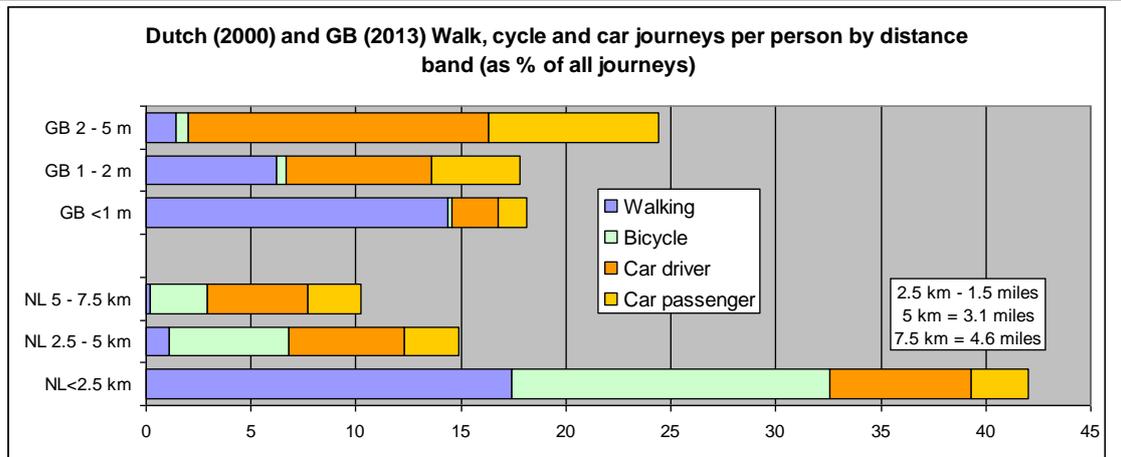


Chart: Adjusted for age, smoking, alcohol, menopause, hormone therapy, and family history. CHD, coronary heart disease; RR, relative risk.

Secondly, in transport terms, the potential to increase walking may be limited. England already has internationally high levels of walking on a par or better than many other European countries. Walking is a relatively slow mode so it is hard to compete with driving, whereas in urban areas for journeys under 3 miles, cycling is typically quicker than driving door-to-door. The chart below compares Dutch data with English data. In England most short journeys (under a mile) are already walked. For 1-2 miles, around 1/3 of journeys are walked and 2/3 are by car. Between 2 and 5 miles most journeys are by car – a distance too far for many people to walk but ideal for cycling. In contrast, in the Netherlands, walking and cycling are both popular up to 2.5km (1.5 miles). Between 2.5kms and 5kms (1.5-3 miles) walking and cycling have roughly equal share with car use. Cycling continues to be popular up to 7.5 kms (4.6 miles) but walking levels quickly decline.

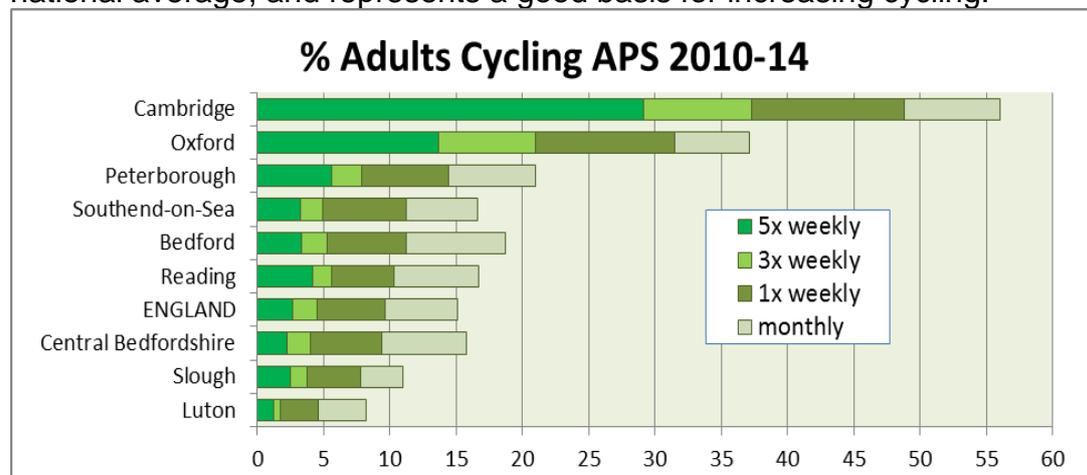


High walking *and* cycling levels can reduce car use. Over 44% of all journeys in Netherlands are undertaken by active travel compared to just 23% in England. In terms of physical activity, the average GB adult gets 4.6 MET hours per week compared to a Dutch adult with 12 MET hours per week through active travel<sup>xxii</sup>.

### Local Cycling Levels

In contrast to many other European countries, Britain has very low levels of cycling - around 2% of journeys in Britain – compared to 26% in the Netherlands, 19% in Denmark and 10% in Germany. Many towns in northern Europe have achieved population-wide levels of frequent cycling.

In England only one town has achieved these kinds of levels – Cambridge where 37% of Cambridge residents cycle at least 3 times a week and nearly 50% at least weekly. The graph below (Source: Active People Survey - average of 2011/2 to 2014/5 data) shows cycling levels in Bedford Borough and a selection of other towns/districts. Bedford has around 5% of the population cycling 3 times a week and 11% at least weekly. This is above the national average, and represents a good basis for increasing cycling.



The chart below shows how many Bedford adults cycle on the basis of the

APS data. Every week, around 15,000 Bedford adults make a cycle trip, of which 5000 cycle at least 5 times a week. Nevertheless, over 100,000 Bedford Borough adult residents never cycle.

Frequency	>5x weekly	>3x weekly	>weekly	>monthly	Less than monthly/don't cycle
% cyclists	3.3	5.3	11.2	18.7	81.3
133,800	4,476	7,076	14,974	25,084	108,716

### Cycling and Walking Health Research

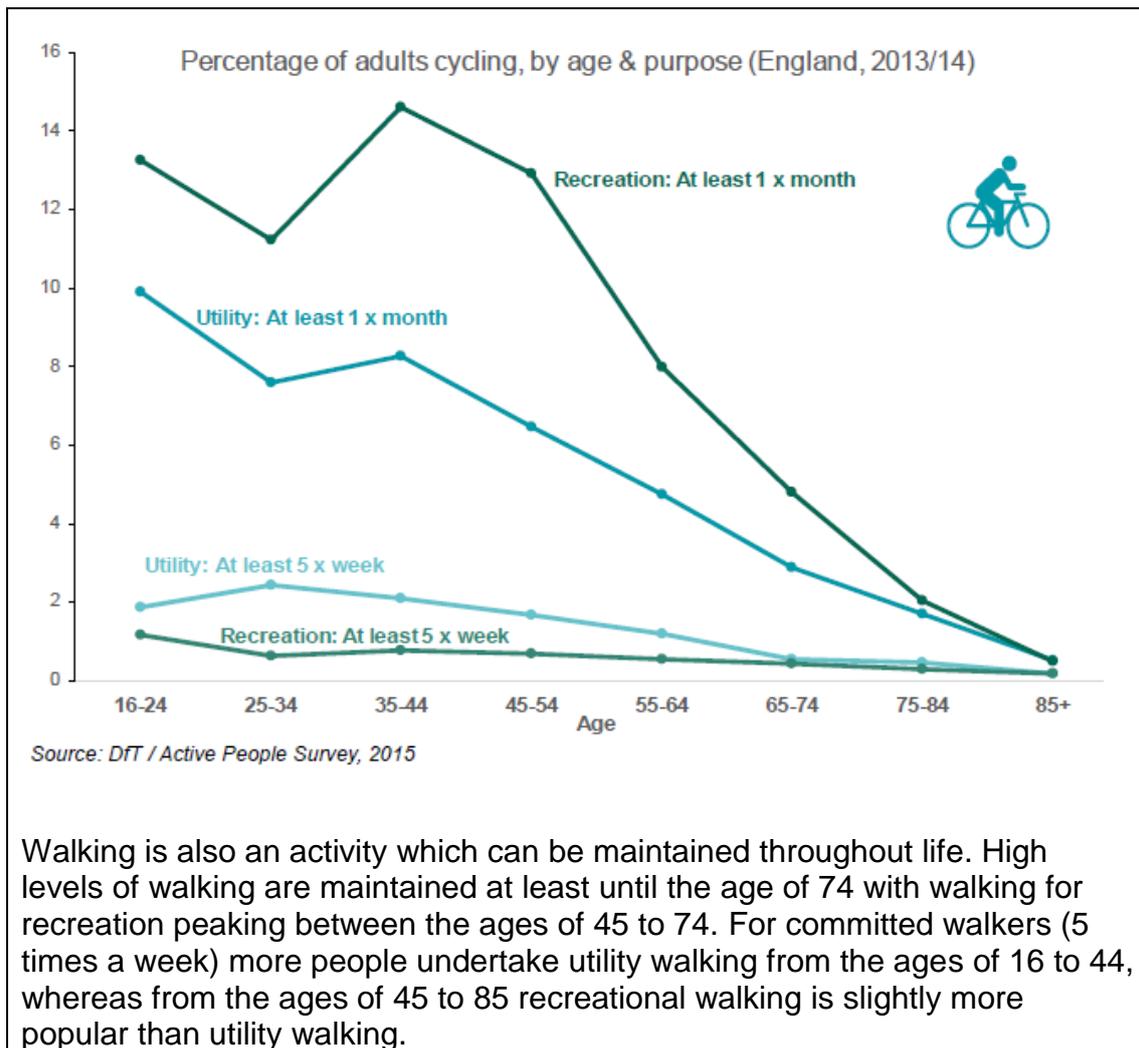
Cycling is a moderate to vigorous exercise that increases your heart rate and makes you get out of breath some of the time. The chart shows the percentage of the population who do any cycling by how often they cycle and shows the health benefits to be gained from cycling alone. Thus 5% of Bedford's adult population are currently meeting health guidelines for physical activity through cycling.

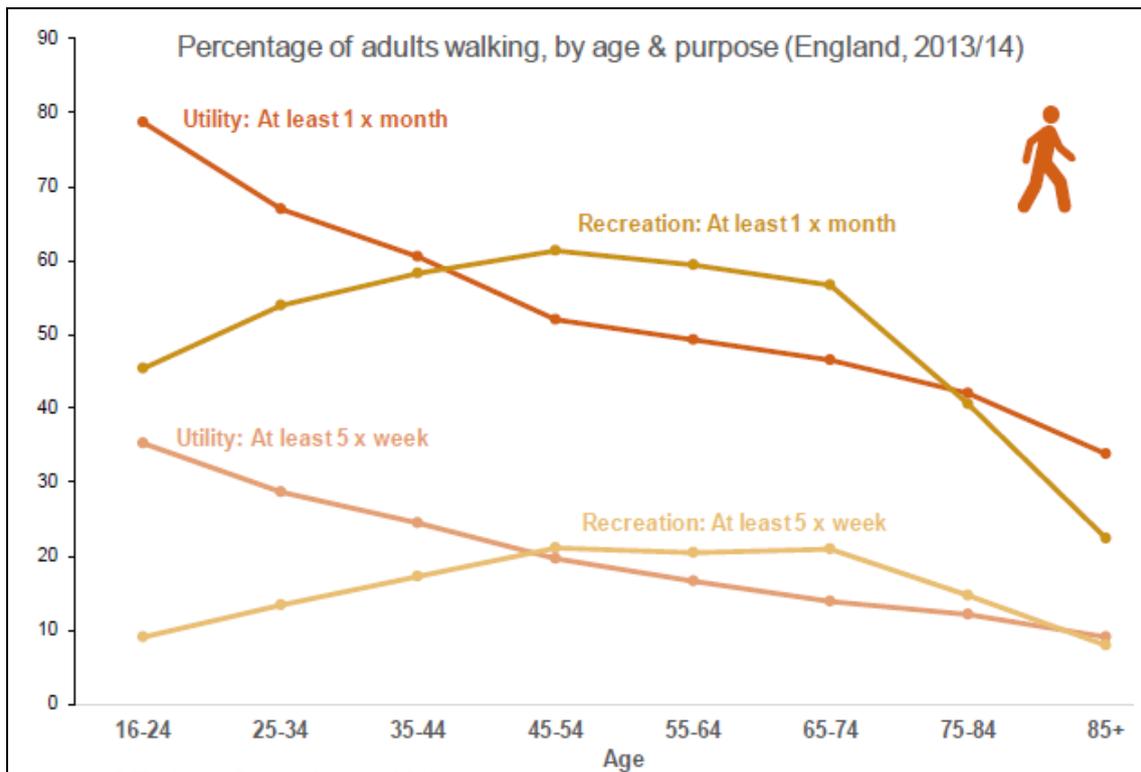
Frequency – at least	Health impact (from cycling)	Description of cyclist
5 days a week	Active	Committed
3 days a week	Moderately active	Frequent
1 day a week	Moderately inactive	Regular
Once a month	Inactive	Occasional
Less than once a month	Inactive	Non cyclist

### Life time benefits

Additionally, cycling and walking can be maintained throughout life – the only other common moderate activity to match this is gardening. The percentage of the population participating in physical activity and the total weekly time spent in physical activity diminishes as age increases. However, for cycling, the decrease is less pronounced than it is for sports, hobbies and work-related physical activity, especially in high cycling countries. For instance in the Netherlands, 25% of journeys by those aged over 75 are by cycle<sup>xxiii</sup> - a similar level to younger groups. In England, cycling peaks in middle age (age 25-54 – see graph) and then declines. The chart also distinguishes between utility and recreation cyclists. Committed cyclists tend to be utility cyclists. They cycle at least 5 times a week and are likely to achieve the recommended levels of physical activity from cycling alone. Occasional cyclists (monthly) are more likely to be recreational and will only get marginal benefits in terms of health benefits at this frequency of cycling.

Cycling has been shown to be an activity particularly beneficial to older men<sup>xxiv</sup> with significant improvements in risk factors for cardiovascular disease including blood lipid profiles and high blood pressure.





### Maximising health benefits

Cycling is also an activity which can be suited to an individual's current level of fitness and participants can adapt their energy output to their level of fitness or age (see box on MET values and chart below). "Commuter cycling at a self-selected intensity meets the recommendations for health improvement and the recommendations for improvement of cardio-respiratory fitness<sup>xxv</sup>". Such levels of activity are sufficient to produce measurable improvements in fitness over a relatively short period of time<sup>xxvi</sup>. These factors make cycling a highly suitable activity to provide aerobic exercise and so improve physical fitness<sup>xxvii</sup>.

The greatest benefits to the individual are to be achieved by encouraging the most sedentary to start exercising<sup>xxviii</sup>. The risk of a heart attack is around twice for those expending less than 2000 kcal/week<sup>xxix</sup>, but appreciable protection may be detected at approximately 800 kcal/week. As their fitness increases, they will cycle faster and get more benefit for the same time. This benefit applies to both men and women<sup>xxx</sup>. Cycling, especially regular cycling has been shown to provide both short term benefits and longer term benefits.

### Short term benefits

Dutch research<sup>xxxi</sup> found that for those with a low initial fitness level, a cycle trip of 2 miles cycled twice a day (there and back) was enough to improve physical performance if repeated at least three times a week. Research from Finland<sup>xxxii</sup> provides some of the strongest evidence for the health benefits of cycling. Commuters changing to cycling showed important physiological

changes

- improved aerobic fitness;
- decreased cardiovascular load in submaximal standard work;
- increased use of fats as an energy source in physical activity;
- better cholesterol levels

The authors state “These observations confirmed the hypothesis that previously inactive middle-aged men and women can benefit their function and health by regularly cycling the trip to work”.

### Long term benefits

The most compelling evidence comes from Copenhagen in Denmark<sup>xxxiii</sup>. The Copenhagen Heart Study involved following the health of 13,375 women and 17,265 men aged between 20-93 years over a period of 14 years. Of this cohort 15,000 cycled regularly, including 7000 who cycled to work. The research showed that cycling to work decreased the overall risk of death (including risk of accidents). The authors state “even after adjustment for other risk factors, including leisure time physical activity, those who did *not* cycle to work experienced a 39% higher mortality rate than those who did”.

A similar UK study<sup>xxxiv</sup> tracked the health of 9,000 civil servants between the ages of 45-64 over 9 years. Those (7% of the group) who reported cycling at least 25 miles (= commuter trip of 2.5 miles each way) during the week experienced less than half the non-fatal and fatal coronary heart disease events (heart attacks) than did those who took no physical activity during the course of the 9 year study.

### Safety versus health benefits

Many people are worried about the risks of cycling. There is no doubt that cycling in traffic can *feel* hazardous and intimidating, especially to inexperienced cyclists<sup>xxxv</sup>, but the risks are in reality extremely low. The chart below shows the risk to Bedford cyclists calculated from reported\* accident data from 2004 to 2012. During this period there were around 30 million cycle journeys in Bedford and 3 cyclist fatalities and 70 serious cyclist injuries. For an everyday commuter making 2 cycling trips a day, they would have to cycle 17,000 years before being involved in a fatal accident and 750 years before being involved in a serious accident (in terms of their statistical risk).

	Risk per journeys	Average cycling years for everyday commuter	Average cycling years for a twice weekly cyclist
Fatal	10 million	17,000 years	100,000 years
Serious	450,000	750 years	4,500 years
Slight	100,000 *(10,000)	170 years *(17 years)	1,000 years *(100 years)

\*There is significant under-reporting of slight cyclist casualties so a more

realistic slight risk per journey factor may be 1:10,000. In contrast, there is a good correlation between Police road safety reporting of serious cyclist accidents and HES (hospital) data<sup>xxxvi</sup> so the risk figures for fatal and serious can be trusted.

The health benefits of cycling to avoid and prevent the very real risks of common diseases such as heart disease far outweigh any risk. On average, cyclists gain 3-14 months extra life compared to a loss of 5-9 days through traffic accidents<sup>xxxvii</sup>. Additionally, cycling is safer than many other health giving physical activities<sup>xxxviii</sup>. For instance, the risk of an injury requiring hospital treatment playing football or squash is around 20 times per hour that of cycling<sup>xxxix</sup>.

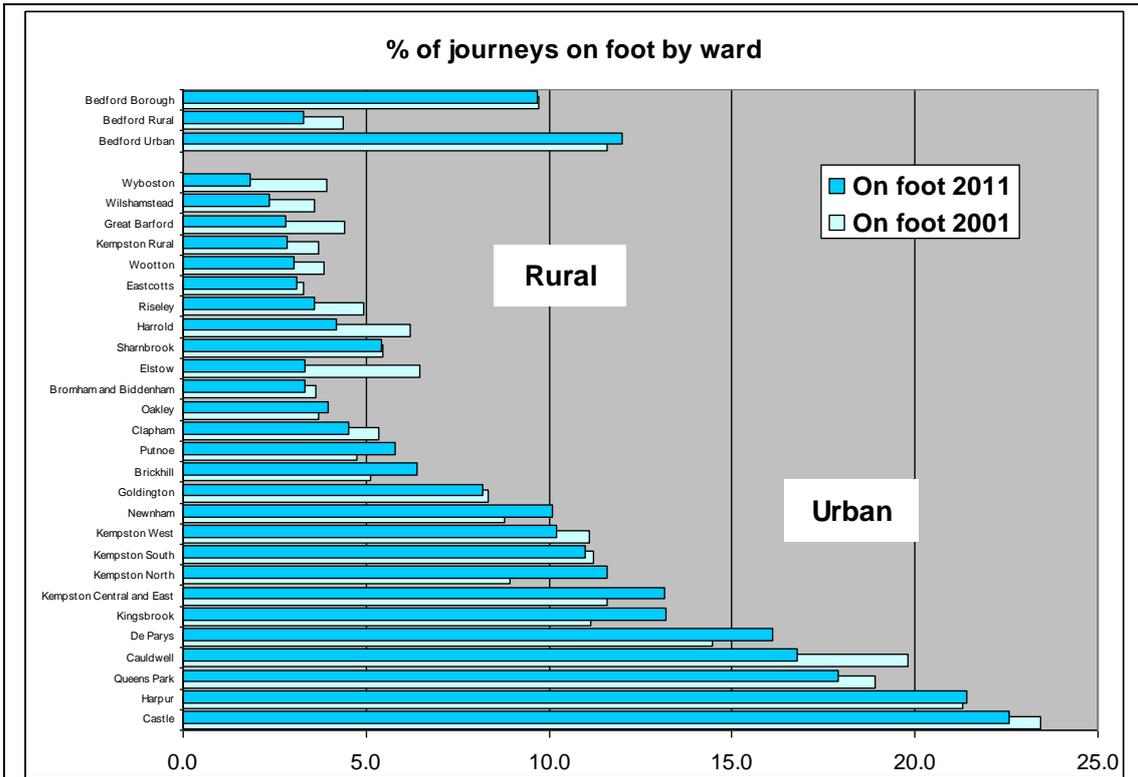
The comparative risk of death or serious injury for the user between cycling and driving is complex to calculate. An average commuter cyclist has roughly the same (very low) annual risk of death as an average commuter driver<sup>xi</sup> (because average drivers travel further and for more hours than cyclists). In particular, a young male driver (17-20 years old) has around 5 times the fatality risk per hour whilst driving rather than cycling or walking<sup>xii</sup>. Secondly cyclists cause other road users very few injuries compared to cars. Thirdly as cycling increases, so does its safety in most cases<sup>xiii</sup>. In many European countries it is as safe to cycle as it is to drive per hour travelled and much safer for other road users<sup>xiiii</sup>. Finally looking just at accident rates does not take into account impacts on health. "The greatest health risks on the roads are carried by sedentary car drivers; they are also the source of the majority of the danger posed to others<sup>xliv</sup>"

#### **Census 2001 and 2011 compared:**

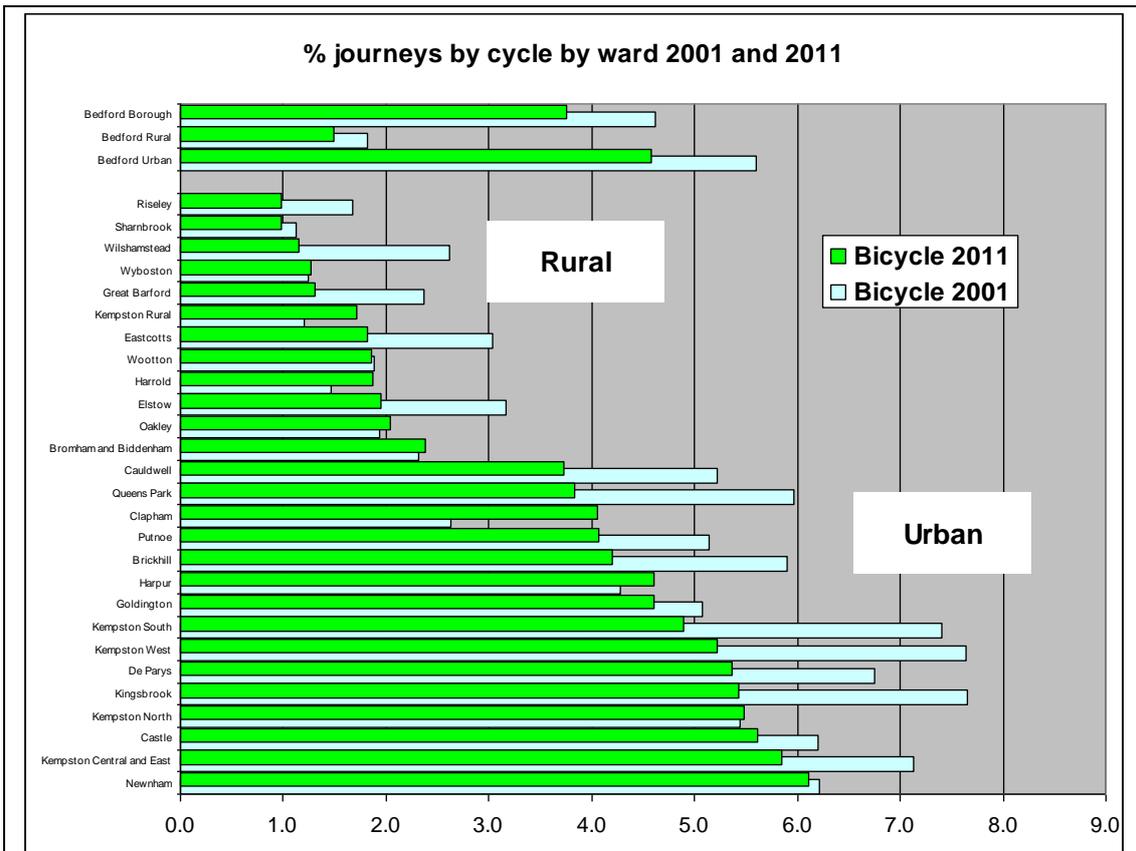
These 2 Census datasets record *journeys to work* for all people in work. The data provides a comprehensive snapshot of behaviour for these 2 years and can be analysed at ward level to assess the impacts on deprived wards. Travel to Work data is calculated at middle super output area (MSOA) (roughly equivalent to Council Ward areas as some wards are combined).

**Walking:** There is a strong contrast between urban and rural areas in terms of walking to work, with an average of 12% of work journeys in urban areas and 5% in rural areas, with a high of 23% of journeys by foot in Castle compared to just 2% in Wyboston. There is a fairly strong correlation between how near the ward is to the town centre and its level of walking. Walking to work levels in urban areas have stayed the same, whereas rural wards have shown a decrease in walking in all the wards.

Walking to work is more common in the deprived wards of Bedford. Eight of the 10 wards with the highest levels of walking to work (with levels of walking between 10% and 22%) contain the most deprived LSOAs (2010 IMD) in Bedford.

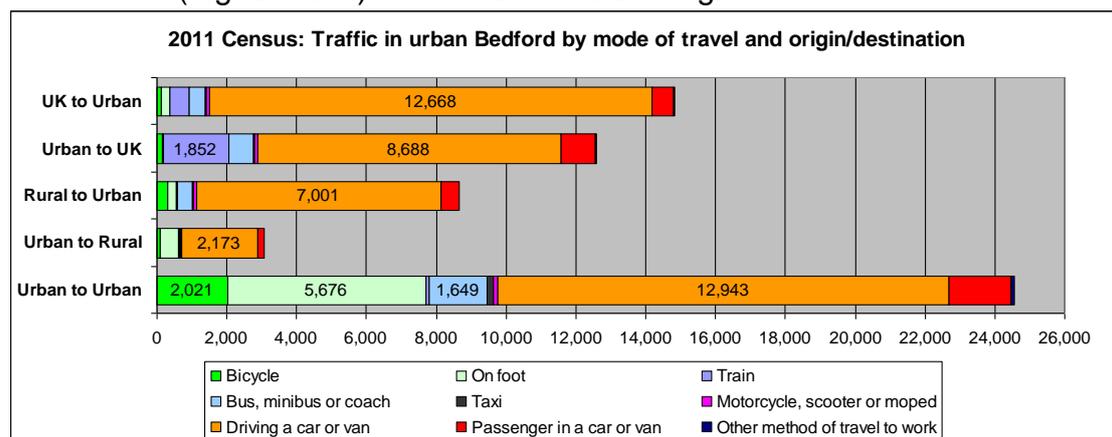


**Cycling:** Over the 10 years, there has been a decline in cycling in the urban areas from 5.5% of journeys to 4.5% of journeys. Several and some of the most deprived urban wards have declined quite significantly, in some cases by 2.5%, so the highest percentage by bike is now 6% rather than 7.5%. In several wards, however, the percentage of cycling has remained fairly steady. There has been an increase in just one semi-urban ward – Clapham – from 2.5% to 4% of journeys. Cycling has declined less in the rural areas but from a much lower base, so that all the rural wards now only have 1-2% of journeys to work by cycle. Cycling is highest in the urban wards of Bedford, which include the majority of the most deprived wards



**Potential transfer to active travel**

The graph below shows all travel to work in Bedford and Kempston urban area, in terms of residence, mode of travel and place of work. Key: Urban = Bedford and Kempston wards; Rural = rural wards of Bedford Borough; UK = other areas (e.g. London) outside Bedford Borough.



The graph shows that travel to work *within* the urban area (“urban to urban”) provides the biggest potential for change. Walking, cycling and bus use already account for 40% of these commuter journeys, but 60% of these commuters use the car to travel from one part of Bedford to another part i.e.

under 5 mile journey at the maximum). There is thus a very significant potential to transfer many of these 14,000 short car trips mostly to cycling and some to walking.

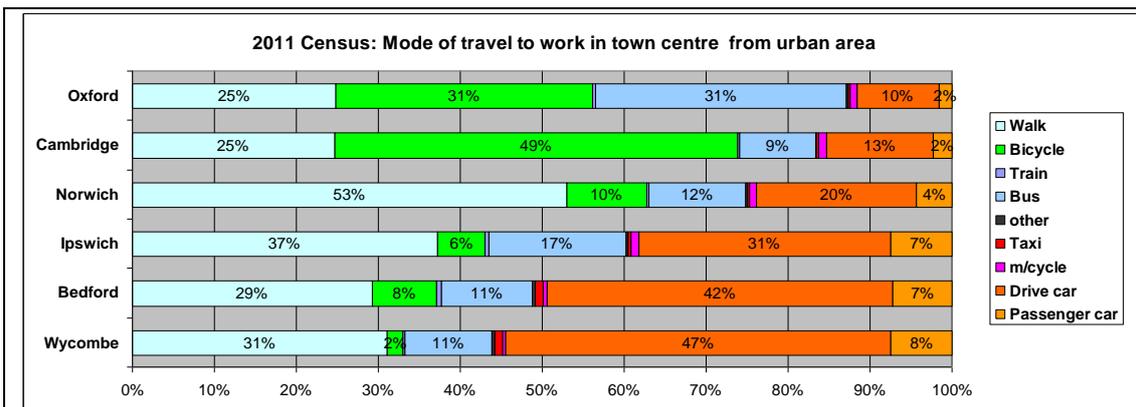
### **Benchmarking Bedford with comparative towns**

This section uses Census 2011 data to look specifically at commuter journeys to Bedford Town Centre and compares them to commuter journeys to the town centre in 5 other similarly sized towns (in both population and area). Bedford town centre MSOA is Castle Ward (which includes Castle Road area). The town centre is the focus of most journeys (work, shopping and personal business). It is also where there is the most traffic congestion and most air pollution and also includes a number of deprived areas. Commuters to the town centre have no choice other than to access this area. It is also the location where it should be easiest to encourage sustainable and active travel as the focus of bus routes, cycle routes and walking.

The chart below compares commuter travel to the town centre from the *urban* area for each town. It excludes travel from outside the urban area, as there are fewer opportunities to transfer to active travel.

- Other than Wycombe, Bedford has the highest car commuter travel to the town centre
- Whereas Bedford has 49% of commuters arriving by car, this compares to 38% in Ipswich, 24% in Norwich, 15% in Cambridge and just 12% in Oxford.
- These towns demonstrate that the level of active and sustainable travel – walking, cycling and bus use – can have a very significant impact on the levels of car traffic in the town centre.
- Cycling levels vary from 2% in Wycombe to 49% in Cambridge.
- Walking levels vary from 25% in Cambridge to 53% in Norwich.
- Combined active travel levels vary from 33% in Wycombe to 74% in Cambridge.

These towns demonstrate that transport and land use policies can have a very significant impact on levels of active travel and thereby health outcomes. In each town there has been a different emphasis – walking in Norwich, bus use in Oxford and Ipswich and cycling in Oxford and Cambridge, but each of these towns has achieved a higher level of active travel. In terms of the physical layout and size of the town, there are no reasons that Bedford could not emulate some of these more sustainable towns.



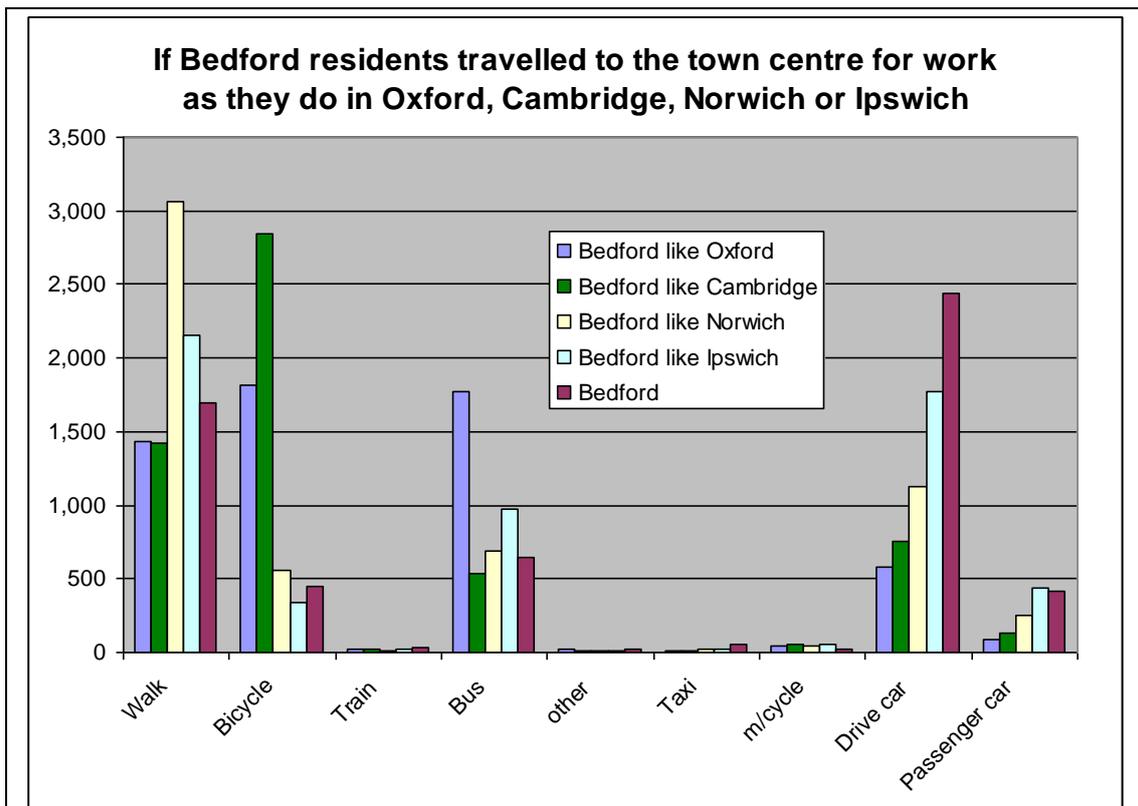
### The benefits of Bedford achieving similar levels of urban travel

This section looks at what the impacts would be if people in Bedford urban area travelled to the town centre in the same way as the comparable towns. The total number of commuters (6000) to Bedford town centre has not been changed but this figure have been distributed according to the modal share in each of the other towns. In each scenario there is a significant reduction in car use in Bedford and an increase in active travel.

There is a big impact in terms of car journeys for work purposes to the town centre, which would have a significant impact on town centre congestion. Whereas there are currently 2,440 local car commuter journeys into Bedford town centre, there would be, if Bedford were

- like Ipswich, a reduction in 600 car journeys
- like Norwich, a reduction in 1,300 car journeys
- like Cambridge, a reduction in 1,700 car journeys
- like Oxford, a reduction in nearly 1,900 car journeys

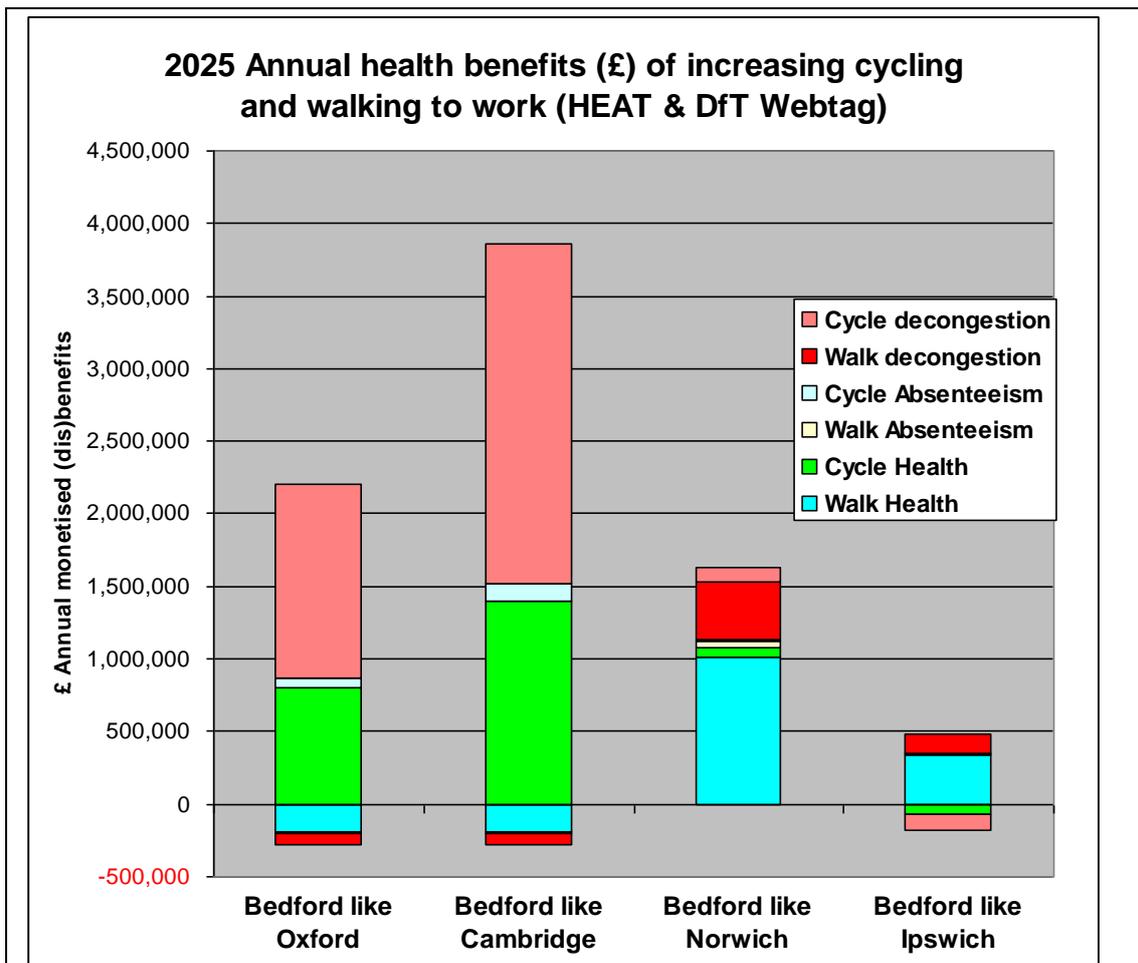
As these figures relate to car commuters, they can be doubled in terms of journeys as the figures apply to both the morning and evening peak journeys. The figures are also based on just commuter flows from the urban area to the town centre.



This reduction in car journeys and increase in active travel in these scenarios would have significant decongestion and health benefits. Decongestion benefits include air quality benefits but also economic benefits, which would ultimately encourage more employment and thereby well-being and health benefits<sup>xlv</sup>.

The next graph calculates what the annual benefits would be under each scenario set out in the previous graph, using HEAT and DfT Webtag analyses. These benefits are calculated just for the commuter journey from the urban area to the town centre. In some cases, where active travel levels are lower in the town than in Bedford, these have been included in the graph as costs or disbenefits. As an example, if Bedford residents travelled to work to the town centre as they do in Oxford, there would be a big increase in cycling (with related health and decongestion benefits) but also a small decrease in walking (with some related monetised health and decongestion costs).

The conclusion is that investing in cycling and walking and managing car use in the town centre can result in higher levels of active travel and very high annual returns in terms of both health and decongestion with a high benefit cost ratio justifying investment in achieving these changes.



### Current activity and services

1.

#### National & Local Strategies (Current best practices)

Recent documents relating to active travel are:

- [Healthy People Healthy Lives: Obesity and the Environment](#)
- [BMA Healthy transport = healthy lives](#)
- [NICE Walking and cycling: local measures to promote walking and cycling as forms of travel or recreation, PH41.](#)

NICE (National Institute of Clinical Excellence) determines value for money recommendations on medical procedures to promote health and public health. NICE guidance PH41 evaluated the value for money of measures to promote active travel.

The key recommendations of the NICE PH41 guidance are that

- Directors of public health (PH) and PH portfolio holders in local authorities should ensure
  - that a senior member of the public health team is responsible for promoting walking and cycling.

- that the JSNA takes account of opportunities to increase walking and cycling
- that walking and cycling are considered alongside other health interventions, including evaluating their impact on health inequalities
- that all relevant sectors contribute resources and funding to encourage people to walk and cycle
- Local authorities, in particular portfolio holders and lead members, of all relevant departments (including transport, planning, parks and children services) should ensure
  - that their strategies, plans, policies and funding are committed to encourage more walking and cycling
  - assess and amend policies and decisions to ensure they support walking and cycling
  - Move towards a strategic package of measures rather than isolated interventions, including town-wide programmes for cycling
  - that walking and cycling from a core part of local transport investment
  - programmes are based on an assessment of the potential to change and address behavioural as well infrastructure barriers, including life stages and transition points
- Educational bodies, such as head teachers and governors, should
  - Foster a culture that supports active travel to school
  - Develop school travel plans and appoint a school champion
  - Ensure children can take part in Bikeability
  - Provide a local environment around schools and in the catchment areas to encourage cycling and walking

### **Achieving an increase in cycling**

Few public health initiatives in UK or internationally have managed to increase physical activity across the population. The Cycle City and Town initiative which encouraged cycling throughout 18 towns is one of the few initiatives with reliable health evidence of a general increase in physical activity<sup>xlvi xlvii</sup>.

The evidence from this intervention demonstrated what works in terms of encouraging cycling. The evidence was collected in a practical document called "Making of a cycle town"<sup>xlvi</sup> as well as feeding into the NICE guidance above. The evidence was that focusing spending on towns with a range of infrastructure and promotional activity led between 2006 and 2009 to:

- a statistically significant increase (in the range of 27% increase) in cycling across all the towns, which was not found in matching local authorities.
- a significant increase in adults doing any cycling (by 14%), which occurred across all social grades
- a significant decline in the number of adults who were inactive
- a significant increase in children cycling to schools (by 126%) where all potential measures were applied (Bikeability training, more cycle parking, and Bike It Officer)

- an investment benefit:cost ratio of at least 3:1 based on conservative assumptions

More recently, data from all 18 intervention cycle towns was analysed in terms of 2001 and 2011 Census travel to work<sup>xlix</sup>. This found a significant increase in the intervention towns – a 1% increase in cycling to work compared with matched comparison towns and nationally with all non-London comparison towns. Of particular note was the finding that although the increase in cycling was lowest among the most deprived quintile, that relative to matched towns, “the increase in cycling in the intervention towns was actually *greatest* among those living in more deprived areas”, because in matched towns cycling had declined most among the most deprived quintile.

### **Local Strategies and implementation**

The key local active travel strategy documents are:

- Local Transport Plan *Active Travel Strategy* sets out the vision to make walking and cycling the natural choices for journeys in Bedford, by a range of infrastructure and promotional actions
- *Town Centre Area Action Plan* sets out how Bedford town centre will be improved for walking and cycling, in particular detrafficking of High Street
- Local Development Framework *Allocations and Development Plan* includes a comprehensive cycle network plan for Bedford, which forms part of the CIL (Community Infrastructure Levy) approved recipient of funding from new housing and retail developments.
- *Bedford Cycle Network* plans sets out a network of 27 radial routes (88kms), orbital routes (24kms) and town centre routes (14kms) with the primary focus of encouraging utility cycling
- *Bedford Green Wheel* is a proposed orbital route around the town with the primary focus of encouraging recreational cycling and walking

Over the next year, these documents and projects will be brought together in an update of Bedford Local Plan.

The approximate cost of completing Bedford strategic urban cycle network is in the region of £20 million. How cycling and walking will be funded in the future is at present unclear. However on 16<sup>th</sup> October 2014, the DfT published its draft “*Cycling Delivery Plan*”. The Plan is a “call to action” for local authorities and Local Enterprise Partnerships to formally commit to driving up walking and cycling. In particular it calls for “expressions of interest” from local authorities who would be interested in setting a long term ambition for walking and cycling in their area, and who, as part of that ambition would like to work in partnership with government to secure its delivery.

### **What is this telling us?**

Walking and cycling have the potential of having a population wide impact on maintaining public health. A large number of public health publications call for a significant rise in walking and cycling among the local population. NICE PH41 found that this was a good benefit cost ratio in terms of health benefits.

However, over the last 10 years, the evidence is that walking has remained stationary and cycling has declined from an already low base.

Walking and cycling are open to all people and walking and cycling levels are higher in many deprived wards. Compared to most European countries and some other British towns, cycling levels in Bedford are particularly low. Bedford is compact and flat and is an ideal town for high levels of cycling. People are deterred through concerns about safety, lack of adequate cycle routes, too much traffic, hazardous junctions and gyratory road systems that create long detours<sup>i</sup>.

### **Life stages**

Walking and cycling can be embedded as a key element of physical activity at every age<sup>ii</sup>:

- Young child aged 5-8: daily walk or accompanied cycle to school.  
Weekend: walking or cycling to parks and open spaces
  - Of around 6400 lower school children attending urban schools, in 2010, 4200 (64%) walked and just 70 (1%) cycled, with 1900 (30%) arriving by car.
- Older child and teenagers aged 9-18: daily walking or cycling to school.  
Weekend: meeting friends and going to entertainment on foot or by cycle.
  - Of around 4600 middle school children attending urban schools, in 2010, 2850 (62%) walked and 110 (2.4%) cycled, with 1070 (23%) arriving by car.
  - Of around 4600 upper school children attending urban schools, 2500 (54%) walked and 470 (10%) cycled, with 600 (13%) arriving by car).

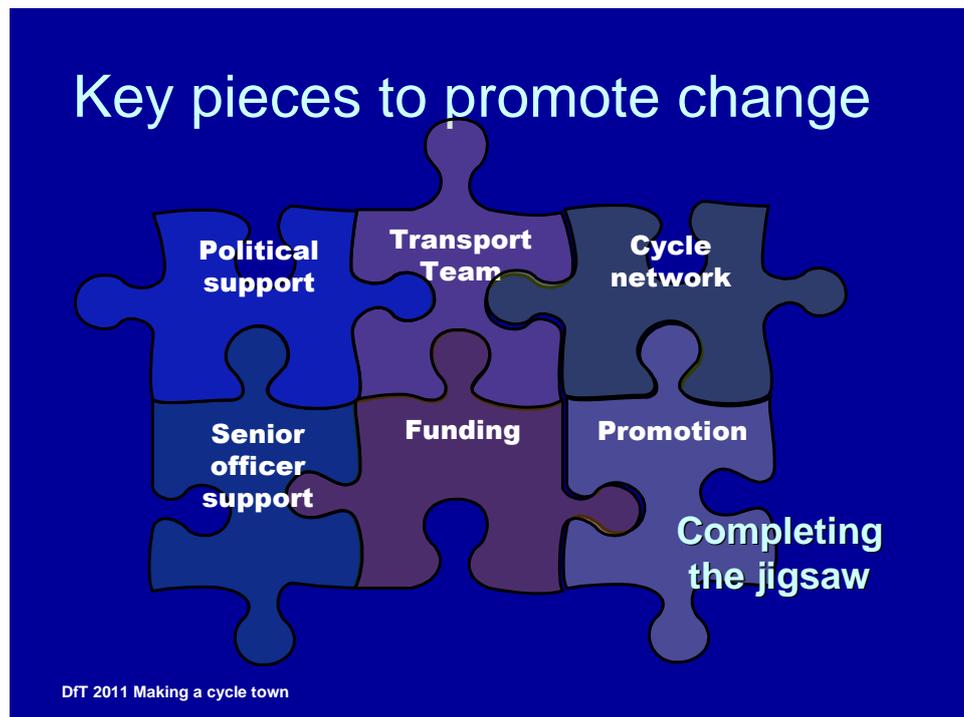
The evidence is that encouragement from school head teachers, Bike It Officers, Bikeability levels 1,2 and 3 and adequate cycle parking, combined with improved cycle routes can be very effective in increasing the level of children walking and cycling. Many Bedford school travel plan surveys show that many children would prefer to cycle than walk or go by car. Biddenham Upper School already represents best practice with around 200 (18%) of 1100 children cycling. The evidence is also that children who cycle or walk are more likely to continue to do so or return to these activities later in life<sup>iii</sup>. The Council currently has no resources to target schools.

- Students: daily walking or cycling to college. Weekends and evenings: meeting friends and going to entertainment on foot or by cycle.
  - Bedford has several large academic institutions – Bedford College and University of Bedford. University travel plans in other towns have been effective in encouraging sustainable transport<sup>iiii</sup>. The Council currently has no resources to target the colleges.
- Adults (employed): daily walking or cycling to work. Weekends: walks or

- cycle rides for leisure, shopping, recreation.
- Adults (not employed): walk or cycle rides to shops, friends, entertainment or recreation, accompanying children on walk or cycle rides

Older people need to be physically active as well. Regular exercise substantially improves the lifespan of older people<sup>liv</sup>. The Health Surveys of England show that older people do the least physical activity of any age group.

- Retired: daily walks or cycle rides to shops, friends, entertainment or recreation



This diagram exemplifies a key recommendation of “Making a Cycle Town”. To achieve modal change, you need all the key stakeholders, teams and programmes in a local authority working together.

### Recommendations

The key recommendations are that the public health team within the council should:

#### Process in line with NICE PH41

- Identify an active travel champion to work within public health and other council departments to unlock resources and influence policy
- Ensure that the health benefits of walking and cycling are weighed against other public health interventions in terms of resources
- Ensure that public health and transport teams work together to support active travel initiatives
- Ensure that sufficient funding and focus from all relevant internal departments is allocated to walking and cycling

**Shorter term practical in line with NICE PH41 and PH8**

- Fund Bedford Cycle Network signage and improvements
- Fund added value local improvements to cycle and pedestrian network (Added Value are, for instance, maintenance schemes where there are changes to the road environment and for changes to benefit walking and cycling can be introduced at relatively low cost)
- Fund improvements to walking and cycling (e.g Zebra crossing) in priority deprived wards

**This section links to the following sections in the JSNA:**

- All wider determinants chapters.
- Housing
- Adult Excess Weight
- Children Excess Weight
- Natural Environment and Green Space
- Air Quality
- Climate Change
- Workplace Health
- Improving the local food environment
- Crime and Disorder – Antisocial Behaviour
- All mental health chapters
- Cancer
- Cardiovascular Disease
- Respiratory Disease
- Diabetes

**Key Documents**

- Andersen et al (2000), “All-Cause Mortality Associated With Physical Activity During Leisure Time, Work, Sports and Cycling to Work,” Archives of Internal Medicine, Vol. 160, No. 11, June 12, 2000, pp. 1621-1628 ([Download PDF file](#))
- BMA 2012 Healthy transport = healthy lives
- Cavill N and David A. “Cycling and Health – What’s the evidence?” Cycling England 2007
- DfT 2010 Making of a Cycling Town at <http://webarchive.nationalarchives.gov.uk/20110407094607/http://www.dft.gov.uk/cyclingengland/cycling-cities-towns/results/>
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- Laplante J & Kaeser T: The Continuing Evolution of Pedestrian Walking Speed Assumptions, *ITE Journal*, Sept 2004

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