

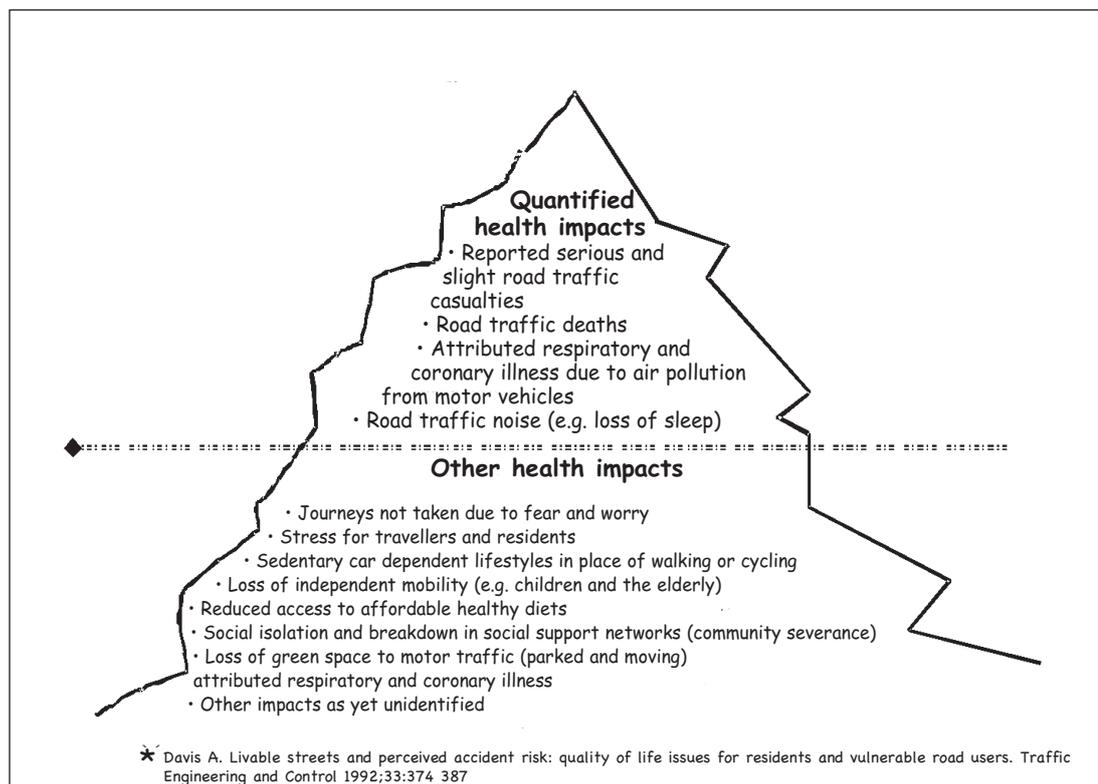
**How can transport  
contribute to public  
health?**

## INTRODUCTION

## Why is transport important for public health?

Transport has been identified as a major social determinant of health and although it has many positive aspects, there is growing concern regarding its adverse impacts.<sup>1,2</sup> Health promoting aspects of transport have been described as including access to employment, education, health services, shops, recreation, and the countryside. Adverse impacts have been described as an “iceberg” (see Figure 1 below) with quantifiable and visible direct effects such as road traffic injuries and air pollution and indirect effects hidden below the surface including community severance, children’s loss of independence and car bound living linked to sedentary lifestyles.<sup>3</sup>

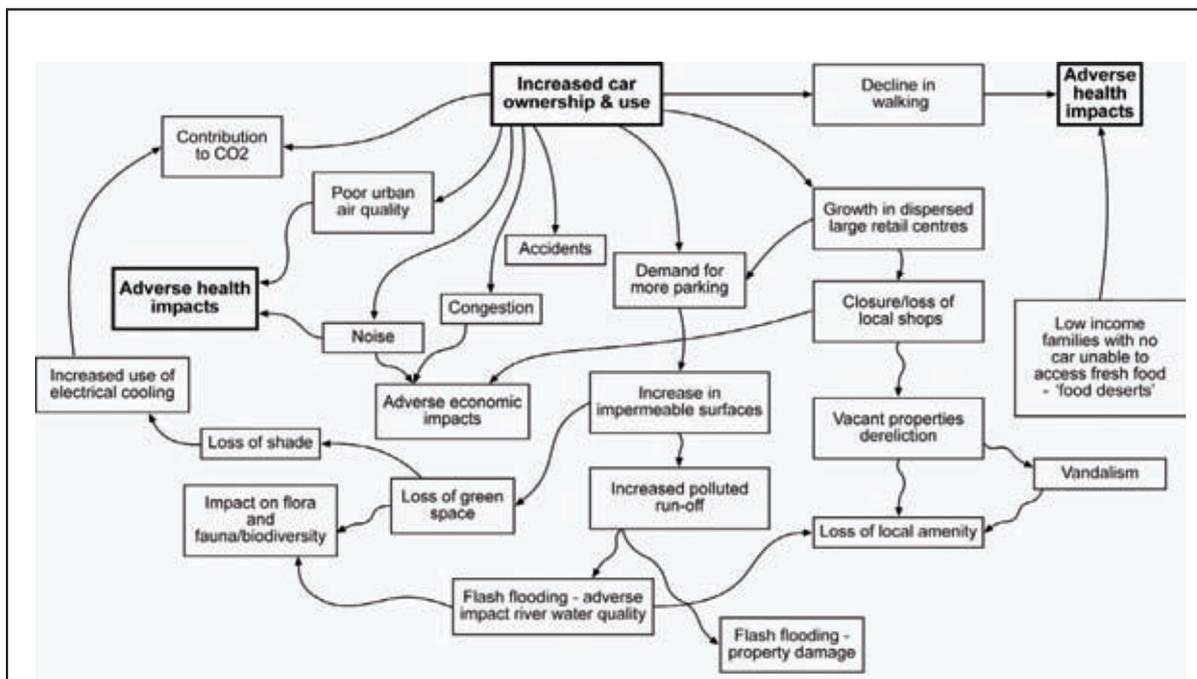
Figure 1 Key issues: the road traffic health impact iceberg\*



In 1997, the BMA stated: “Without a fundamental shift in policy away from the car to other forms of transport, it is inevitable that the transport sector will continue to impose large and growing costs on the natural environment, human health and the competitiveness of the British economy.”<sup>4</sup>

The summary of the Royal Commission on Environmental Pollution’s Report, as shown in Figure 2, provides an illustration of the complex web of connections between increased car ownership and use and environmental and social impacts in urban areas.<sup>5</sup>

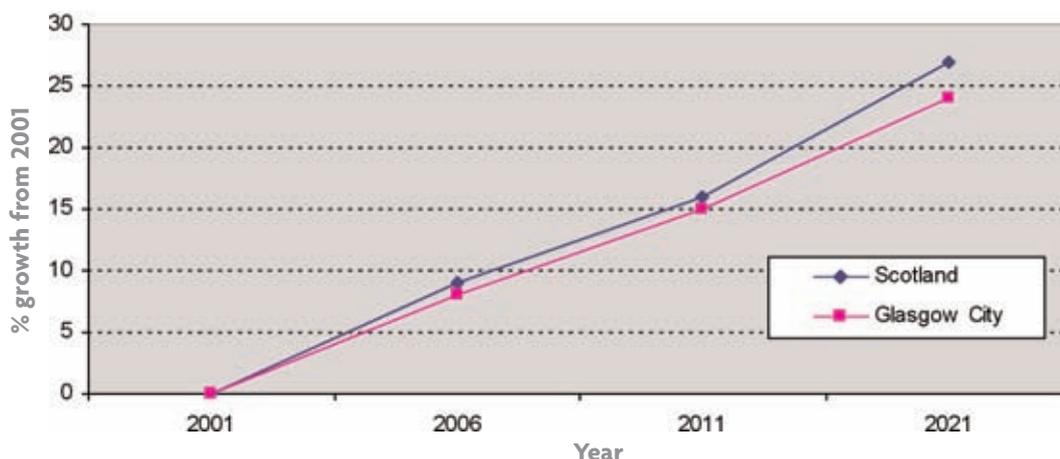
Figure 2 Part of the web of connections between increased car ownership and use and environmental and social outcomes in urban areas



Current concerns about the contribution of vehicular transport to climate change, and implications for the global economy and for health and well-being now provide a compelling argument for action as evidenced by the Stern report, which presents the catastrophic financial and human implications of inaction on climate change by governments at a societal level. <sup>6</sup>

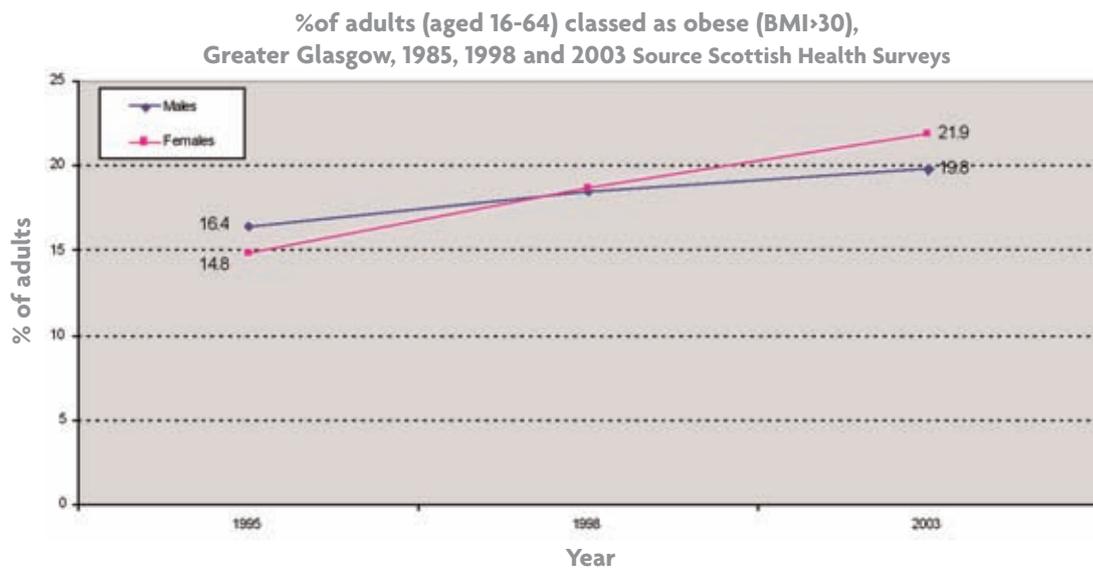
At a more local level, data presented in ‘Let Glasgow Flourish,’ the compendium of information on a broad range of health and its determinants in Glasgow and the West of Scotland, provides alarming trends on predicted traffic growth (see Figure 3). <sup>7</sup>

Figure 3 Predicted increases in traffic in Glasgow: background traffic growth from 2001, Scotland and Glasgow



Sedentary lifestyles have been linked to rapid increases in levels of obesity in the UK. As Figure 4 shows Glasgow is no exception; if these levels continue to rise, consequences for health and longevity are very serious.<sup>7</sup>

**Figure 4 Increases in obesity in Glasgow**



In summary, transport exerts important impacts on individuals, communities and populations. These impacts can significantly enhance or damage health at all levels. There is clear evidence that the growth in motorised transport is impacting negatively on individual and population health.

## AIMS AND PURPOSES

The purpose of this briefing paper is to present and discuss evidence regarding the role and potential of transport and transport strategy in improving health, reducing health inequalities and improving sustainability.

## HOW CAN TRANSPORT IMPROVE HEALTH?

## The importance of physical activity for health

Moderate daily physical activity provides many health benefits. In 2004, the Chief Medical Officer for England's report stated: <sup>8</sup>

**“The scientific evidence is compelling. Physical activity not only contributes to well-being but is essential for good health.”**

Adults who are regularly physically active have 20 to 30% reduced risk of premature death and up to 50% reduced risk of developing major chronic diseases such as coronary heart disease, stroke, diabetes and cancer. <sup>9</sup> Promotion of physical activity has been described as a ‘best buy’ in public health. <sup>10</sup>

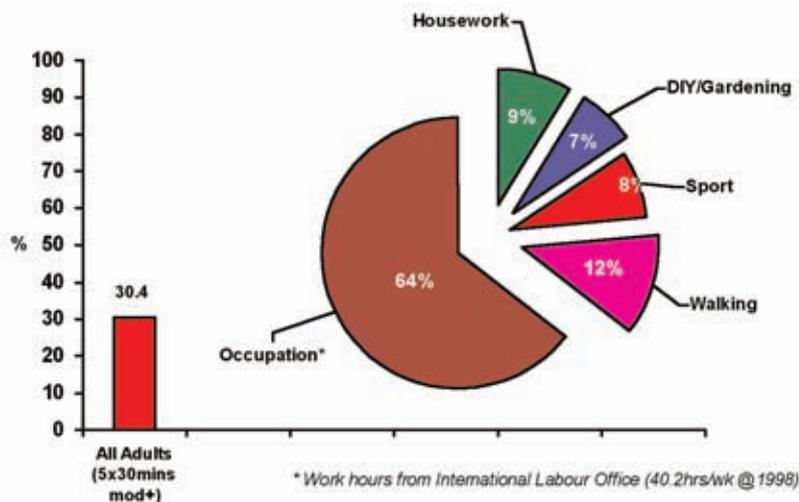
Physical activity levels in the Scottish population are low. Around two thirds of the Scottish population do not participate in enough physical activity to meet current recommendations and over half of Scottish men and women are now overweight <sup>11,12</sup>. According to a recent Scottish Executive publication, a 1% reduction each year in the number of inactive Scots for the next five years would result in: <sup>13</sup>

- £3.5million savings to the NHS through reduced annual admissions;
- 157 less deaths from coronary heart disease, stroke and colon cancer related to inactive lifestyles; and
- 2839 life years saved from reducing these overall deaths, resulting in an estimated total economic benefit of £85.2million.

Other benefits of regular physical activity are better mental health <sup>14</sup> and reduced employee absenteeism. <sup>15</sup>

The Scottish Executive produced a national strategy for physical activity in 2003, ‘Lets Make Scotland More Active’, with the aim of increasing population levels of physical activity, particularly amongst the most sedentary groups. <sup>16</sup> This physical activity strategy takes a broad approach and provides a balance between recognition, celebration and support for the role of sport (making up 8% of a population's activity levels) and activities of daily living (making up the majority of a population's activity levels), as Figure 5 illustrates.

**Figure 5 Sources of physical activity in the population**



One of the most obvious ways to increase daily physical activity levels is to commute actively (to walk or cycle during all or part of the journey to work). There is good evidence that active commuting can also provide mental health benefits and reduce pollution.<sup>17</sup>

### Walking and cycling as modes of transport

The benefits to individual and public health of walking and cycling are well established. Brisk walking has been described as ‘the nearest activity to perfect exercise.’<sup>18</sup> It can decrease the risk of heart disease, help prevent high blood pressure, assist in weight control, reduce stress and bring real improvements to physical and mental well-being. Cycling confers many of the same benefits to individual and public health as walking. In addition, it is more strenuous and therefore provides even greater cardio-vascular benefit than walking.

Research conducted in Glasgow in the late 1990s found that the most important barriers to cycling were bad weather and danger from motor traffic. Separation from vehicular traffic through car free zones and cycle routes featured as very important motivating factors.<sup>19</sup>

### Travel to school

The World Health Organisation,<sup>20</sup> the Scottish Physical Activity Task Force<sup>16</sup> and other public health organisations<sup>21</sup> have recommended that children should be active for at least one hour a day, every day. In January 2006, Peter Peacock (Education Minister) announced that only one in twenty primary school pupils in Scotland were receiving the recommended two hours of physical education a week in school.<sup>22</sup> Walking or cycling some or all of the way to school is one of the easiest and cheapest ways that children can be active and build up their recommended daily activity levels. Furthermore, walking and cycling to school provides an opportunity

to increase social contact amongst local parents and children, which also benefits the local community.

Promoting safe and active modes of travel to school should not rely solely on the production of school travel plans as there is no evidence that a school travel plan will encourage a shift from car use to active modes of commuting. A randomised controlled trial in London found no increase in levels of walking and cycling to school between intervention schools who produced a school travel plan with the help of a school travel co-ordinator and control schools where there was no involvement with a school travel co-ordinator and no production of a school travel plan.<sup>23</sup>

The immediate environment of many schools in urban areas is dominated by traffic. There is a direct relationship between vehicular speed and mortality in relation to road traffic injuries: if a pedestrian is hit by a car travelling at 20mph, there is a 10% fatality rate, at 30mph there is a 50% fatality rate, while at 40mph there is a 90% fatality rate.<sup>24</sup> Road injury statistics should not be used as a marker of success with regard to active school travel as these data do not take account of the changing denominator i.e. many fewer children walk anywhere, including to school, so numbers of child pedestrians have dropped markedly in recent years.<sup>25</sup> In the last ten years, the proportion of trips to school made by walking has dropped significantly and those made by car have increased substantially.<sup>26</sup> It is therefore no surprise that serious and fatal road injuries have fallen.

## Travel to work

Research conducted in the West End of Glasgow ten years ago found that 20% of employees living within one mile of their workplace and 30% living between one and two miles from their workplace regularly used their cars to travel to work.<sup>19</sup> In 2003, the Scottish Household Survey found that the car was still used for almost two-thirds of all journeys to work of between one and two kilometres. Even for journeys less than one kilometre, over one-third were made by car.<sup>27</sup>

Many employers now encourage their employees to actively commute through the development of workplace travel plans (green travel plans) which include incentives to walk or cycle.<sup>13</sup> Certain types of 'smart measures' can be effective in promoting an increase in active commuting in people who are already motivated to change their behaviour through individualised and social marketing. Research in Glasgow found that individualised self-help materials and support encouraged commuters to walk during the journey to work.<sup>28</sup> A systematic review published in 2007 concluded that people can be encouraged to walk more using interventions tailored to the needs of those who are motivated to change, delivered either at the level of the individual (brief advice, supported use of pedometers, telecommunications) or household (individualised marketing) or in groups.<sup>29</sup> The recent evidence briefing by the National Institute for Health and Clinical Excellence on transport interventions promoting safe cycling and walking also provides a useful commentary on what makes active travel safer.<sup>30</sup> The briefing states that area-wide traffic calming and engineering schemes in

towns and cities may reduce the number of road traffic injuries and deaths and that speed limit zones and good public lighting at night can reduce accidents.

In summary, transport strategies, policies and programmes have the potential to improve health in a number of ways:

- a) Given that promoting physical activity as part of every day life is being seen as increasingly important by policy makers, transport strategies, policies and programmes could and should make more explicit links with local physical activity strategies, policies and programmes. In relation to the promotion of active lifestyles, the UK Health Select Committee Obesity Report, published in 2004 commented: <sup>31</sup>

**“Our witnesses stressed repeatedly that rather than promoting planned sport or active recreation, which might require life changes that were unsustainable, a far more useful and realistic aim was to increase activity levels within people’s daily lives. Of these lifestyle changes, perhaps the single most important concerns transport.”**

- b) Walking and cycling, as part of every day life, represent important ways to accumulate recommended levels of physical activity and constitute sustainable modes of travel. In addition, public spaces that are attractive to walkers and cyclists can contribute to healthy urban planning goals.
- c) In order to promote active and safe school travel, measures must be introduced that make a recognisable impact on traffic speed and volume as well as structural changes where necessary to facilitate safe access by foot or by bike. Raising awareness amongst parents and pupils will not influence travel behaviour in the absence of other measures. Structural changes accompanied by promotion of behaviour change through working with people are much more likely to achieve success.
- d) There is potential to promote more active modes of travel to work as a higher priority through the development of workplace green travel plans. These travel plans should include measures such as subsidised public transport, safe, covered cycle storage, business cycle mileage at more favourable rates than business car mileage, workplace car parking charges, etc. <sup>13</sup>

## HOW CAN TRANSPORT REDUCE HEALTH INEQUALITIES?

The World Health Organisation proposes in its ‘Charter on Transport, Environment and Health’ that adverse health effects of transport fall disproportionately on the most vulnerable groups in our societies. <sup>32</sup> These groups include people with disabilities; the elderly; the socially excluded; children and young people; and people living and working in areas of intensified and cumulative air pollution and noise.

There is strong evidence that speed, volume and flow of traffic impacts negatively on levels of walking and cycling, on children playing outside and on community wellbeing and cohesion.<sup>33,34</sup> Increased traffic volume and speeds are directly correlated with actual and perceived risk of traffic related injuries.<sup>35</sup> Speeding is more common in less affluent areas.<sup>36</sup> There is also clear evidence that there is a link between levels of deprivation and child accident rates.<sup>37</sup>

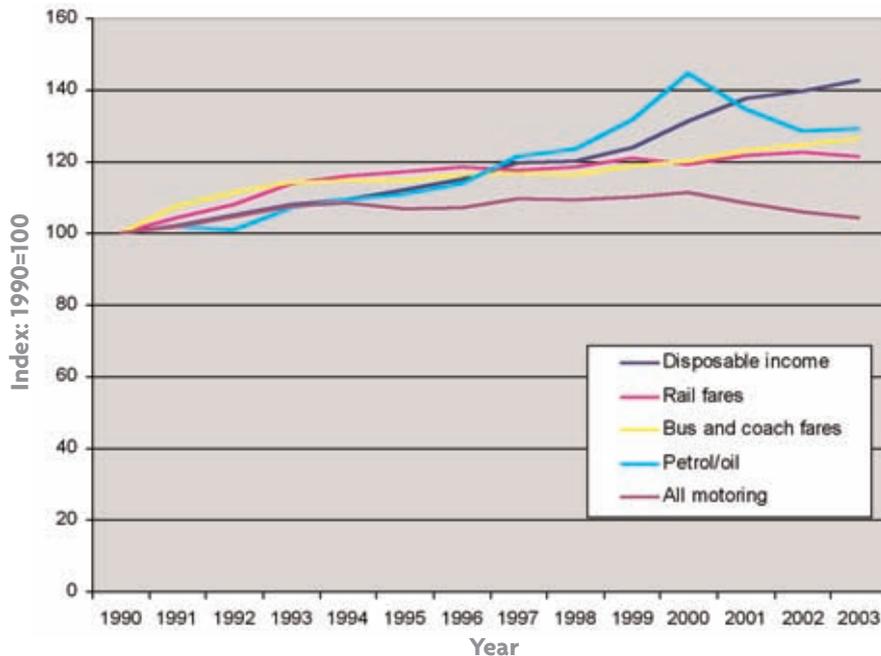
Inadequate transport provision can increase social exclusion and deprivation.<sup>38</sup> Conversely, good public transport systems and the creation of environments that encourage walking and cycling are a fundamental component of the physical and social regeneration of communities. Making it easier, safer and more convenient for people to walk, cycle or access reliable, good quality, low cost public transport is fundamental to improving access to shops, jobs, schools, health care and other services.<sup>39</sup> Improved opportunities for walking in the local community have particular social inclusion benefits for the elderly and for those with mobility difficulties. Larger numbers of people regularly walking in an area can help to deter crime and vandalism. Improving the walking environment can also help to foster a sense of community and social contact.<sup>35,38</sup>

The London Health Commission considered transport to be such a crucial health issue that, in 2000, it conducted a health impact assessment to assess and evaluate the impacts of transport on health to inform the development of London's transport strategy.<sup>40</sup>

The Scottish HIA Network, in collaboration with the MRC Social and Public Health Sciences Unit and the Institute of Occupational Medicine, has also produced a comprehensive guide to the use of health impact assessment in transport proposals and interventions.<sup>41</sup>

In summary, transport strategies have a vital role to play in improving social inclusion and accessibility through investment in good public transport systems and instituting measures that encourage walking and cycling.

For people to use public transport it is vital that alternatives are available which are safe, of a high quality and reliable. Alternative transport modes also need to be attractive in terms of comparative cost – according to the UK Department for Transport's analysis, the relative cost of motoring in comparison to bus or rail travel fell between 1990 and 2003 as Figure 6 shows.<sup>42</sup>

**Figure 6 Changes in the real cost of transport and in income: 1990-2003** <sup>41</sup>

Audit Scotland's assessment of the Scottish Executive's performance on transport policy in Scotland, published in 2006, concluded that there was a tension between the development of a sustainable transport network that was able to accommodate the pursuit of economic growth and social inclusion at the same time as addressing ongoing problems of congestion and environmental damage. The authors said: <sup>43</sup>

**"A key factor in striking this balance is the provision of an integrated transport system which provides genuine choice between the private car and alternative forms of transport such as the bus or train."**

## HOW CAN TRANSPORT IMPROVE SUSTAINABILITY?

The Scottish Sustainable Development Strategy (Choosing Our Future) states: <sup>44</sup>

**"...More sustainable travel choices such as cycling and walking bring major health as well as environmental benefits. Good transport links help places to function and communities to thrive. But transport also puts pressure on our natural resources – land, air quality and especially energy, mainly fossil fuels – and makes a significant contribution to our global environmental impact: it accounts for some 28% of our energy use and 27% of our net greenhouse gas emissions."**

The publication of the Stern report, referred to earlier, which outlines economic and human consequences of inaction on climate change reinforces the importance of sustainable transport strategies. <sup>6</sup>

The Scottish Sustainable Development Commission reported on progress on sustainable development in Scotland in 2007, concluding that Scotland was still a long way from being sustainable.<sup>45</sup> With regard to travel, the Commission highlighted Scotland's failure to achieve a significant reduction in total vehicle kilometres attributing this failure to insufficient effort in the encouragement of behaviour change and support for car drivers in moving to alternative means of travel. Furthermore, the Commission voiced concern regarding the conspicuous investment in strategic road schemes which they felt contradicted the commitment to stabilise traffic levels by 2021. They called for the rigorous use of sustainable development principles to assess decision-making on individual proposals and to consider the overall impact of the transport system.

In addition to its obvious relationship to travel, transport is also viewed as essential for sustainable communities. A report, produced by the Office of the Deputy Prime Minister in 2003 includes good public transport and other transport infrastructure both within the community and linking it to urban, rural and regional centres as an essential requirement for a vibrant, healthy community.<sup>46</sup>

In summary, transport strategies, policies and programmes should place clear emphasis on the wider policy context with regard to improving sustainability both at local and global level and on the potential of walking, cycling and public transport to contribute to sustainability goals.

CONCLUSION

Transport is a crucial public health issue which is growing in prominence. Transport strategies provide opportunities to articulate the links between transport and public health and to prioritise policies and programmes that improve health, reduce inequalities in health and encourage sustainability. These principles must be used routinely to underpin future transport strategy for the sake of individual, community and global health. In the development of transport strategies, policies and programmes, greater use can and should be made of collective knowledge, experience and skills across disciplines and agencies to optimise the contribution of transport, in its many forms, to individual and public health.

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