

# Health and Spatial Planning: Transport and Health<sup>1</sup>

## 1. Introduction

Whether through accidents, reduced levels of physical activity, increased air pollution or the ability of individuals to access to employment and services, transport had an impact on public health. There is evidence of links with a range of health conditions, including, obesity, type 2 diabetes, heart disease, osteoporosis, mental health and cancer. Health may also be enhanced by transport, as it enables access to work and other activities.

The need for closer integration between transport, environment and health polices was recognised by the Government when it signed the World Health Organisation charter on Transport, Environment and Health in 1999. Since then the relationship between transport and health has been the focus of increasing attention for the Health Education Authority, and latterly for the National Institute of Clinical Excellence (NICE).

The Health Education Authority publication, Making the Links, 1999 provided guidance for local and health authorities. A companion report provided a series of case studies demonstrating how to promote walking and cycling. These publications built on the public health white paper, Saving Lives: Our Healthier Nation and the transport white paper, A New Deal for Transport: Better for Everyone. This was followed in 2001 by the National Audit Offices' report on obesity, which emphasised that responsibility for tackling the issue lies with all government departments. Other publications have followed, with a briefing on the NHS and Local Transport Planning in 2006, followed by a report from NICE on transport interventions promoting safe cycling and walking. NICE also published guidance in 2008 on physical activity and the environment. This paper builds upon these publications by focusing upon the impact of transport on health, and the evidence needed by planners to respond to the transport and health agenda.

Transport planning tends to consider a small subset of health impacts; accidents and air quality, ignoring many other significant impacts, which if they were included could affect the transport planning decision making. However, under the Department of Transport refresh of the New Approach to Appraisal (NATA) it may be possible to include the health-economic benefits of cycling, drawing upon the WHO Europe Health Economic Assessment Tool for cycling<sup>1</sup>.

Key considerations for the transport planning community to consider in delivering healthy communities are:

- Injuries and deaths;
- Health inequalities;
- Walking and cycling;
- Air and noise pollution;
- Stress/mental health/quality of life;
- Community severance; and
- Climate change and health.

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<sup>1</sup> This paper supports the guidance contained in the RTPI publication GPN 5: Delivering Healthy Communities, available at [www.rtpi.org.uk/item/1795/23/5/3](http://www.rtpi.org.uk/item/1795/23/5/3)

## 2. Injuries and Deaths

The most obvious impact of transport on health is accidents. However, research has shown there has been a significant fall in casualty rates, despite an increase in road traffic.

The number of cyclists killed and seriously injured has fallen over the past decade. It is unclear if this is due to fewer cyclists, or if cycling is becoming safer. Evidence suggests that the more cyclists and pedestrians there are, the fewer casualties there are likely to be. The junction of minor and arterial roads pose the greatest risks for pedestrians and cyclists and roads near houses and schools are high risk areas for children, which may limit levels of cycling and walking. While most attention is given to highways, footway accessibility for those with mobility impairments is important.

Hillman et al<sup>2</sup> suggest that measuring road safety in terms of accident and death rates is misleading, they suggest the following measures of both safety and freedom be adopted:

- The proportion of children of selected ages who are allowed to:
  - cross roads on their own;
  - come home from school on their own;
  - use buses on their own;
  - cycle on main roads.
- The average time that a random sample of pedestrians take to cross roads of various classes in peak and off peak hour; and
- The annual number of hours spent escorting the average child.

### Health Outcomes

- 3,000 people die on Great Britain's roads each year, with nearly 248,000 injuries<sup>3</sup>.
- Nearly 3,100 children were killed or seriously injured in 2007, almost 1,900 are injured as pedestrians and cyclists.<sup>4</sup>
- Disadvantaged groups are more likely to be involved in road accidents<sup>5</sup>.
- Speeding is more common in less affluent areas<sup>6</sup>.

### Planning and Health Responses

- Speed limit zones can reduce injuries from crashes by 18%.
- Rumble strips approaching crossroads decrease injuries by up to a third and material damage by a quarter from crashes<sup>7</sup>.
- Traffic calming in 56 villages reduced accidents by 25%, and fatal and serious injuries were cut by 50 percent<sup>8</sup>.
- Area wide traffic calming reduces the number of accidents by a mean of 15 percent<sup>9</sup>.
- More than half of all fatal crashes occur at night and street lighting may reduce night time fatalities by as much as 65 percent% and injuries by 15 to 35%<sup>10</sup>.
- Although traffic calming schemes may reduce vehicle speeds, crashes and injuries, changes in the ambient air quality, noise pollution and accessibility for emergency services may be the result.
- Policies favouring walking and cycling in York led to a 40% reduction in road casualties (compared with a 1.5% reduction in the country as a whole)<sup>11</sup>.
- Urban areas should be designed to meet the needs of non-motorised users, improving safety by traffic management, rather than restricting their movements.
- Review footway maintenance measures particularly in areas with high numbers of elderly pedestrians and those with mobility impairments to avoid accidents.
- Share data on road accidents to identify levels of morbidity among different types of road user and the impact of accidents on health care requirements.
- Develop safe children's play areas and road safety education.

### 3. Health Inequalities

The links between access to transport and health are complex, poor access to transport can lead to social exclusion and inequality.

Studies have shown a link between access to a car and both physical and mental health that is independent of social class, which may be explained by improved access to essential services<sup>12,13</sup>. It has been found that women, unemployed, elderly, people with health problems, and those in low income groups are more likely to experience transport related social exclusion. Those without a car report finding it harder to travel to shops, employment, healthcare and other services<sup>14,15</sup>.

Elderly people have multiple sensitivities to the adverse health effects of transport, due to a gradual decrease in their abilities to cope as drivers, users of public transport and as pedestrians. The Department of Health has estimated that periods of high air pollution may hasten by a few days or weeks up to 24,000 deaths each year, mainly among older people and the sick<sup>16</sup>. A further 23,900 hospital admissions may be brought forward by air pollution<sup>17</sup>. Also, most people with impaired hearing are elderly, and traffic noise can compound their communication problems. In response, elderly people tend to become less mobile and experience diminishing networks of support and physical activity<sup>18</sup>.

Rural communities are more dependent on cars, and those without access to a car may experience greater transport related social exclusion, than in urban areas. The proportion of people living in households whose nearest bus stop is within a 13 minute walk and has a service at least once an hour is used as an indicator for access to a good bus service. For rural areas the availability of a good bus service grew steadily between about 1997 and 2004.

The uptake and effects of transport interventions varies across different socio-economic groups. Those in more affluent groups take up health promotion messages more readily<sup>19</sup>. So it is likely the promotion of walking and cycling may be more effective in affluent groups, while financial penalties on car use have a disproportionate effect on low income communities<sup>20</sup>.

#### Health Outcomes

- Children who have better access to safe green and open places are more likely to be physically active and less likely to be overweight than those living in neighbourhoods with reduced access to such facilities<sup>21</sup>.
- Mobility difficulties are much more common among older people. 45% of people over 70 experience mobility difficulties, compared with 5% of 16 to 49 year olds. Rates are also higher among women than men<sup>22</sup>.
- The most deprived local authority districts have five times as many child pedestrian accidents as the least deprived<sup>23</sup>.
- Transport problems contribute to 1.4 million people missing appointments, costing the NHS £180 million in 2002<sup>24</sup>.
- Access to green space is associated with higher life expectancy in older people.

#### Planning and Health Responses

- Explore the possible impacts of transport interventions across different social groups through equality impact assessments.
- Phase pedestrian lights to allow sufficient time for elderly people comfortably to cross roads.
- Develop a package of measures to protect those at higher risk from the health effects of traffic.
- Enhance access to affordable housing through transport policies that expand the

locational choices open to low income groups.

- Consider the effects of traffic measures on house prices and the effects on local residents.
- Expand special needs transport provision to increase the independence, self-esteem and health of vulnerable people.
- Locate health services at locations served by public transport.
- Increase the use of public transport by the elderly and improve community transport provision.

#### **4. Walking and Cycling**

Since 1996, when the Health Education Authority ran the "Active for Live" programme to promote physical activity, much has been written on the health benefits of regular sustained physical activity, which include<sup>25</sup>:

- 50% reduction in the risk of developing coronary heart disease (a similar effect to not smoking);
- 50% reduction in the risk of developing adult diabetes;
- 50% reduction in the risk of becoming obese;
- 30% reduction in the risk of developing hypertension;
- decline in blood pressure in people with hypertension;
- reduced osteoporosis;
- relief of symptoms of depression and anxiety; and
- prevention of falls in the elderly.

In 2006, the NICE report on transport interventions promoting safe cycling and walking gave advice to policy makers in the NHS and local government<sup>26</sup>, with further guidance published in 2008 on physical activity<sup>27</sup>.

The level walking or cycling has been linked to the quality of the local environment<sup>28,29</sup> i.e. residential density, street connectivity, mixed land use and amenities within a walking distance<sup>30</sup>. Perceived safety and aesthetics of the neighbourhood have also been linked to walking rates<sup>31,32</sup>. Individual socio-demographic factors however may be a more powerful influence.

Interventions aimed at the individual, household and group have tended to be more effective at delivering increased levels of physical activity, particularly those targeted at sedentary people or those with particular health conditions<sup>33</sup>. Interventions that engage people in a participative process and address factors of personal relevance may be more effective than those that simply aim to raise awareness or impose changes in the physical and economic environments. Some less targeted types of intervention have not been rigorously evaluated.

The evidence about interventions applied at the institutional level (workplace or school), community, or area is less convincing. At a population level, the TravelSmart study resulted in around 5% of all household trips changing from cars to walking and cycling.

The conclusions from literature are that there is no single solution and an array of measures are required, but there is a lack of supporting evidence. While there is much to learn about the benefits of intervention, this uncertainty shouldn't be used as an excuse for inaction.

#### **Health Outcomes**

- Transport affects health and social inequalities. Even where high levels of public transport are available some social groups may be excluded because of their specific needs<sup>34,35,36</sup>.

- Access to employment, social and leisure activities, goods and services and transport are key socio-economic determinants of health.
- Access to a car is linked to improved physical health. It cannot be assumed that increased walking or cycling results in health benefits, as it may replace other physical activities with potentially greater health benefits.
- The effect of introducing 20mph zones revealed that while delivering a range of other benefits (reduced traffic accidents and noise and better air quality) it appears to have had little effect in encouraging cycling or walking<sup>37</sup>.

### **Planning and Health Responses**

- Explore the possible differential impacts of transport interventions across different social groups to address both health and social inequalities.
- Integrated responses are needed, as improving neighbourhood design alone is unlikely to lead to a substantial increase in physical activity or use of physically active transport.
- Targeted programmes can change the behaviour of motivated groups and may improve levels of general health and physical fitness<sup>38</sup>.
- Work with the education authority to reduce the distance that parent/children need to travel to school, reducing their need to use the car for school journeys.
- Encourage transport operators to provide safe routes and storages for those cycling and walking to interchanges and stations.

## **5. Air and Noise Pollution**

Those at greatest risk from air pollution are people whose health is already impaired. The contribution of air pollution to reducing life expectancy is estimated to be of the same level as from passive smoking. There is evidence of increased risk of mortality in people living near major roads; these risks may be due in part to relatively high concentrations of ultra-fine particles in roadside air pollution, although other factors may also play a part.

High noise levels contribute to stress which may affect mental and physical health<sup>39</sup> through reduced quality of sleep and sleep loss, but it is not clear whether this leads to further health impacts. While noise levels at Heathrow have been linked to higher levels of annoyance, perceived stress, and poorer reading comprehension and reduced attention of children; when the socio-economic status of the children and schools were considered the relationship was not significant<sup>40</sup>.

### **Health Outcomes**

- Children living near busy roads or roads with heavy diesel engine traffic are exposed to particularly high levels of particulate matter and have a higher incidence of respiratory symptoms<sup>41,42,43</sup>.
- There is no strong evidence to show that noise gives rise to adverse health effects.

### **Planning and Health Responses**

- Control motorway traffic volume and speed using cameras at peak times.
- Control traffic levels by low-emission zones i.e. all heavy goods vehicles travelling within urban conurbation must conform to set emission standards.
- In selecting actions to reduce emissions of greenhouse gases, those that also reduce other air pollutants, such as particulate matter, should have priority. The effect on the pollution mix as a whole must always be considered in designing interventions.

- Consider joint targets for addressing asthma and air quality.
- Adopt environmentally friendly vehicle purchasing policies by using low emission and clean fuel vehicles, as well as reducing unnecessary travel.
- Increase use of quiet road surface materials.
- Consider the acoustic effects of transport proposals on young, elderly and those with hearing impairments.
- Carry out periodic surveys of noise related health effects in high risk areas.
- Avoid encouraging walking routes in locations with high pollution levels.
- Before considering constraints on car use consider the exposure to pollution and accident risks of the alternatives.

## 6. Stress/Mental Health and Quality of Life

Fear of crime may deter people from walking, cycling or using public transport. Perceptions of safety can affect people's decisions on selecting their mode of transport. Streets dominated by vehicles with few pedestrians may create a social environment that is conducive to increased crime, which in turn discourages even more people from walking<sup>44</sup>, in particular women and children<sup>45</sup>.

There is some variation in perceptions by area, with surprisingly 55% of people living in the most deprived areas saying they feel safe walking in their local streets and 57% considering their area a pleasant place to walk. This compares with 79% and 88% respectively among those living in the least deprived areas<sup>46</sup>.

Between 1995/97 and 2005 the average number of walking trips per person fell by 16%, from 292 to 245 per year. While over the same period, the average distance travelled on foot remained stable at around 200 miles per person per year. The proportion of trips under a mile which are made on foot has fallen from 80% in 1995/97 to 76% in 2005<sup>47</sup>.

The design of the public realm effects perceptions of safety and the attractiveness of the area contributes towards the level of health and well-being that walkers and cyclists experience. It also generates a sense of place that may bring economic and social benefits.

Regular exposure to traffic congestion impairs health, psychological adjustment, work performance and overall satisfaction with life<sup>48</sup>. Congestion also constrains movement, which increases blood pressure and frustration tolerance. This phenomenon not only reduces the well-being of those experiencing it, but can also lead to aggressive behaviour and increased likelihood of involvement in a crash<sup>49</sup>.

### Health Outcomes

- Increased stress and blood pressure can be associated with journey duration, predictability and convenience<sup>50</sup>.
- Access to a car has been linked to improved mental health independent of social class, self-esteem and income<sup>51</sup>.
- 'Overcrowded' public transport may cause stress, but this may be offset by feelings of safety and control, and familiarity with the journey<sup>52</sup>.

### Planning and Health Responses

- There is currently little evidence of the impact of interventions that are designed to improve the psycho-social aspects of travelling on public transport.
- Installation of CCTV cameras may reduce crime on public transport.

## 7. Community Severance

Community severance is where a busy transport corridor leads to reduced access to communities either side. Severance may be transverse, present only at certain times of the day, or in certain weather conditions (e.g. flooding of an underpass)<sup>53</sup>. It may also be longitudinal, where cyclists and pedestrians are dissuaded from using a route due to safety fears noise levels, air pollution or wind turbulence from the wake of fast moving traffic. Certain groups may experience increased severance such as the young, elderly and disabled.

Severance is known to reduce the local social networks and roaming area of children. High traffic levels affect children's development as concern over accidents leads to fewer children being allowed to walk or cycle<sup>54</sup>. Children have become more dependent and less physically active, while parents have less time to spare. This reduction in levels of physical activity not only has longer term effects on physical well-being, but can also affect children's stamina, alertness at school and academic performance.

### Health Outcomes

- New transport routes or increased traffic through an existing community may lead to community severance.
- The health impacts of community severance are not known but it may lead to more risk taking and accidents in the local community.

### Planning and Health Responses

- Engineering measures should be designed to promote walking and cycling, rather than improving safety for vulnerable road users.
- Almost three-quarters (73%) of adults agree that 'pedestrians should be given more priority'<sup>55</sup>.

## 8. Health, Transport Infrastructure and Demand Management

While the design of most new transport infrastructure proposals consider the likely effect on accidents numbers, few if any, consider the effects on access to healthcare, health inequalities or physical activity. As a result, transport authorities tend to undervalue strategies that reduce total vehicle travel and create a more diverse transport system. For example, although researchers will assess changes in overall injury rates on a bypassed road and the new road, the differential impact of new roads on nearby secondary roads is rarely assessed<sup>56</sup>.

The view that congestion charging measures will lead to health improvements assume substantial and sustained reductions in fuel consumption as well as increased overall physical activity linked to reduced car use. A Swedish study concluded that it is unlikely that the health impact of road pricing influences decisions, mainly because public knowledge about the health impact of air quality is low and under-estimated<sup>57</sup>. It is unclear whether there is an effect on community health beyond the congestion charging cordon.

The provision of Park & Rides (P&R) sites has been found to encourage some people to live in more car dependent, rural locations than they otherwise would<sup>58</sup>. The overall increase in parking availability, together with the attractiveness of city centre streets for through traffic, means that P&R has not demonstrably affected traffic congestion. The health gains of

schemes are likely to be questionable, although awareness of the need to support non-car modes may increase due to P&R sites that may generate some health benefits.

### **Planning and Health Responses**

- Provide a focus for integration and development of joint transport and health strategies, delivering greater policy coordination.
- Involve the PCT in implementing and monitoring the transport plan.
- Encourage the PCT to report on sustainable development and transport in its annual report, making recommendations to reduce ill health related to transport.
- Joint funding of accident reduction schemes, and cycling and walking infrastructure, focusing upon communities experiencing health inequalities.
- Local authorities and health trusts are a purchaser of transport services and should act as a role model in providing sustainable travel solutions.
- Health trusts should ensure services are accessible and located in areas well served by public transport to avoid contributing to local congestion.
- Health promotion and accident prevention measures can reduce the need for travel to hospitals.
- Regeneration projects that include public open space, cycling and walking should be supported by health trusts.

## **9. Policy Responses to the Health Agenda**

In the 1998, Transport White Paper<sup>59</sup>, the Minister for Transport stated:

*"The unifying theme is integration. It means making sure that policies on transport are working with, not against, those on health, education, or wealth creation. Local transport plans will mark a decisive shift in favour of public transport cycling and walking."*

The Department of Health in the 1999 White Paper<sup>60</sup> stated:

*"Local decision makers must think about the effect which their policies may have on health and in particular how they can reduce health inequality. In most cases, this will require a change in the way that health authorities, local authorities and other local agencies see their role". An important part of this role will be to encourage all local agencies to make local health impact assessments when planning investments".*

The introduction of strategic environmental assessment gave added emphasis to these commitments, since there is no legislative requirement to consider the health impacts of plans and programmes in England, Wales and Northern Ireland. In Scotland policies must also be assessed for their health consequences. A common theoretical framework is required for identifying transport and environmental influences on physical activity and on the design and evaluation of transport interventions that promote walking and cycling<sup>61</sup>. Evidence is needed on which interventions are important in influencing the take up of different types of travel and physical activity, both at the population level and for individual community groups. Transport policy is ahead of the evidence base and so the impacts on health should be evaluated using well designed studies.

The integration of health, spatial and transport planning is characterised by fragmented and inconsistent approaches as well as a lack of analytical techniques. The European HEARTS project sought to develop and test integrated health impact assessment methods designed to assess changes in exposure patterns and the related health effects of various urban

transport projects based upon changes in air pollution, noise and road accidents<sup>62</sup>. With preparations underway for Local Transport Plan 3 (LTP3), now is the time to actively consider how health and transport planning issues can be addressed in a more integrated manner than before. The table below outlines some of the responses that should be explored during the LTP3 planning processes.

## **Planning and Health Responses**

### **Organisation**

- Explore how transport planning and transport related public health activities are organised within the local authority and health authority.
- Map areas of responsibility across the different NHS organisations and local authorities.
- Consider pooled budgets or new ways of allocating funds to support integrated solutions.
- Establish data sharing strategies between local authorities and health trusts.
- Create posts jointly funded by local authorities and health trusts e.g. on road safety/accident prevention, travel plans, health impact assessment etc.
- Chief executives should ensure transport and health issues feature on meeting agendas and review progress towards national and local transport and health targets.

### **Policies and Objectives**

- Do the health issues identified in transport plans match national and local health priorities?
- Have the objectives and targets for transport and health been agreed?
- Does the policy have implications for people and staff accessing health facilities?

### **Awareness**

- Are public transport operators aware of the health issues linked to transport?
- Are elected officials and other opinion leaders aware of the mutual benefits of promoting sustainable transport and healthy communities?
- Use annual public health reports to highlight the impacts of transport on community health.

### **Health Inequalities**

- Identify where communities experiencing transport and health inequalities exist.
- Address the needs of vulnerable groups through the location of NHS facilities for older and less mobile communities.
- Address the links between accessibility, those in poor health and economic growth.
- Deliver transport services that reduce social isolation and increase physical mobility for those in urban and rural communities.

### **Targets**

- Develop indicators to measure how development relates to health improvement
- Consider how asthma targets and air quality strategies could be aided by transport interventions.

### **Non-Transport Solutions**

- Link transport and health policies to education policies to reduce the distance to schools and the need to use the car.
- NHS should consider how the how distribution of its services affects the distance patients need to travel, the availability of public transport and the carbon footprint of both site operations and transport.
- Locate safe play areas that children can access without risking traffic accidents.

### **Transport Solutions**

- Are travel plans in place and operating effectively across the health and local government sectors?
- Promote travel plans in schools, hospitals as well as businesses incorporating health and climate change messages as well as those of congestion.
- Identify areas where cycling and walking strategies could support coronary heart disease targets.
- Explore how roads safety interventions can affect morbidity of different road users and save NHS resources.
- Integrate public transport services with health and community transport in both the urban rural areas.
- Check that addressing one health problem does not exacerbate another as a result of the redistribution of traffic.

## **10. Transport and Health Checklist**

This checklist, based on Health Scotland's, Health Impact Assessment of Transport Initiatives, 2007<sup>63</sup> outlines questions that should be considered when assessing the health implications of transport policies or proposals.

### **Define nature and extent of Intervention or policy being assessed**

- What transport changes are proposed?
- What is/are the aim(s) and objectives of the proposed changes?
- How will the changes be implemented?
- Does the project have consultation, implementation/construction and maintenance phases?

### **Research evidence about health impacts of the intervention**

- What is the research evidence that this intervention is effective in achieving its aims?
- What is the research evidence that this intervention will have the intended health impacts? Include any stated health objectives of the intervention.
- What is the research evidence that this intervention has unintended health-related impacts?

### **Define features of the local area**

- What is/are the geographical area(s) covered by the intervention?
- What are the key features of the area?
- What transport infrastructure currently exists?
- What facilities and amenities are there that people need to access?

### **Understand which communities are affected**

- What populations will be affected by the changes including any vulnerable groups?
- For each impact identified, which group will be affected and how?
- Will the impacts be distributed equally in different socio-economic groups?
- Are health inequalities reduced or increased?
- What impact will the proposal have on equality?

### **Understand the economic implications**

- What are the local economic effects?
- How will travel costs be affected for individuals?

### **Changes In travel and traffic patterns**

- How will traffic levels or speed change?
- Could community severance change?
- Will access to essential services and amenities change?
- What will be the effect on residents and non-resident driving, walking and cycling, and public transport travel patterns?
- How will the safety of vehicle drivers or other transport users be affected?
- How will the safety for vulnerable road users be affected?
- Will air quality be affected?
- Will the level or duration of traffic noise be affected?
- Will there be a shift to more or less walking, cycling or public transport use?
- Will a modal shift affect levels of physical activity overall and be sufficient to affect health?
- Will levels of physical activity change in the population or only in motivated individuals?
- How will safety and perceptions of safety, among vulnerable road users and public transport users be affected?

### **Traffic and Impact displacement**

- Will there be displacement of traffic and related impacts to-or-from surrounding areas?

## **11. Examples of Good Practice**

- The removal of pedestrian safety barriers on Kensington High Street appears to have significantly reduced accident figures for pedestrians. It appears that by increasing the risk for drivers and pedestrians, both have greater awareness of their surroundings.
- Liverpool Health Authority produced "The Merseyside Guidelines for Health Impact Assessment"<sup>64</sup> in 1998 and republished in 2001<sup>65</sup>. They were used to assess the Merseyside Integrated Transport Strategy and were commended for national implementation by the DETR as a way of bringing health and local authorities together in the assessment phase of policy development.
- Herefordshire County Council undertook joint community panel surveys with the health authority and local population in 1998/9 on issues such as transport, health and safety as part of their Travelwise Programme.
- Stockport MBC and the NHS established a local transport working group in 1999 with the employment of a NHS project officer promoting walking and cycling. The Trust also purchased bikes which were free for staff handing in their car parking permit.
- Northamptonshire County Council ran a series of workshops on health and transport as part of Local Agenda 21 and the Local Transport Plan 1 processes.
- Liverpool's health plan, 1997 resulted in three of the top ten health priorities being related to transport and environmental issues.
- Rotherham and Sheffield's health and local authorities provided grants to community groups to undertake consultations to identify their top transport and health issues.
- North Bristol Health Trust improved its patient transport service, while reducing vehicle movements by 15% and saving over £240,000 in the first six months<sup>66</sup>.

## Links to Health Assessment of Transport Plans

- Health Impact assessment of the City of Edinburgh Council's Urban Transport Strategy (2000) [www.apho.org.uk/resource/item.aspx?RID=44244](http://www.apho.org.uk/resource/item.aspx?RID=44244)
- London Mayoral Strategy on Transport (2000) [www.apho.org.uk/resource/item.aspx?RID=44168](http://www.apho.org.uk/resource/item.aspx?RID=44168)
- Thurrock Local Transport Plan Rapid Health Impact Assessment (2001) <http://www.apho.org.uk/resource/item.aspx?RID=44240>
- The 2003 West Midlands Local Transport Plan (2003) [www.apho.org.uk/resource/item.aspx?RID=44632](http://www.apho.org.uk/resource/item.aspx?RID=44632)
- Health Impact Assessment of Regional Planning Guidance Transport Chapter (2003) [www.apho.org.uk/resource/item.aspx?RID=44248](http://www.apho.org.uk/resource/item.aspx?RID=44248)

## Links to Health Assessment of Transport Projects

- Fittingly Airport Health Impact Assessment (2000) [www.apho.org.uk/resource/item.aspx?RID=44752](http://www.apho.org.uk/resource/item.aspx?RID=44752)
- The Health Impact Assessment of the 'Clean Accessible Transport for Community Health' Project (2001) [www.apho.org.uk/resource/item.aspx?RID=53270](http://www.apho.org.uk/resource/item.aspx?RID=53270)
- Health Impact Assessment: Proposed Extension to the Port of Southampton at Dibden Bay (2001) [www.apho.org.uk/resource/item.aspx?RID=44757](http://www.apho.org.uk/resource/item.aspx?RID=44757)
- A Health (Inequality) Impact Assessment of the St Mellon Link Road Development (2002) [www.apho.org.uk/resource/item.aspx?RID=44214](http://www.apho.org.uk/resource/item.aspx?RID=44214)
- Merseytram Line 1: A Health Impact Assessment of the Proposed Scheme (2004) [www.apho.org.uk/resource/item.aspx?RID=53280](http://www.apho.org.uk/resource/item.aspx?RID=53280)
- Health Impact Assessment of the Proposed Western Extension to the Central London Congestion Charging Zone (2005) [www.apho.org.uk/resource/item.aspx?RID=22500](http://www.apho.org.uk/resource/item.aspx?RID=22500)

## References

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<sup>1</sup> WHO, 2007: Health Economic Assessment Tool, for Cycling (HEAT for cycling) User Guide, Copenhagen. [http://www.euro.who.int/hepa/events/20071127\\_1](http://www.euro.who.int/hepa/events/20071127_1)

<sup>2</sup> Hillman, M., Adams, J., Whitelegg, J., 1990: One False Move... A Study of Children's Independent Mobility, Policy Studies Institute, London.

<sup>3</sup> Department for Transport, 2007: Road Casualties in Great Britain: Main Results 2007, Department for Transport, London. <http://www.dft.gov.uk/pgr/statistics/datatablespublications/accidents/casualtiesmr/rcgbmainresults2007> (accessed 11/08/08).

<sup>4</sup> Department for Transport, 2007: Road Casualties in Great Britain: Main Results 2007, Department for Transport, London. <http://www.dft.gov.uk/pgr/statistics/datatablespublications/accidents/casualtiesmr/rcgbmainresults2007> (accessed 11/08/08).

<sup>5</sup> Graham, T. 2002: Road Safety and Social Inclusion, Scottish Executive Central Research Unit, Edinburgh. <http://www.jrf.org.uk/knowledge/findings/housing/721.asp> (accessed 15/08/08).

<sup>6</sup> MacGibbon B., 1999: Inequalities in Health Related to Transport. In: Gordon D, Shaw, M, Dorling D, Davey-Smith G (Eds), Inequalities in Health: the Evidence. Policy Press, Bristol.

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