



18 December 2009

Mr Tony Loughran
Department for Regional Development
Regional Planning and Transportation Division
Room 3-01
Clarence Court
10-18 Adelaide Street
Belfast BT2 8GB

Dear Mr Loughran

Re: Regional Transportation Strategy Discussion Paper

Belfast Healthy Cities welcomes the opportunity to comment on the RTS Discussion Paper.

Transport is a key determinant of health, as it allows people to access jobs, education and services, which play a key role in shaping health outcomes. A high quality transport system, offering a choice of modes, can help improve health and wellbeing, and also help develop a fairer, more inclusive society by helping to reduce inequalities in health.

We believe there is now a major opportunity to put in place a transport system meeting all these criteria, which would have the added benefit of reducing environmental pressure, reducing public costs and also offering new economic opportunities. We would therefore like to take this opportunity to outline in some detail how transport can contribute to better health and wellbeing, and enclose a briefing paper to this effect, as our response to the discussion document.

Belfast Healthy Cities is a partnership organization working to improve the health and wellbeing of people in Belfast and beyond. Belfast is also a leading WHO European Healthy City, designated to Phase V (2009-2013) of the WHO European Healthy Cities Network with a strong track record of meeting WHO objectives in the previous four phases. Key partners include Belfast City Council, Public Health Agency, Belfast HSC Trust, Northern Ireland Housing Executive, Bryson Group, Planning Service and Queen's University of Belfast.

The key aim of Belfast Healthy Cities in Phase V is to integrate health and health equity in all local policies. The work of the WHO European Healthy Cities Network in Phase V builds on the WHO Commission on the Social Determinants of Health, which identified improved living conditions and a fairer distribution of assets, resources and power as key to sustainable health and wellbeing, as well as long term prosperity of all countries. The role of Belfast Healthy Cities' office, as a focal point for intersectoral collaboration and liaison with WHO, is to identify mechanisms and tools for achieving this as well as building and sharing evidence to support the work.

Our comments are based on this overall approach. We would be pleased to contribute to further development of the RTS review by sharing more detailed relevant evidence.

Yours sincerely

A handwritten signature in black ink that reads "Joan Devlin". The signature is written in a cursive, flowing style.

Joan Devlin
Director

How good transport contributes to health and wellbeing

Key points

- Health is an outcome of an individual's physical and social living conditions; inequalities in health arise from inequalities in living conditions

Good transport systems incorporating a choice of integrated modes can support health and wellbeing by:

- Providing access to jobs, education and services including healthcare and healthy food
- Offering opportunities to participate in society; especially active travel can strengthen social cohesion and help reduce crime and anti social behaviour
- Encouraging physical activity and tackling obesity, where active travel facilities are good
- Enabling independence for children and young people, supporting healthy development
- Reducing congestion and air pollution, which will further help meet the challenge of climate change and dwindling fossil fuel reserves
- Opening new economic opportunities through supporting place making, which encourages people to visit and stay

Key measures that support health and wellbeing include:

- Further strengthening public transport; this is key to tackling inequalities in health and can reduce the benefit bill
- Improving active travel infrastructure; by enabling healthy lifestyles this can help bring about major healthcare savings
- Improving road safety; particular benefits for pedestrians and cyclists and especially children and older people

What transport policy can do

Strengthen active travel links to cover key routes. Ideally facilities should be included from the outset. Where routes are being constructed or upgraded, a focus on building meaningful routes gradually is more helpful than providing short stretches. Maintaining routes as part of roads maintenance can significantly boost and encourage usage.

Improve road safety. This can involve exploring, piloting and mainstreaming traffic calming schemes. Engaging with local people can also help inform planning of pedestrian crossing points.

Strengthen public transport. Dedicated and systematic public transport planning can strengthen effective provision. Community engagement on transport needs can be a useful way of gaining essential information on desired routes and further encourage uptake, thus supporting viability of services. Ensuring affordability is likely to have the greatest impact on inequalities.

Strengthen intersectoral collaboration. Developing policy and action in collaboration with other sectors can help ensure effective and efficient service provision. In particular collaboration with land use planning and the health sector can help provide health improving environments. In the future, contributing to community planning can further strengthen positive feedback loops.

The health impacts of transport

Transport is a cornerstone of our society. It plays a vital role for health and wellbeing, by shaping our daily lives and the environments we live in. It is linked to key current health issues, such as obesity and asthma, and determines access to jobs and services, which in their turn have an impact on health and quality of life .

Well planned transport systems can help improve long term health and wellbeing, in the same way that high quality infrastructure supports long term prosperity. A long term view is indeed essential, especially in light of the changing demographics. An **increasing number and proportion of older people** mean that future systems must consider the needs of non drivers and people with limited mobility, to ensure an inclusive society.

The health of people is closely linked to the health of the environment; one must take account of the other. It is helpful and important that most measures supporting health bring a double benefit as they also help protect the environment. A third benefit is that a healthy population is not only an important goal in itself, but also a prerequisite for a healthy economy.

This paper aims to outline how transport impacts on health, health equity and wellbeing, and highlight how high quality transport, offering and integrating a choice of modes with strong public and active transport options, can improve health. It forms part of the *Planning for Healthier People* series, which aims to outline how different aspects of spatial planning affect health and how planning policy can help improve health and wellbeing.

The context: Defining health and health inequalities

Health is much more than the absence of disease; the World Health Organization defines it as a 'state of complete physical, mental and social wellbeing'.¹ Good health is determined by many factors, which are outlined in figure 1. In short, it highlights that people's health is an outcome of their living conditions, which shape the choices they can make. Transport is a key factor within the built environment; a good public transport system can help people access jobs, and good walking and cycling links can support social cohesion as well as enable people to be physically active.

¹ Preamble to the Constitution of the World Health Organization as adopted by the International Health Conference, New York, 19-22 June, 1946; signed on 22 July 1946 by the representatives of 61 States (Official Records of the World Health Organization, no. 2, p. 100) and entered into force on 7 April 1948.

Figure 1. The determinants of health



Source: Barton & Grant 2006 (adapted from Whitehead and Dahlgren 1991)

Income related differences in health are a serious social injustice, and reflect some of the most powerful influences in health. Income inequality is a major factor explaining differences in people’s physical and social living conditions can lead to very different health outcomes.² As a result, mortality in more deprived areas is much higher than within the population on average. In Belfast, standardized mortality rates in the most deprived areas are 50-100% higher than in Northern Ireland as a whole.³

This does not mean that all people should have the same level of health; there are individual differences such as genetics. Striving for equity in health is about providing fair conditions that allow everyone to attain their **full potential**.⁴ Transport systems can contribute to this by ensuring transport is available and accessible to all, and planned to meet the needs of all users.

In Northern Ireland, Belfast and Derry are designated members of the World Health Organization (WHO) European Healthy Cities Network. A healthy city is one that is ‘is continually creating and improving the physical and social environments and expanding the community resources that enable people to mutually support each other in performing all the functions of life and in

² *Health21: The Health for All policy framework for the WHO European Region*. WHO Regional Office for Europe, Copenhagen 1998.

³ NISRA Demography, cited in *Divided by Health: a city profile*. Belfast Healthy Cities, Belfast: November 2008. <http://www.belfasthealthycities.com/divided-by-health.html>

⁴ Commission on the Social Determinants of Health. *Closing the gap in a generation: health equity through action on the social determinants of health*. WHO, Geneva 2008., www.who.int/social_determinants/en/.

developing to their maximum potential'.⁵ Designation to the WHO NETWORK involves commitment at the highest city level to improving health and striving for equity, through intersectoral collaboration and community engagement. Healthy urban environments and design is currently a key area of work that designated cities have committed to developing.

How transport can support health and wellbeing

Access to jobs and education

Transport makes a vital contribution to health and wellbeing by allowing people to access jobs, education and services, which are essential for health and wellbeing and quality of life. Employment is one of the most important health determinants, as it largely determines the income available to a household, which in turn shapes the living conditions that determine final health outcomes. Jobs can also support mental wellbeing and self esteem; unemployment is a major risk factor especially for mental ill health.⁶ Educational qualifications, in turn, shape the job opportunities and earnings potential of individuals, affecting their long term living conditions and opportunities. A higher level of education is associated with better long term health, including longer life expectancy.

Transport policy can help maximise health gain by providing services that allow people to take up work and education in a larger area. Such policy offers an integrated transport system and choice of modes, allowing for smooth changes for example between buses. Public transport services along both arterial and orbital routes are important to link people from all residential areas to key job and service hubs beyond the local area or on the outskirts of town.

Case study: York Local Transport Plan

The City of York was awarded the status of the UK's leading cycling city in 2004. The city has also managed to limit peak traffic to 1999 levels, while bus patronage increased by 49% between 2001 and 2005 and walking targets were met four years ahead of schedule. In 2007-08, just under 45% of journeys to work were by car, and 18.5% of children were driven to school.

Transport policy in York has focused on developing an integrated, sustainable transport system since the 1980s. However, these achievements are the result of the city's first Local Transport Plan (2001-06) and ongoing second Plan (2006-11). A key aim of both Plans has been to reduce car traffic in the city, and the city has introduced a 'hierarchy of transport users', which prioritises pedestrians,

⁵ WHO European Healthy Cities Network website, , http://www.euro.who.int/healthy-cities/introducing/20050202_1, accessed 7.12.2009.

⁶ Commission on the Social Determinants of Health. *Closing the gap in a generation: health equity through action on the social determinants of health*. WHO, Geneva 2008., www.who.int/social_determinants/en/

followed by people with mobility problems, cyclists and public transport users. The Plans have built on key pillars including reducing congestion, improving road safety, improving quality of life and improving accessibility. Promoting health and enabling healthier living has been an explicit objective of both Plans, which also aim to support sustainable economic performance. Interventions have included improvements to public transport – including bus lane improvements, continuous development of park and ride sites and orbital routes and improved service reliability; investment in walking and cycling routes which are interlinked to public transport, and road improvements that direct traffic away from the city centre.

The Plans are also directly linked to the community plan for York, which emphasizes sustainable development.⁷

Access to services

Transport also supports people's health more directly, by providing access to key services, such as healthcare and food. Access to affordable, healthy food is important to support a healthy diet, which is vital to prevent ill health. Poor diet is a key factor in obesity and also increases the risk of many serious diseases, including the major killers, heart disease and cancer.⁸

Although the focus in health is increasingly in prevention, healthcare services remain important and good transport links to health centres and hospitals helps ensure people – especially older people - can avail of care. Good public transport links, which include suitably frequent and appropriately timed services, can also reduce the number of missed appointments and therefore bring savings in the health service. Each missed appointment is calculated to cost around £100 and in 2007, it was estimated that missed hospital outpatient appointments alone cost the NHS in Northern Ireland £12million per year.⁹ Good public transport links to healthcare can reduce congestion, in particular around hospitals, as they are major trip generators.

Support for social cohesion and improved community safety

While accessing services has an impact on physical health, transport also supports mental wellbeing by enabling people to visit friends and family, attend cultural and leisure events and generally participate in society. Good, accessible transport services can significantly reduce social isolation, which is a risk factor

⁷ City of York, Local Transport Plan 2001-06 and 2006-11, http://www.york.gov.uk/transport/Local_transport_plan/.

⁸ Wilkinson, R & Marmot, M. *The Solid Facts: second edition*. WHO Regional Office for Europe, Copenhagen 2003.

http://www.euro.who.int/eprise/main/who/informationresources/publications/catalogue/20020808_2

⁹ NI Assembly Public Accounts Committee. *Report on Outpatients: Missed appointments and cancelled clinics*. Published 6.9.2007, http://www.niassembly.gov.uk/public/2007mandate/reports/report1_07_08r.htm.

for depression.¹⁰ Isolation has also been linked to mental and physical decline among older people. Transport can therefore in particular improve the quality of life for older people, who are most likely to live alone. Older people also identify transport issues as a key factor that reduces their opportunities to socialise¹¹.

At a societal level, enabling people to participate and meet others from different backgrounds informally can support trust and social cohesion by creating shared space, which is associated both with higher levels of wellbeing and lower mortality. Importantly, higher levels of trust and social capital are also linked to lower levels of crime.¹² Shared space can support good relations both between generations and between different social and cultural groups.

Walkable environments are particularly well placed to strengthen social cohesion, as they offer natural places for informal, chance interaction. For example, a now classic study from San Francisco showed that people living in Light (traffic) Street had much more social contacts with their neighbours than people in Busy Street.¹³ A recent study in Bristol reaffirmed these findings.¹⁴ Contacts with neighbours help people build social networks in their local area, which can provide a concrete source of social and mental wellbeing. Strong social networks in neighbourhoods can strengthen informal control in the area, which helps reduce anti social behaviour and crime.¹⁵

Walking and cycling facilities also provide natural surveillance by populating streets, which can help deter anti social behaviour and also reduce fear of crime. Over time, this can reduce the need for policing and produce significant savings. An additional benefit of such place making is that it can strengthen the economy, as people are willing to spend time and money in accessible, attractive places.¹⁶

The health benefits of safer roads

Improving road safety can similarly bring about significant savings, while improving conditions for health and wellbeing. In Britain, the value of preventing

¹⁰ *Future health: Sustainable places for health and wellbeing*. Commission for Architecture and the Built Environment, London: November 2009. <http://www.cabe.org.uk/publications/future-health>

¹¹ Brammar, J. *Fear of crime and the impact of crime: a consultative report of older people living in Stoke-on-Trent*. Beth Johnson Foundation, Stoke-on-Trent 2006.

¹² Kawachi, I. *Long live community: social capital as public health*. *The American Prospect*, 35, 1997.

¹³ Appleyard, D, 1969. 'The Environmental Quality of City Streets: The Residents' Viewpoint'. *Journal of the American Planning Association*, 35, pp. 84-101.

¹⁴ Hart, J. *Driven to excess: impacts of motor vehicle traffic on residential quality of life in Bristol, UK*. MSc dissertation, University of the West of England, 2008. <http://www.livingstreets.org.uk/news/uk/-/driven-to-excess>

¹⁵ See eg. Innes, M & Jones, V. *Neighbourhood security and urban change: Risk, resilience and recovery*. Joseph Rowntree Foundation, York 2006. <http://www.jrf.org.uk/publications/neighbourhood-security-and-urban-change>

¹⁶ Edwards, P & Tsouros, A. *Promoting physical activity and active living in urban environments: The role of local governments*. WHO Regional Office for Europe, Copenhagen 2006. http://www.euro.who.int/InformationSources/Publications/Catalogue/20061115_1

all crashes in 2007 – just under a quarter of a million – was estimated at over £19 billion, with about £10 billion accounting for public costs, including lost output.¹⁷ No similar figures exist for Northern Ireland, but the impact is likely to be significant. Northern Ireland has a higher rate of crashes, fatalities and injuries (per 100,000 population) than England, Scotland or Wales, and over 100 people die in crashes every year.¹⁸

Road traffic collisions are among the leading causes of death for young men under 25¹⁹, while older women are most likely to be injured as pedestrians.²⁰ Even relatively minor crashes can have long term impacts on wellbeing, with people reporting anxiety and other symptoms up to two years afterwards. The mental wellbeing impacts are often most severe for children.²¹

Supporting children's wellbeing

Improved road safety can overall improve children's quality of life in many ways. Concerns about traffic are a major reason why parents drive their children to school and hobby activities, and why many parents are reluctant to let children play out of doors.²²

Free and physical play is essential for healthy development; it has been suggested that lack of such opportunities may affect the future adult generation's physical and mental wellbeing, and also their social coping skills.²³ For teenagers, increasing independence is vital for mental and social development and wellbeing, and safer roads can contribute to this. Similarly, concerns about traffic discourage many older people from going out, and safer roads can also contribute to reducing social isolation, increasing independence and improving quality of life for older people.²⁴

¹⁷ *Road Casualties Great Britain 2007: Annual report*. Department for Transport, Scottish Government & Welsh Assembly Government, London; September 2008.
<http://www.dft.gov.uk/pgr/statistics/datatablespublications/accidents/casualtiesgbar/roadcasualtiesgreatbritain20071>

¹⁸ *Northern Ireland Transport Statistics 2008-09*. Department for Regional Development, Belfast: September 2009. http://www.drdni.gov.uk/transport_statistics_annual_2008-09.pdf

¹⁹ Registrar General Annual Report 2008, NISRA,
<http://www.nisra.gov.uk/demography/default.asp14.htm>

²⁰ *Injury Road Collision statistics 2008-09*. Police Service of Northern Ireland, Belfast: November 2009.
http://www.psnipolice.uk/index/updates/updates_statistics/updates_road_traffic_statistics.htm

²¹ Bryant, B et al. 'Psychological consequences of road traffic accidents for children and their mothers'. *Psychological Medicine*. Volume 34, Issue 2, February 2004, pages:335-46.

²² Sustrans, 2009. *Safer Rural Routes to School Project Review*.
www.sustrans.org.uk/assets/files/Safe%20Routes/publications/ni/SRS_Rural_NI_Review.pdf

²³ Litman, T. *Active Transportation Policy Issues: Background*. Victoria Transport Institute, Victoria (CAN) 2007. http://www.vtpi.org/act_tran.pdf

²⁴ Edwards, P & Tsouros, A. *Promoting physical activity and active living in urban environments: The role of local governments*. WHO Regional Office for Europe, Copenhagen 2006.
http://www.euro.who.int/InformationSources/Publications/Catalogue/20061115_1

The current Roads Service programme of providing and upgrading pedestrian crossings is an example of ongoing good practice in road safety. Traffic calming provides another useful measure. This can take a number of forms, from lowered speed limits in residential areas to Home Zone type arrangements prioritising pedestrians. The most appropriate form should be agreed with local residents and stakeholders. An additional benefit of traffic calming is that it contributes to an environment that supports social interaction, by allowing people to go out more freely and creating more opportunities for informal contacts. In town centres, pedestrianisation – with appropriate provision for people with limited mobility - may be an option to maximise this place making effect. In many towns, pedestrianisation has also helped boost turnover for retailers.^{25, 26}

Case study: Safe Routes to School, Sustrans

Sustrans, a leading transport charity, has developed the UK wide Safe Routes to School project to increase walking and cycling among schoolchildren. The project involves support to schools in developing School Travel Plans, liaising with other agencies to improve infrastructure and information as well as networking. In Northern Ireland, the project has worked with a number of schools both in urban and rural areas. The £1.3million Rural Safe Routes to School project worked with 18 schools, implementing a ten step approach that included improved active travel facilities, such as pedestrian crossings, around the schools and a School Travel Plan. As a result of the project, the proportion of children walking to school increased from 20% to 33%, while the proportion being driven fell from 64% to 49%. Schools reported benefits including better concentration in class, better relationships with and among parents who walked children to school and more positive attitudes to walking and cycling among pupils, parents as well as staff.²⁷

The health benefits of active transport systems

Pedestrians, cyclists and motorcyclists are at higher risk in the current traffic environment, but as the numbers of pedestrians and cyclists increase, the risks decrease. This relates to the 'safety in numbers' effect, which may result in behaviour changes especially among drivers.²⁸

Another important benefit of a calmer traffic environment is that it can encourage people to be physically active. Physical activity is vital for health and wellbeing; it reduces the risk of many serious but common diseases including heart disease,

²⁵ <http://www.yorkshire-forward.com/improving-places/where-we-live/rural-market-towns/upper-calder-valley/case-study>; accessed 8.12.09

²⁶ Shoppers and how they travel. Sustrans, Bristol 2006.
<http://www.sustrans.org.uk/assets/files/liveable%20neighbourhoods/Shoppers%20info%20sheet%20-%20LN02.pdf>

²⁷ Sustrans, 2009. *Safer Rural Routes to School Project Review*.
www.sustrans.org.uk/assets/files/Safe%20Routes/publications/ni/SRS_Rural_NI_Review.pdf

²⁸ Elvik, R. 'The non-linearity of risk and the promotion of environmentally sustainable transport'. *Accident Analysis and Prevention*, volume 41, issue 4, July 2009, Pages 849-855.

stroke, diabetes and osteoporosis. It also reduces stress and improves mood. Exercise has been proven to relieve symptoms of depression and is linked to slowing cognitive decline, which has major implications in an ageing society.²⁹

Tackling obesity

Physical activity is also crucial for preventing and treating obesity. Currently over half of the population in Northern Ireland is overweight and nearly a quarter obese. At the same time, 70% of people are physically active for less than the 30 minutes on most days recommended by WHO, and 20% report being completely sedentary.³⁰ People are also heavily reliant on cars for transport: 70% of all journeys are made by car, including a third of all journeys under one mile.³¹

As obesity significantly increases the risk of ill health, this is a major issue for society overall. UK wide, obesity and related diseases costs the NHS an estimated £4.2 billion a year – this figure is forecast to more than double by 2050. Taking into account other costs, such as productivity losses and lost worktime related to increased absenteeism, the estimate shows that obesity may cost the UK economy up to £50 billion per year by 2050.³²

Alongside, road safety, good facilities for walking and cycling, ie. well lit and maintained footpaths and cycle lanes separated from other traffic, are vital for enabling and encouraging physical activity. This is particularly important for children and older people. Paths and lanes must also connect key destinations. People are deterred by suddenly ending facilities, while links and ideally a choice of routes to important and interesting destinations such as the local shop, school or park encourage physical activity.³³ The ongoing collaboration between Roads Service and Sustrans to provide cycle lanes and improve connections is important to strengthen infrastructure, but paths and lanes should be provided as basic infrastructure with new development to ensure connectivity.

Enabling behaviour change

It has been suggested that active travel, such as walking or cycling to work, is the best way to sustain physical activity, as it becomes part of the daily routine. Currently 10% of people working outside home in Northern Ireland walk to work and about one per cent cycle. There has been little change regionally in recent

²⁹ *Future health: Sustainable places for health and wellbeing*. Commission for Architecture and the Built Environment, London: November 2009. <http://www.cabe.org.uk/publications/future-health>

³⁰ NISRA, Health and Social Wellbeing Survey 2005-06. <http://www.csu.nisra.gov.uk/survey.asp5.htm>

³¹ *Northern Ireland Transport Statistics 2008-09*. Department for Regional Development, Belfast: September 2009. http://www.drdni.gov.uk/transport_statistics_annual_2008-09.pdf

³² Foresight programme, *Tackling Obesities: Future Choices*. Government Office for Science, London 2007. <http://www.foresight.gov.uk/OurWork/ActiveProjects/Obesity/KeyInfo/Index.asp>

³³ Edwards, P & Tsouros, A. *Promoting physical activity and active living in urban environments: The role of local governments*. WHO Regional Office for Europe, Copenhagen 2006. http://www.euro.who.int/InformationSources/Publications/Catalogue/20061115_1

years and the proportion of people driving to work (81%) is higher than in England, Scotland, Wales or the Republic of Ireland.³⁴

In Belfast, however, active travel is becoming more popular. In total 25% of people report walking to work and 3% cycling, compared to 16% and one per cent some years ago.³⁵ Key measures to support and maintain this positive change could include further strengthening the network of footpaths and ensuring there are safe crossing points where people want to cross, especially across the busiest routes.

Public transport can also support physical activity, as the journey typically includes a walk at both ends; just 10 minutes of physical activity has health benefits. To make public transport an attractive option, services must be accessible, which involves considerations of quality and affordability, as well as physical access. Local statistics highlight this: since the introduction of the Metro service on arterial routes into Belfast city centre in 2005, passenger journeys have increased by a third. During the same period rolling stock on NI Rail has been renewed, and rail journeys have gone up by 37%.³⁶ However, the cost of public transport remains a barrier to use.³⁷ Especially in Belfast, orbital and cross city routes have been identified as factors that would encourage usage.

The synergies of good transport

In short, improved active travel and public transport can support health and wellbeing by enabling people to choose healthier lifestyles and promoting enhanced mental wellbeing. A direct health benefit is, however, a potential reduction in traffic volume and associated reductions in congestion and air pollution, which is a major health risk. Increasing the modal share of active travel and public transport can also help tackle global climate change, which is not only an environmental but also a serious health threat. There are also significant potential economic benefits.

The current position

Between 1992 and 2008, the stock of licensed vehicles in Northern Ireland grew by 77% to just over one million.³⁸ This increase, combined with a major growth in freight, is a key factor in the growing levels of congestion, which particularly

³⁴ Department for Regional Development. Travel Survey for Northern Ireland 2001-03, 2006-08. http://www.drdni.gov.uk/index/statistics/stats-catagories/stats-catagories-travel_survey.htm

³⁵ As above.

³⁶ *Northern Ireland Transport Statistics 2008-09*. Department for Regional Development, Belfast: September 2009. http://www.drdni.gov.uk/transport_statistics_annual_2008-09.pdf

³⁷ *Public Transport – on the right track? A Consumer Council summary report into attitudes to public transport in Northern Ireland*. Consumer Council for Northern Ireland, Belfast: July 2009. <http://www.consumercouncil.org.uk/publications/?id=407>

³⁸ *Northern Ireland Transport Statistics 2008-09*. Department for Regional Development, Belfast: September 2009. http://www.drdni.gov.uk/transport_statistics_annual_2008-09.pdf

affect the bigger cities and towns. It also helps explain the 53% increase in greenhouse gas emissions from road transport between 1990 and 2006, which occurred while emissions from most other sources fell. In 2006, road transport accounted for 22% of all greenhouse gas and 29% of CO₂ emissions.³⁹ This rising trend is reflected worldwide, and the World Health Organization has warned that increases in traffic volume may cancel out gains in air quality won through legislation and cleaner technology.

The health risks of air pollution

Air pollution arises from many sources, but motor vehicles are the primary source of particulate matter, which is the pollutant most harmful to health. This very fine dust can be breathed into the lungs, and is associated with complications of chronic conditions such as heart disease and asthma, as well as an increased risk of respiratory tract infections and allergies. Children are particularly vulnerable to air pollution. Overall, it has been estimated that air pollution reduces average life expectancy for all UK citizens by about eight months⁴⁰ and causes 20,000-24,000 premature deaths every year⁴¹. The estimated cost of this runs to £8.5-20.2 billion per year UK wide.⁴²

The health risks of climate change

The health risks of climate change are several and diverse, all associated with significant costs. For example, floods often lead to poor mental wellbeing among those affected, and a changing climate in Northern Ireland is likely to be wetter, with more frequent floods and extreme weather events.⁴³ Food poisoning may become more common in warmer temperatures, and potentially longer summers can increase people's exposure to UV radiation, leading to increases in skin cancer.⁴⁴ Globally, a warmer, drier climate is likely to affect food stocks, which drives price inflation. Food price hikes are likely to affect people's diets, and are a

³⁹ *Reducing greenhouse gas emissions from road transport: Paper One: Baseline report 1990-2006.* Department for Regional Development, Belfast: July 2009.

www.drndni.gov.uk/reducing_greenhouse_gas_emissions_from_road_transport_-_baseline_report.pdf

⁴⁰ *The Air Quality Strategy for England, Scotland, Wales and Northern Ireland Volume 1*, DEFRA 2007, <http://www.defra.gov.uk/environment/airquality/strategy/index.htm>

⁴¹ *Future health: Sustainable places for health and wellbeing.* Commission for Architecture and the Built Environment, London: November 2009. <http://www.cabe.org.uk/publications/future-health>

⁴² *The Air Quality Strategy for England, Scotland, Wales and Northern Ireland Volume 1*, DEFRA 2007, <http://www.defra.gov.uk/environment/airquality/strategy/index.htm>

⁴³ *Preparing for a changing climate in Northern Ireland.* SNIFFER, Edinburgh 2007. http://www.sniffer.org.uk/Resources/UKCC13/Layout_Default/0.aspx?backurl=http%3a%2f%2fwww.sniffer.org.uk%3a80%2fproject-search-results.aspx%3fsearchterm%3dukcc13&selectedtab=completed

⁴⁴ Expert Group on Climate Change and Health in the UK. *Health effects of climate change in the UK.* Department of Health, London 2008.

http://www.dh.gov.uk/en/Publicationsandstatistics/Publications/PublicationsPolicyAndGuidance/DH_4007935

particular risk for those already managing a limited food budget.⁴⁵ Poorer diets, in turn, increase the risk of obesity, associated chronic diseases and premature death.

The economic opportunities

Importantly, a transport system incorporating good active travel and public transport provision can support the economy, as well as improve health and wellbeing and protect the environment. Firstly, there are significant potential savings in terms of reduced need for healthcare: in the UK, it has been estimated that improving active travel infrastructure can have a benefit to cost ratio of 20:1, with reduced healthcare costs providing much of the benefit.⁴⁶

Good transport systems can also support and maintain a flexible, well educated workforce, while improving access to job opportunities and thus health equity. The impact of walkable environments on town centre business have already been outlined. In addition, reduced traffic volume improves reliability of journey times and therefore productivity for freight, with spin-off benefits for retailers. Less usage of roads also reduces the need for maintenance, which can help balance public resource allocation. Longer term, such transport systems are well placed to meet the challenges of rising fuel prices, which are likely as resources become increasingly scarce.⁴⁷

How transport can help tackle inequalities in health

Inequalities in health are typically the result of disadvantaged living conditions, and are often linked to low income and social status. They are often persistent and can affect several generations, as children who grow up with disadvantage are more likely to become disadvantaged adults.⁴⁸ Transport can help break this cycle in a number of ways.

⁴⁵ CAG Consultants. *Differential social impacts of climate change in the UK*. A report commissioned by SNIFFER, Edinburgh: January 2009.

http://www.sniffer.org.uk/Resources/UKCC22/Layout_Default/0.aspx?backurl=http%3a%2f%2fwww.sniffer.org.uk%3a80%2fproject-search-results.aspx%3fsearchterm%3dukcc22&selectedtab=active

⁴⁶ Sustrans, 2006. *Economic appraisal of local walking and cycling routes: summary*. <http://www.sustrans.org.uk/assets/files/general/Economic%20appraisal%20of%20local%20walking%20and%20cycling%20routes%20-%20summary.pdf>

⁴⁷ *A draft strategic energy framework for Northern Ireland*. Department for Enterprise, Trade and Industry, Belfast: July 2009. www.detini.gov.uk/energy-newpage-3a-draft-strategic-energy-framework-for-northern-ireland-2009

⁴⁸ Commission on the Social Determinants of Health. *Closing the gap in a generation: health equity through action on the social determinants of health*. WHO, Geneva 2008., www.who.int/social_determinants/en/

1. Supporting education as viable option

High quality, accessible public transport, can help children and young people access education, and make education a more viable option for low income families. This has long term benefits both for individuals and communities, as educational qualifications are key to improving opportunities.⁴⁹

2. Improving access to jobs

Well planned public transport services can also help people from all backgrounds to access jobs, and crucially widen the potential area for job search. This is important, as people from more deprived backgrounds can face a number of barriers to employment.

3. Reducing car dependence

Lower income households are less likely to own a car. In 2001, less than half of households in more deprived areas of Belfast owned a car.⁵⁰ Meanwhile, some years earlier it was found that carless households in Belfast had 25% of the job opportunities available to their car owning neighbours.⁵¹ UK wide, the work commute for people from more deprived areas is about three miles, compared to the average of seven miles.

The size of the potential area of job search matters, as people from more deprived backgrounds often have limited educational qualifications and therefore are at greater risk of unemployment or economic inactivity, should suitable jobs not be available locally. For example, in many of the more deprived areas of Belfast, more than half of adults have no formal qualifications.⁵² In short, good transport can help reduce economic inactivity, and help reduce benefit reliance. This can boost health and wellbeing benefits for individuals and communities, and also bring significant public savings.

4. Supporting equity through accessibility and affordability

In this context, affordability and accessibility of public transport can make a major difference; people living in poverty typically state that the cost of transport is crucial for deciding whether a potential job opportunity is attractive. Car ownership is also proportionately more expensive for lower income households,

⁴⁹ Higgins, C, Lavin, T & Metcalfe, O. *The health impacts of education: A review*. Institute of Public Health in Ireland, Dublin and Belfast 2008.

www.publichealth.ie/publications/healthimpactsofeducationareview

⁵⁰ Census 2001, NISRA. www.nisranew.nisra.gov.uk/census/Census2001Output/standard_tables1.html

⁵¹ Kelleher, L, A Smyth & G Ellis. 'Integrating public transport and land use in Belfast'. In *Sustainable Transport Report*. Northern Ireland Environment Link, Belfast: June 2009.

⁵² Census 2001, NISRA. www.nisranew.nisra.gov.uk/census/Census2001Output/standard_tables1.html

who may spend 10% or more on maintaining a car and therefore have less disposable income for other purposes.⁵³

5. Reducing inequalities in crash deaths and injuries

Improving road safety can have a particularly positive impact on health equity. Currently people in the most deprived areas are more likely to be injured in a crash than people in the least deprived areas, although they are less likely to own a car.^{54, 55} The difference is particularly marked for children. For example, in England in 2007, the casualty rate for children under 16 in the most deprived areas was twice that of children in the least deprived areas.⁵⁶

6. Improving opportunities for physical activity

People in more deprived areas are also less likely to be physically active, which affects their health as well as social wellbeing. Lower quality environments, including road and community safety concerns, often contribute to low levels of activity.⁵⁷ Good active travel options and improved road safety can have a particular impact in these areas, especially as it also can contribute to improving access to key destinations.

⁵³ Lucas, K et al. *Transport, the environment and social exclusion*. Joseph Rowntree Foundation, York 2001. <http://www.jrf.org.uk/sites/files/jrf/721.pdf>

⁵⁴ *Road Casualties Great Britain 2007: Annual report*. Department for Transport, Scottish Government & Welsh Assembly Government, London; September 2008. <http://www.dft.gov.uk/pgr/statistics/datatablespublications/accidents/casualtiesgbar/roadcasualtiesgreatbritain20071>

⁵⁵ Balanda, K & J Wilde. *Inequalities in mortality 1989-98: a report on all Ireland mortality data*. Institute of Public Health, Dublin and Belfast 2001. <http://www.publichealth.ie/publications/inequalitiesinmortality19891998>

⁵⁶ *Road Casualties Great Britain 2007: Annual report*. Department for Transport, Scottish Government & Welsh Assembly Government, London; September 2008. <http://www.dft.gov.uk/pgr/statistics/datatablespublications/accidents/casualtiesgbar/roadcasualtiesgreatbritain20071>

⁵⁷ Edwards, P & Tsouros, A. *Promoting physical activity and active living in urban environments: The role of local governments*. WHO Regional Office for Europe, Copenhagen 2006.