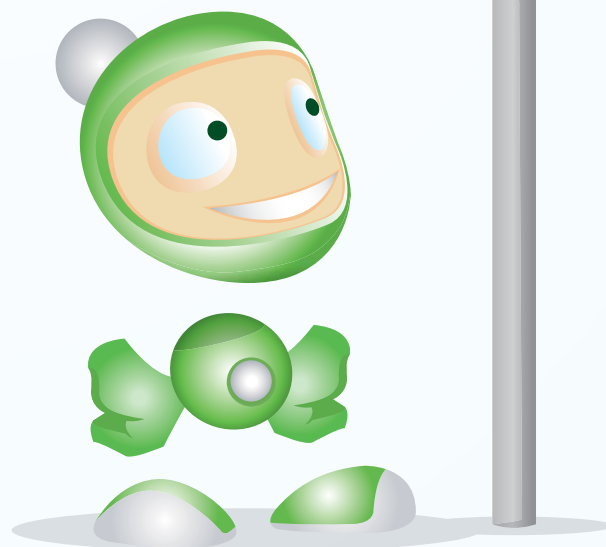
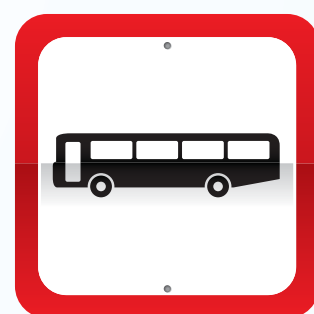


ecoworld

BRIEFING SHEETS: TRANSPORT



Transport and climate change

There are 600 million cars in the world today, a figure which is environmentally unsustainable. This is because transport is the biggest and the fastest growing source of greenhouse gas emissions in the UK accounting for more than one fifth of total emissions. Yet the number of cars in the world is forecast to double to 1.2 billion within the next 15 to 20 years.

Nearly all cars have an internal combustion engine in which fossil fuels are burnt. This releases CO₂ into our atmosphere.¹

The main human influence on global climate change is likely to be emissions of greenhouse gases such as carbon dioxide (CO₂) and methane. Although, CO₂ is present naturally in our atmosphere, human activity is increasing concentrations in the atmosphere. This can lead to changes in our climate which will have effects such as:

- variations in temperature from severe cold to extreme heat,
- the increase in the likelihood of droughts, floods and changing weather patterns)
- droughts in certain regions and
- a rise in sea levels which in turn increases the chances of severe flooding and even submersion of low-lying regions.

With large scale increases in the amount of vehicles on our roads, seas and air, the volume of CO₂ emissions is sure to increase if we do not take action and rethink our current transport situation.

Current Situation with transport

Tackling the 'car culture'

There has been a massive growth in car ownership and what psychologists call the 'car culture' in recent years.

Car ownership has become an essential household item and no longer a luxury. Households with two cars are now more common than those without a car. Nearly a quarter of journeys less than one mile are now undertaken in a car. Essential services which used to be within walking distance have increasingly

¹ http://www.goingreen.co.uk/store/content/climate_change/

become a car journey away - food shops, post offices, health services and schools.²

There are approximately 25 million cars on our UK roads. Road construction can create physical damage to land and eco-systems and dependence on fossil fuels for use in our cars is depleting our natural resources.

Many experts believe that by tackling this 'car culture' and by thinking about other more sustainable forms of transport we can create a more efficient transport system that is better for people, the economy and the environment. There have been attempts to develop 'cleaner' cars and fuels to reduce emissions³.

Alternative fuels - The Situation

Alternative fuels can also be known as 'non-conventional fuels'. These are any materials or substances that can be used as a fuel, as substitutes for fossil and nuclear fuels. Our most common fuels are diesel and petrol which are oil derived.

Alternative fuels are still relatively new and there is currently further research and ongoing development in this area. At present there are different technologies with varying costs and performances. It is important to note that at present alternative fuels are proving to be less efficient than oil. They can only produce a very small amount of the fuel that we require to support our transport needs. This may be subject to change in the future. Currently we are waiting until new technologies are developed and efficient networks are there to provide these.

At the present time and most importantly, we can cut our oil dependency by using our vehicles less and choosing sustainable forms of transport. This will in turn lead to a reduction in CO₂ emissions, reducing global warming, and conserving resources and can allow us to become healthier and fitter. This is the challenge for society today.

Alternative fuels - How they work

- Biodiesel is a renewable fuel that is produced from the oil of crops including oilseed rape, sunflowers and soybeans as well as from waste cooking oils. A major environmental benefit of biodiesel is that it is a highly biodegradable source and it does not pollute soil and waterways if it is split. Biodiesel prices are roughly the same as standard diesel prices.⁴

² http://www.travelwiseni.co.uk/walking_back_to_happiness.doc

³ Lessons from history, Sustainable transport <http://www.idea.gov.uk/idk/core/page.do?pageId=1466936>

⁴ Alternative fuels, Biodiesel

<http://www.energysavingtrust.org.uk/fleet/technology/alternativefuels/biodiesel/>

- Plant oils are fuel made by crushing and filtering oil-based crops such as rapeseed, palm or nuts. The neat oil is then ready to be used in some diesel engines. This cleaner fuel is capable of producing fewer emissions than other forms of biodiesel. At the minute there are difficulties in refuelling the vehicle as a reliable network for this hasn't been established. The cost of this type of vehicle production can be expensive.⁵
- Biogas is a renewable alternative fuel which is produced by breaking down organic matter by a process of microbiological activity. In simpler terms this means that rotting household waste, food waste and sewage is turned into gas in a 'digester'. As significant amounts of waste are used in the process, Biogas will therefore reduce the need for some of our waste having to be sent to landfill.
- The initial cost of biogas vehicles is more expensive than conventionally fuelled vehicles; however running costs could in theory be relatively low.⁶
- Bio-ethanol is a liquid bio-fuel. It is made from starch plants like corn and wheat and sugar plants such as beat and cane. It is produced by fermentation, followed by distillation and finally dehydration. It can be blended with other fuels or used as a direct substitute for petrol in modified engines.
- Research has shown that bio-ethanol gives a 70 percent CO₂ reduction compared to petrol. The availability of Bio-ethanol is limited at present but this is set to increase.⁷
- Bioethanol/ biofuels are a greatly contested area as the growth of these crops can have negative implications elsewhere. It takes vast amounts of land to grow enough crops to make only a fraction of what we would need to provide our vehicles with fuel. Sometimes this land is being environmentally damaged to grow the crops, for example, through deforestation. Furthermore it is argued that this land could be better used to grow food crops.
- Fuel cell vehicles use hydrogen and oxygen to produce electricity. The electricity then powers an electric motor which allows the vehicle to move. The vehicle has a fuel tank of hydrogen. This hydrogen is mixed with oxygen from the air to produce the electricity. When oxygen and hydrogen are combined they give off energy and water (H₂O). In fuel cells this is done without any burning (combustion). The braking system of these cars is more efficient and so this allows lower fuel consumption (an estimated

⁵ Alternative fuels, PPO

<http://www.energysavingtrust.org.uk/fleet/technology/alternativefuels/pureplantoils/>

⁶ Alternative fuels, Biogas <http://www.energysavingtrust.org.uk/fleet/technology/alternativefuels/biogas/>

⁷ Alternative fuels, Bio-ethanol

<http://www.energysavingtrust.org.uk/fleet/technology/alternativefuels/bioethanol/>

20 percent less consumption). Fuel cell vehicles are currently inefficient as they rely on so much energy being input to produce a small output. Therefore more research and development is necessary to make the idea more productive.

The potential benefits of alternative fuels

- Cleaner fuels and vehicles can save you money and benefit the environment. There are some cleaner fuels that are relatively new to market which may be able to offer some environmental benefits. However more research and development needs to be done in this area.
- From a financial perspective, any cleaner fuel may be able to help reduce operating, maintenance and fuel costs. Cleaner fuels could help to contribute towards efforts to reduce climate change. The carbon content of these fuels could be much less than standard petrol and diesels. The benefits of cleaner fuels could include less mechanical damage to vehicles engines.
- There are approximately 24,000 deaths a year in the UK which occurs as a direct result of poor air quality.⁸ If our fuels were cleaner this may help to reduce this number.

Car sharing

Car sharing is when two or more people share a car and travel together. It allows people to benefit from the convenience of the car, whilst alleviating the associated problems of congestion and pollution.

You can share a car for any journey - getting to work, doing the weekly shop, taking the children to school, going to the match at the weekend, travelling to a festival, event or show, getting to or from university, visiting friends or getting to the airport.

Car sharing benefits

- Reduced travel costs.
- Reduced congestion.
- Reduced pollution.
- Reduced carbon dioxide emissions.⁹

⁸ Alternative fuels <http://www.energysavingtrust.org.uk/fleet/technology/alternativefuels/>

⁹ Travelwise NI, Car sharing http://www.travelwiseni.co.uk/index/car_sharing.htm

- Car sharing reduces fuel costs, parking costs, maintenance and the need for a second or third family car.¹⁰
- Car sharing alleviates parking problems.¹¹
- It saves time waiting for other forms of public transport.¹²
- Reduced congestion, pollution and an improved transport infrastructure benefits the whole community.¹³

Travelwise

Travelwise NI is a Roads Service initiative to encourage the use of sustainable transport options such as walking, cycling, public transport or car sharing. It aims to encourage commuters to discover convenient transport options to save time. Travelwise operate a scheme in Northern Ireland for car sharing. The public can go online and register their journey details, allowing the system to search for a match of possible travel companions.

Efficient Driving

This has sometimes been called 'Eco-driving'. It means driving your car more efficiently which will in turn lead to reduced fuel consumption, reduced car emissions and a cleaner environment. Consider the following:

- Checking car speed and keeping within the speed limits
- Planning journeys in advance. This can make sure you are taking the quickest and easiest route to your destination.
- Driving safely
- Ensuring car is properly serviced. This will ensure that fuel isn't being wasted and that emissions are reduced. For example this could mean checking that the tyre pressure is correct.

Cycling

Cycling is fast becoming one of the UK's most popular leisure and sporting pastimes.¹⁴ Many people would consider cycling to school and work but more work needs to be done to improve the roads and infrastructure to enable people to do this. It is also necessary to change people's attitudes and promote cycling as a sustainable, convenient and healthy method of transport. Reasons for

¹⁰ TravelwiseNI, Car sharing scheme booklet

¹¹ TravelwiseNI, Car sharing scheme booklet

¹² TravelwiseNI, Car sharing scheme booklet

¹³ Travelwise NI, Workplace travel plans

<http://www.travelwiseni.co.uk/index/employers/workplacetravelplans.htm>

¹⁴ Travelwise NI, Cycling to work <http://www.travelwiseni.co.uk/index/commuters/cyclingtowork.htm>

promoting cycling as an alternative to car travel include congested streets, rising air pollution, difficulty parking, parking charges and the increasing costs of fuel.¹⁵ Cycling is increasingly relevant as a method of getting to and from work and school and not just for leisure.

It is important that cyclists take care on the roads. Proper safety equipment such as helmets and visible clothing are necessary. Drivers should be urged to take into account cyclists on the road, and to ensure they are thinking about safety of everyone on the roads.

The benefits to you

- **Improved levels of fitness** – research shows that currently 7 out of 10 men and 8 out of 10 women do not do enough physical activity to maintain a basic level of health and fitness.
- **Stress relief** – physical activity can reduce stress levels and improve productivity.
- **Help the environment** – once the manufacturing process is complete bicycles have a very small negative impact on the environment. By cycling you reduce the number of cars on the road improving the environment for all, including reducing harmful emissions, and improving road safety.
- **Save Money** – the initial costs of buying a bike and all the safety equipment that goes with it are virtually the only costs associated with cycling. The only associated costs further than this are the general maintenance costs such as oil and replacing tyres
- **Could save time** –Cycling regularly can save time that may be spent in the gym trying to improve fitness. Cycling can be quicker than driving as there will be less queuing in traffic.¹⁶
- Reduces the risk of heart disease, strokes, cancers, high blood pressure and osteoporosis. It helps control weight and increases energy and stamina levels.¹⁷

Park and Share/ Park and Ride

Park & Share

This is a great way for people who work in the city but live in rural areas to cut down on travel costs, time and also the tiredness associated with travelling long distances every day. It allows people to team up with friends or colleagues who work with or near each other and who live in the same general direction.

¹⁵ Travelwise NI, Cycling to work <http://www.travelwiseni.co.uk/index/commuters/cyclingtowork.htm>

¹⁶ Travelwise NI, Cycling to work <http://www.travelwiseni.co.uk/index/commuters/cyclingtowork.htm>

¹⁷ TravelwiseNI Spring 2007 Newsletter, Promoting Sustainable Transport

Generally the friends or colleagues would select a suitable meeting point on the outskirts of the city or near all their homes. The individuals would drive independently to a designated meeting spot, then share one car to drive into the city or town. This will save money on petrol, save on the general wear and tear of the vehicle as well as the tiredness associated with driving long distances every day.¹⁸

Park and Ride

Park and Ride is a simple but effective way to reduce traffic congestion. By parking your car in a Park and Ride car park and taking the bus or train you can save money, reduce your journey time to congested urban centres and reduce stress.¹⁹ There are many park and ride sites located to major bus and rail stations.

Park and stride

This is a similar idea to park and ride. The difference however is that instead of parking your car and getting a train or a bus to work or school, you would park and walk the remainder of the journey.

Walking to School

Over the last 20 years the number of children being driven to school in Northern Ireland has doubled to almost 36%, the 'School Walk' has been replaced by the 'School Run'.²⁰

The problems associated with this are the levels of congestion on the roads as well as in and around the school gates. With increased volumes of cars it is having a negative impact on road safety, personal health, air quality and is detrimental to the local environment.

By walking to school you can encourage children to:

- Cut congestion outside their school
- Improve their physical fitness
- Develop valuable road safety skills
- Develop independence and
- Help protect their health and environment by reducing air pollution.

Research has also shown that children who walk to school are more alert and perform better in a classroom environment.²¹

¹⁸Travelwise NI, Park & Share <http://www.travelwiseni.co.uk/index/commuters/parkandshare.htm>

¹⁹Travelwise NI, Park & Ride <http://www.travelwiseni.co.uk/index/commuters/parkandride.htm>

²⁰Travelwise NI, Walk to school week
http://www.travelwiseni.co.uk/index/walk_to_school_week_2007.htm

What is Safe Routes to Schools?

Safe Routes to Schools projects encourage and enable children to walk and cycle to school through a combined package of practical and educational measures. They are co-ordinated by Sustrans who are an organisation who promote sustainable methods of transport. Some of the measures may include building new cycling and walking routes, installing cycle sheds and places to put bicycles.

Safe Routes to Schools projects also:

- improve road safety and reduce child casualties.
- improve children's health and development.
- reduce traffic congestion and pollution.

Safe Routes to Schools projects involve:

- the whole school community
- local residents
- local authorities
- health and education workers
- police

Safe Routes to Schools projects are all about working together as a community to make the school journey safer and healthier for everyone.

Successful Safe Routes projects are child-centred, build on small steps to raise awareness and change travel behaviour and benefit the whole local community by helping to create safer, healthier environments. Each school is different, with its own local problems and possible solutions.

Sustrans believe that developing a School Travel Plan can help ensure the complete situation is considered which will include the transport, infrastructure, information, education and support to provide 'safe routes to schools'. The aim of a school travel plan is to embed safe and sustainable school journeys into the whole schools ethos. ²²

²¹ Travelwise NI, Walk to school week
http://www.travelwiseni.co.uk/index/walk_to_school_week_2007.htm

²² Sustrans, Safe routes to schools <http://www.sustrans.org.uk/default.asp?sID=1094226578046>

Consumer Issues

Social inclusion

Pensioners and people on low incomes suffer most from the effects of a car-based transport system. Poorer households often live near busy roads and so risk increased pollution and road accidents. Inadequate public transport means people without cars can have limited access to jobs, shops and other services. Communities need better local transport, safer streets and cycling routes - not more cars as this would only lead to congestion, pollution and noise around these areas.²³

These issues could be tackled by having more reliable, regular and accessible buses whilst lowering speed limits to 20mph in towns and 10 mph in residential areas.²⁴

A poor public transport system denies many people easy access to essential services like hospitals, shops and schools-which is more of a problem for poorer people as they are less likely to have the alternative of using a car.²⁵

Liveable neighbourhoods

Liveable neighbourhoods aim to create high quality urban environments which promote sustainable travel behaviour whilst being safe and pleasant to live in and visit.

A high quality public realm that offers enjoyable, safe walking and cycling routes is fundamental to encouraging more people to travel sustainably. When complemented by well-located amenities such as local shops, schools, and green open space, we are providing the foundation for a liveable neighbourhood.²⁶

²³ FOE, Transport, Social Exclusion

http://www.foe.co.uk/campaigns/transport/issues/social_exclusion/index.html

²⁴ FOE, Transport, Social Exclusion

http://www.foe.co.uk/campaigns/transport/issues/social_exclusion/index.html

²⁵ http://www.foe.co.uk/resource/reports/env_justice_bradford.pdf

²⁶ Sustrans, Liveable communities <http://www.sustrans.org.uk/default.asp?sID=1090834683408>

Accessibility

Accessibility is the ability of people to reach the jobs and key services they need, either by travelling to those services or by the services being available where they are.²⁷

Rural roads can present unforeseen hazards, such as blind bends or animals in the road or headlights that could temporarily blind you.²⁸

Affordability, accessibility and availability are the key issues here.

When considering accessibility, groups who should be catered for include families with young people, unemployed people, the elderly, those with disabilities and those on low incomes.²⁹

Transport should be accessible for all people. Often transport can be very problematic particularly for disadvantaged people. Where people do not have adequate access to public transport, social exclusion can become an issue.

Transport and the elderly

Transport needs and requirements for the elderly.

- Transport provides an essential link to friends, family and the wider community - a vital lifeline to maintaining independence. Research has shown that a lack of mobility can prevent older people from participating in social activities.
- Despite the rising number of older driving licence holders, declining driving ability and financial constraints mean that many motorists will have to adjust their driving practices and probably ultimately give up their car. A high proportion of the older population will be dependent on public transport for these reasons. However, evidence suggests that many will experience difficulties in using bus and rail services mainly due to accessibility reasons.
- Amongst the largest barriers to mobility are physical difficulties associated with walking and accessing public transport. Poor access to travel information can also deter potential users.
- Lack of awareness, particularly awareness of special transport schemes like Shopmobility can mean that those with the greatest need fail to benefit from services that have been specifically designed to help them.

²⁷ <http://www.dft.gov.uk/pgr/regional/glossary>

²⁸ <http://www.dft.gov.uk/transportforyou/roads/roadsafety/driversurgedtotakecareonrura6192>

²⁹ <http://www.dft.gov.uk/pgr/inclusion/se/social'exclusion>

- There are many other issues that may deter older people from using public transport. These include isolated stops, badly lit waiting areas and buses moving off before passengers are seated.
- Cost is a significant factor determining people's ability to travel as often as they would like. Taxis are an important mode of travel for those who do not have a car available to them and are unable to use public transport because of mobility or timetable constraints.
- It is believed that improvements in accessibility will help to increase the availability of public transport by better meeting the needs of older and disabled users with 'mainstream' transport.³⁰
- Some important aspects of ensuring convenient and accessible public transport are:
 - Bus shelter entrances and exits which are suitable for wheelchair access,
 - kerbs modified to make boarding easier-timetables which avoid lengthy waiting,
 - good signage,
 - clearer information,
 - location and
 - timing³¹

Transport and safety

In 2009/10 there were 101 people killed on Northern Ireland's roads, 3 of which were children (under the age of 16 years old). In total there were 9,675 casualties on the roads in Northern Ireland in 2009/10 with varying degrees of injury.

There are some general hints and tips that can be taught to children to help them be more road safety conscious. Including:

In cars

- Always wear a seat belt
- Get in and out of the car on the footpath side of the car
- Never distract the driver (for example creating too much noise while the vehicle is moving could distract the driver)

Cycling

- Check if bicycle is working safely.

³⁰ <http://www.dft.gov.uk/pgr/inclusion/older/olderpeopletheirtransportnee3261?page=2#a1002>

³¹ <http://www.dft.gov.uk/pgr/inclusion/women/womenandpublictransportthech3267?page=4#a1011>

- Always wear a properly fitting helmet.
- Wear bright, visible clothing and fit lights and a bell to alert other drivers of your presence on the road.
- Where possible use bicycle lanes.

General road guidance

- Follow the green cross code
- Be safe and be seen
- Always take time to think about road safety. Pay attention when on the roads. Never make any sudden decisions that could lead to an accident.

It is quite useful to plan journeys in advance, doing a little research before making a journey in relation to the area they are in and the different types of transport available.

It is important that passengers familiarise themselves with emergency exits and procedures so as to ensure their safety whilst making journeys on public transport. Safety belts should be worn if provided.

Accurate and up-to-date timetables should be available from Translink so that passengers can predict how long they will have to wait, and plan how to get to a certain destination.

In terms of public transport, the general consensus is that timetables in bus and rail stations should be:

- easy to understand for those who are not regular users of public transport
- clearly presented for those whose eyesight is impaired
- clean, undamaged and sufficiently well lit after dark
- dated, so that passengers know whether they are up to date
- available for people to take away, so that in future they can plan their journey in advance.³²

This will allow everyone access to up to date, relevant and easy to interpret information so as to make their travelling experience hassle -free.

³² <http://www.dft.gov.uk/pgr/crime/ps/guidelines/providinginformationtopassengers>