



Goal Two

Provide and promote a clean and low carbon transport system

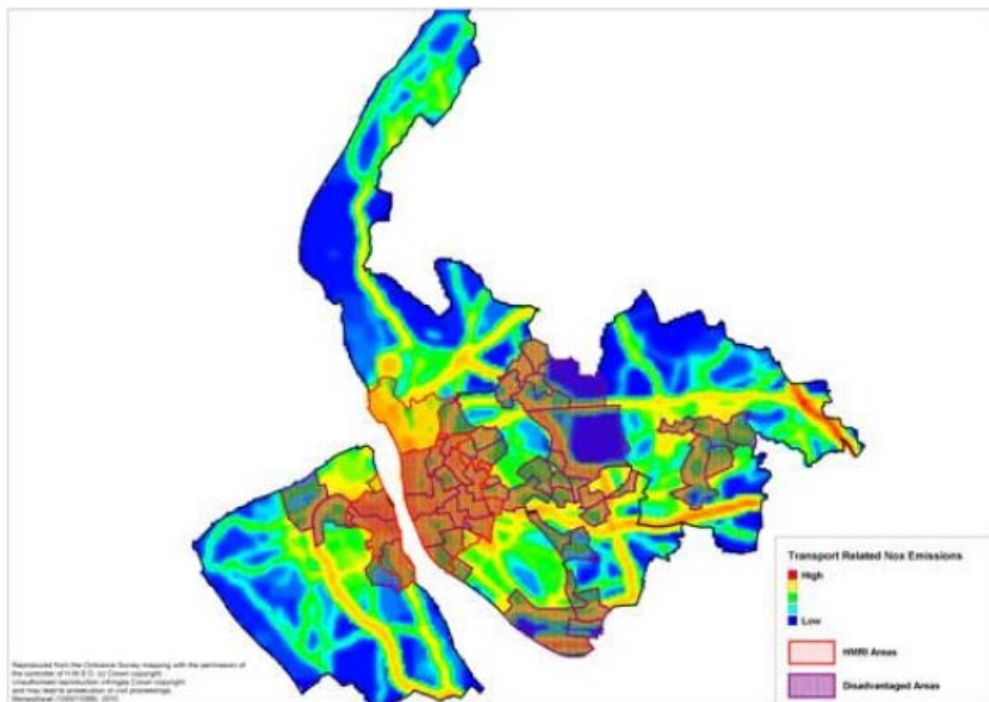
We recognise that the environment is central to the Liverpool City Region vision of establishing a 'thriving, international city region' and critical in creating a region with a resilient economy and improved health and wellbeing. Transport has a crucial role to play in delivering the LCR transformational programmes to create a low carbon economy

Transport, as a significant contributor to a number of the environmental challenges in Merseyside must take a leading role in delivering the solutions. This strategy sets out how we propose to reduce the negative impacts of transport on the environment and provide a transport system which is clean, less dependent on carbon and which helps us adapt to climate change.

Key Issues

- A high quality environment and economic growth are not opposites; the long-term success of a city is dependent on achieving both. Per capita CO₂ emissions across Merseyside are low compared to other areas in the UK, largely due to economic under-performance. We must strive towards sustainable growth which balances the needs of the economy and environment.
- Air pollution is a continuing concern, since the last local transport plan (LTP2), the number of management areas in Merseyside have increased from two to six, with the whole of Liverpool being declared a management area.
- The link between poor air quality and health problems is striking; it is estimated that particulate matter reduces life expectancy by 7-8 months on average in the UK ^(Ref 8). There are concerns that the negative effects of air pollution are experienced disproportionately by disadvantaged communities (Map 1).

Map 1: Transport related NO_x emissions in relation to areas of disadvantage



- Local authorities are being asked to reduce emissions of greenhouse gases from within their boundaries; how we plan and maintain our transport system can help support this work.
- We need to prepare for the effects of climate change. The transport system must be able to operate in more extreme weather conditions and cope with changing demands.
- Our current dependence on fossil fuels is not sustainable. We cannot afford to be susceptible to the volatile prices and supplies which are likely in the coming years and instead should move towards greater localism, wherever possible sourcing transport fuels from local renewable supplies.

Setting the scene

3.2.1 The state of the environment and in particular the threat of climate change continues to occupy a high priority on both national and international agendas. The past few years have seen the European Union and the UK Government setting out the path to a low carbon future, a plan which has also been recognized locally as essential to long-term success. Poor air quality, identified as a priority in the last transport plan, continues to cause concern both locally and nationally. During the LTP2 period (2006-2011) air quality across Merseyside deteriorated and road traffic emissions are a significant contributor to our failure to meet national targets. Continuing deterioration of local air quality is unacceptable and tackling this issue is a key priority for the LTP.

National policy

3.2.2 This LTP is produced against a backdrop of environmental legislation and policy from the UK Government and Europe. The plan must contribute to the goals of the national government and adhere to relevant legislation. This section provides an overview of the key national issues which have guided the development of this strategy.

(a) Carbon and Climate Change

The UK is subject to legally binding limits on emissions of greenhouse gases. Meeting these targets will require changes to all aspects of society; from how we generate our electricity, to how our businesses operate, how we use our homes and, pertinently, how we travel.

In July 2009 the Department for Transport published ^(Ref 9) 'Low Carbon Transport: A Greener Future' which sets out their strategy for moving towards a more sustainable transport system. Whilst much action will be taken at national level the need to act locally is beyond doubt. The LTP reflects the priorities set out by the Department for Transport and will be delivered in ways which are achievable and relevant in the context of our local circumstances and priorities.

(b) Air Quality

The Environment Act 1995 ^(Ref 10) introduced the National Air Quality Strategy (NAQS) which set out air quality standards for eight key pollutants. It placed a requirement on local authorities to undertake regular reviews and assessments of air quality in their areas and to work towards ensuring that the standards are met. Where the standards are unlikely to be met a local authority must declare an Air Quality Management Area (AQMA) and an action plan must be developed to bring about improvements in air quality.

Where transport makes a significant contribution to air quality problems, as in many areas of Merseyside, air quality action plans are integrated into the local transport plan. At the beginning of LTP2 there were two AQMAs designated across Merseyside, both in Liverpool. There are now six AQMAs across Merseyside, including a citywide designation in Liverpool. Reversing this negative trend in air quality is fundamental to LTP3; this strategy outlines our approach and rationale to making those improvements.

(c) Noise

The Environmental Noise (England) Regulations 2006 ^(Ref 11) were put in place to reduce the nuisance caused by sustained levels of high noise. They place a statutory requirement on Local authorities to address noise within their boundaries. Transport and in particular road traffic is a

contributor to high noise levels and under the legislation measures to reduce the impact it has must be considered.

(d) Strategic Environmental Assessment

As part of the development of the local transport plan we must complete a Strategic Environmental Assessment (SEA). The SEA identifies and assesses the effects which the local transport plan has on the environment. This process enables preferred policies or schemes to be modified or expanded to ensure all the environmental benefits are captured and enhanced, or mitigated where necessary.

Local challenges and opportunities

Contributing to a low carbon economy

- 3.2.3 Addressing the impacts of climate change and improving environmental quality is a challenge but can also offer the region considerable opportunity. The Liverpool City Region aims to capitalise on this opportunity by developing a 'Low Carbon Economy' which will see the region established as a leading supplier of low carbon goods and services and by breaking the links between economic growth and carbon ^(Ref 7). We are working closely with partners to ensure that the transport network in Merseyside supports and contributes to this vision. The role of transport in contributing to economic growth is discussed in Goal Five.

The need to consider 'peak oil'

The repercussions of a heavy reliance on carbon and fossil fuels are significant and our transport system is at particular risk. We know that the point at which fossil fuel resources can no longer meet demand is getting nearer and that this is likely to lead to volatile prices and restrictions in availability. The transport system is reliant on oil for 97% of the energy it uses and is highly susceptible to these pressures; through this strategy the measures we will take to reduce emissions and provide a low carbon transport system will go some way towards minimising the negative consequences resulting from price increases and inconsistent supplies. However, we recognise that the approach outlined here is unlikely to be sufficient to insulate the transport system against the severe impacts of oil shortages and this is something we intend to address as a priority.

"...there are likely to be sudden shocks created by price rises and lack of availability of oil, food and other products and services. At these points change is not gradual and voluntary but sudden and unavoidable."

(Ref 12) Bristol Partnership, 2010.

Forecasts show fuel price increases of 14-27% by 2024 (Ref 13), which would see average household expenditure on transport fuel rise by £300 annually. Costs to businesses and the public sector are estimated to reach 1% of the area's GVA and affect around 90,000 jobs (Ref 14). Investment in green technologies and industries, on the other hand, can bring significant returns – the value of the Environmental Technologies and Services sector in Merseyside is worth £1.04 billion and employs almost 9,000 people. The alternative vehicle fuels sector contributed £131.7 million to Merseyside's economy in 2009/1; this represented a growth of 2.86% between 2008 and 2010, compared to 4.47% across the Northwest (Ref 15).

The case for supporting alternative fuel and vehicle companies is stark; the sector is showing sustained growth which is likely to increase and within our local travel to work area we have two vehicle manufacturers – Jaguar-Landrover in Halewood and General Motors in Ellesmere Port – who are both pursuing low carbon vehicles and are significant local employers.

We show elsewhere the potential for Merseyrail to become a true carbon neutral rail network using locally derived power.

Addressing air quality

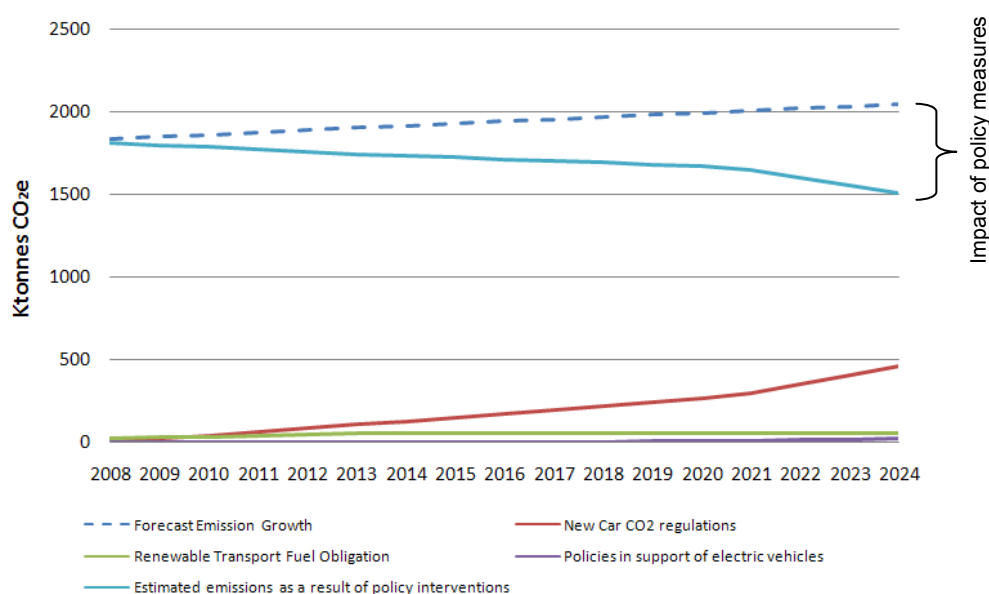
- 3.2.4 Using fossil fuels not only results in the release of greenhouse gases but also toxic air pollutants which have a negative impact on the quality of the air. Poor air quality is a major health issue, reducing life expectancy in the UK by an estimated 8 months on average and contributing to up to 50,000 deaths each year (Ref 16), often disproportionately affecting more disadvantaged communities. Goal Three identifies opportunities to improve health and wellbeing; improving air quality will make a significant contribution to this goal.

3.2.5 Despite efforts in the last LTP to reverse negative trends in air quality the situation has continued to deteriorate. The number of air quality management areas, where pollutants exceed safe levels, has increased. Emissions of greenhouse gases have remained stable; however this falls short of the reductions required to meet increasingly stringent targets and regulations.

National targets

3.2.6 The UK Government is committed to achieving large-scale reductions in the emissions we produce and has planned and implemented policies aimed at achieving these. A number of these policies relate to transport and will have an impact locally, Figure 2 below shows the impact national policies are projected to have on greenhouse gas emissions over the duration of this strategy.

Figure 2: Impact of national policy on local transport emissions



Source: Merseyside Transport Partnership Analysis (2010)

3.2.7 As the graph shows, with no significant local intervention we could expect to see reductions in the region of 20% on 2008 levels by 2024. In addition, a number of policies currently under development will be implemented during the lifetime of the strategy. New van CO₂ regulations and the Renewable Energy Directive are both expected to come into effect from late 2010 onwards and could help to reduce emissions further below these levels.

Delivering the goal

3.2.8 This goal is divided into three distinct challenges:

- (a) Reducing emissions from transport to mitigate against climate change and improve local air quality (which will be delivered through our Low Emissions Strategy);

- (b) Ensuring that the transport system is able to adapt and operate under future climate conditions; and
- (c) Improving the quality of the local environment.

Reducing emissions from transport – The Low Emissions Strategy

3.2.9 This must go hand in hand with a commitment to pro-actively create a true low carbon economy based on reducing reliance on oil. Through the low emission strategy (LES) we aim to:

- (a) Provide a range of viable low emission travel options,
- (b) Educate about what travel options are available and when they are most appropriate,
- (c) Incentivise low emission travel choices,
- (d) Remove financial barriers to low-emission technologies,
- (e) Build, maintain and manage the transport network in a way that minimizes emissions.

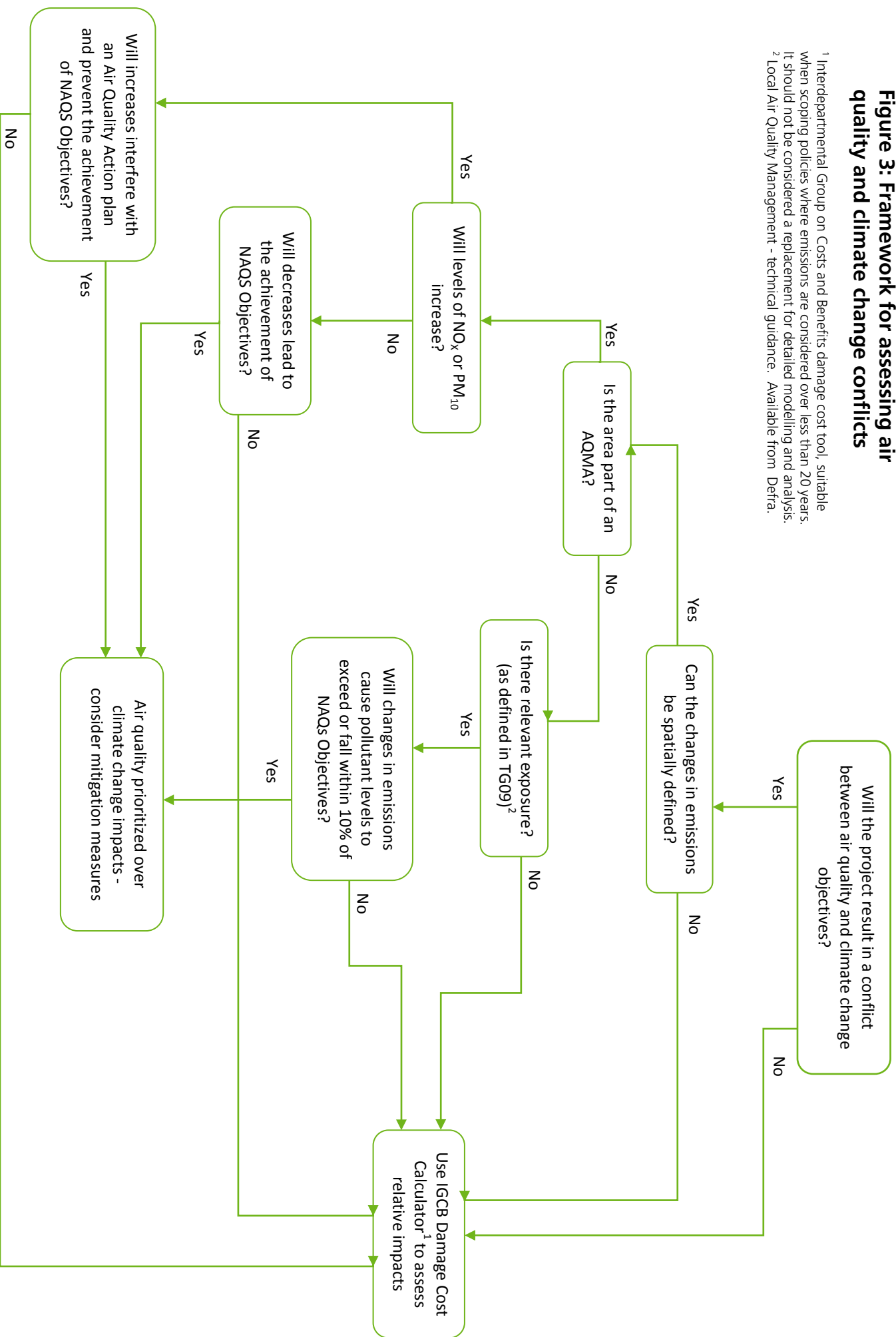
We plan to have an impact in two key areas; improving air quality and reducing climate changing greenhouse gases.

Managing air quality and climate change

3.2.10 As we have noted, there is a clear connection between improving air quality and addressing climate change and planning for the two issues in parallel will bring more cost-effective solutions ^(Ref 8). Yet whilst the overarching goal of reducing emissions of air pollutants is the same for both climate change and air quality, there are notable differences which will impact on the strategies chosen to deal with them. There are many instances where actions will be mutually beneficial but in some cases negative consequences may arise. In these instances careful evaluation of the costs and benefits for both issues must guide decisions. Guidelines for assessing potential conflicts between air quality and climate change objectives are set out in Figure 3.

3.2.11 Our low emission strategy, outlined in the following sections, details strategic changes setting out our approach to effect wholesale changes to the way which journeys are made across Merseyside. The strategy is supported by local authority Air Quality Action Plans, these detail site level interventions and measures targeted to the locality.

Figure 3: Framework for assessing air quality and climate change conflicts



¹ Interdepartmental Group on Costs and Benefits damage cost tool, suitable when scoping policies where emissions are considered over less than 20 years. It should not be considered a replacement for detailed modelling and analysis.
² Local Air Quality Management - Technical guidance. Available from Defra.

3.2.12 Technologies and cleaner alternatives to existing fuels are being developed all the time. The solutions available by the end of this local transport plan are likely to be very different to those available now. For that reason this strategy sets out the measures which we can implement over the short-term to reduce emissions immediately and those that we expect to be able to implement over the longer-term. In order to achieve these ambitions action must be taken across the transport network.

Reducing emissions from cars

3.2.13 Meeting our targets for emissions and air quality will require a significant reduction in emissions resulting from car trips, which are responsible for some 60% of greenhouse gas emissions from domestic transport. Our approach to reducing emissions from cars is three-fold:

(a) **Increasing the efficiency of travel by car**

The way in which cars are used can make an impact on the emissions produced with little change to daily habits and routines. For example, the impact of passenger vehicles on air quality is more pronounced in areas of heavy congestion when increased numbers of idling and slow-moving vehicles lead to higher emissions of pollutants. High levels of PM₁₀ emissions linked to vehicle congestion are the main source of air quality problems at the A565 Crosby Road North AQMA in Sefton and contribute to problems in Liverpool City Centre and St Helens Newton-le-Willows High Street AQMA. By using intelligent transport systems (ITS) to reduce congestion we can bring about improvements in air quality and other environmental concerns such as noise. For example, joint working between local authorities to link traffic management databases is underway and will enable better management of congestion, thereby reducing emissions and dispersing potentially harmful accumulations of toxic air pollutants. We discuss this further in Goal Five.

ITS measures, in addition to other traditional engineering works (such as junction improvements) will be used, where funding allows, to reduce traffic emissions. We will ensure full optimization of traffic control systems and improved dissemination of information to raise awareness of air quality problems and negative effects on health.

Further improvements can be made through changing the way individuals use their vehicles. We will expand our existing 'Smarter Choices' programme to include education around more efficient use of cars, such as low emission vehicle choice, car sharing and eco-driving styles; measures which will also benefit individuals and businesses through lower running costs.

Eco-driving training has been shown nationally to bring notable reductions in transport emissions and has the advantage that it can be rolled-out quickly and comparatively inexpensively. Department for Transport analysis indicates that immediately following training fuel consumption reduces by around 5%-25% and is likely to be maintained at levels of around 3% long-term^(Ref 17). Promotion of eco-driving training across Merseyside could be expected to result in CO₂ reductions of around 1-3% from transport depending on uptake. We will work in partnership with the local Energy Saving Trust Advice Centre, who are already delivering these

services, to ensure that training is targeted where it will have the greatest impact on emissions in Merseyside.

(b) **Investing in new generations of low-emission vehicles and fuels**

We recognise that passenger cars will continue to have an important role within the transport system; how we can make their use as sustainable as possible is therefore critical. Whilst more efficient vehicles and driving techniques will make a contribution in the short-term over the longer-term we expect to see a shift towards the use of alternative low-emission vehicles and fuels.

Electric vehicles have significant air quality benefits because they release no air pollutants at the point of use. They can also lead to notable reductions in greenhouse gas emissions. A typical electric vehicle results in around half the CO₂ emissions of a conventional vehicle based on the current mix of grid electricity. It is not just electric vehicles which will contribute to a low carbon transport system, we expect there to be a mix of fuels and technologies used for different types of vehicles and purposes (our approach to supporting the use of sustainable biofuels is outlined elsewhere in this goal). Ensuring that the infrastructure is in place to support alternative fuels and vehicles will be critical to increasing their use in the region. With policies which are strongly supportive of electric vehicles we could see numbers increase up to a factor of five by the 2030s^(Ref 18). This could account for a 10% decrease in total transport CO₂ emissions across Merseyside. More conservative estimates of electric vehicle uptake would result in more modest emission reductions of between 1-3%.

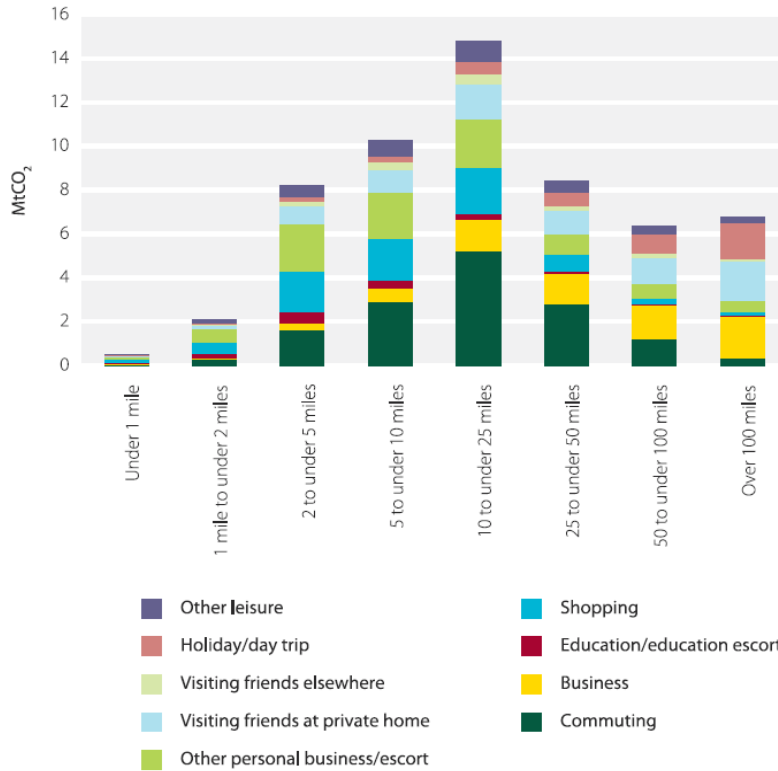
The LCR is applying for funding through the Plugged-in Places programme to begin the process of installing electric vehicle charging infrastructure. Throughout LTP3 we will continue to plan for and deliver infrastructure to support next generations of vehicles and fuels. In addition we will lobby government to reduce the carbon-intensity of electricity so that we get the maximum environmental benefit from switching to electric technologies.

(c) **Modal shift away from single-occupancy car journeys and short distance trips to active modes**

Over the long-term we require a step-change in the way we plan for transport to reverse the trend of high car dependency. This will require greater integration between transport and land-use planning as outlined below. We also need to focus funding to support sustainable alternatives to car travel, for example by increasing public transport investment and improving cycle and walking infrastructure.

Figure 4 shows that a significant proportion of greenhouse gas emissions from cars arise from relatively short distance trips which, in many cases, could be made by other modes. Influencing the way that people travel offers great opportunity to reduce emissions over the short-term and it not only has environmental benefits, it can also help to reduce congestion and improve health and wellbeing through increasing physical activity. Cycling and walking offer particular advantages over other modes of transport, bringing considerable health benefits and produce no emissions, our plans for increasing walking and cycling are set-out in Goal Three and the Active Travel Strategy.

Figure 4: Emissions of greenhouse gases from car trips by journey length and purpose



Source: Department for Transport Analysis (2008)

Through the last local transport plan we supported a number of ‘Smarter Choices’ and behaviour change initiatives; we will continue to expand on this work through our TravelWise programme, which underpins much of our LTP strategy and is discussed in greater detail within Goal Three. ‘Smarter Choices’ measures have demonstrated success in moving journeys to more sustainable modes but evidence highlights considerable variation between projects. Estimates by Cairns et al (Ref 19) suggest a high quality ‘Smarter Choices’ programme can reduce road traffic by 11% after 10 years of implementation. Appraisals by the Department for Environment, Food & Rural Affairs (Defra) assume rather more conservative car traffic reductions of 5.3% by 2020 (Ref 20). In Merseyside this could mean CO₂ emissions from road transport reduced around 4% by 2024, saving around £2 million worth of damage costs each year.

In practice we believe that an ‘industry-leading’ smarter choices programme could see significantly greater reductions. We recognise that our understanding of the emission reductions from behavioural change interventions needs developing and will undertake measures to standardize the measurement and evaluation of these schemes as a priority.

Land Use Planning

3.2.14 Our ambitions for a big increase in active modes of travel needs to be underpinned by increasing our efforts with planners and developers to ensure new developments are located and designed in ways that encourage active travel. This approach is equally

applicable to encouraging public transport and sustainable freight distribution described later.

- 3.2.15 The way that land is developed and planned is central to how people travel and getting it right forms the foundations for a sustainable transport network. New developments and regeneration planned across Merseyside will generate traffic and increase emissions of air pollutants and greenhouse gases. By working with developers and planning for sustainable transport we will increase long-term sustainability, ensure accessibility to services, and offset the negative environmental impacts of new developments.
- 3.2.16 For example, greater integration of transport and green infrastructure planning could see walking and cycling routes placed through existing green spaces and tree-lined streets, increasing the attractiveness of walking and cycling and resulting in green spaces which are more used and safer.
- 3.2.17 Travel plans are a particularly important aspect of good land use planning, to ensure that the transport effects of new developments are managed from the outset and funded accordingly through the development process. This is especially important in times of public finance constraints, as it is not realistic to expect the public sector to “retrofit” costly transport solutions to new developments, where these should have been addressed and resolved at the planning stage.
- 3.2.18 As noted in Goal One, work is already underway to improve the integration of land-use and transport planning. Supplementary planning documents (SPDs) have been, or soon will be, adopted by all of the Merseyside local authorities which will ensure a sustainable choice of transport in new developments and support our ambitions for improving accessibility described in Goal Four. We will build on these policies, following national best practice ^(Ref 21) by introducing measures aimed at mitigating transport emissions arising from developments. For example, we are developing a planning policy note to be used by local planning authorities as a temporary tool to encourage low emission strategies. In the longer term we will support formal adoption of requirements relating to alternative fuel infrastructure or carbon reduction targets in local Development Plan Documents.

Public Transport

- 3.2.19 We believe that public transport forms an integral part of a clean and low carbon transport system. Greater use of public transport can help to reduce emissions of greenhouse gases and improve the local environment, but only if managed in a holistic way.
- 3.2.20 The environmental performance of public transport is affected by both the vehicles used and the efficiency with which the network is operated. Low levels of occupancy seen on some services demonstrate how the efficiency of the network could be improved. For example, buses in Merseyside have an average of 9 occupants ^(Ref 22), resulting in carbon dioxide emissions of around 107.3g per passenger per km ^(Ref 23). Increasing the number of passengers would not alter the emissions released by each bus, but it would improve efficiency since there would be more journeys made without increasing emissions overall. These journeys could be replacing those made by more polluting modes such as

single-occupancy car trips. An average occupancy of 18 would see emissions decrease to 53.7g per passenger per km. The equivalent journey in a small passenger car with two occupants is 85g per passenger ^(Ref 24). Equally, there will be some short or 'marginal' journeys that are better made by alternative modes, whether by walking, cycling, taxi or by smaller, flexible services.

3.2.21 Our public transport policies must address two issues with equal importance:

(a) **Improve the quality of service**

Improvements to the public transport system which increase comfort, affordability and reliability will help to make it a more attractive option. Making public transport a viable alternative to other modes will increase viable options for sustainable travel and make it easier to induce modal shift away from the most polluting modes. By increasing occupancy levels we will also be realising the full environmental benefits of journeys by public transport through reduced emissions per passenger km. The strategy for delivering these improvements is outlined in Goal Five but clearly ensuring new developments are built around public transport networks is essential. This must also include measures that allows for the efficient movement of buses, by providing appropriate priorities at junctions and along key routes (particularly in the city and on the approaches to the city centre) so that buses do not become part of the congestion problem or create localised congestion or air quality problems

(b) **Improved environmental performance**

Much has been done over the last ten years to reduce the environmental impact of public transport fleets, however we are still short of targets set in the last transport plan for emission standards of the bus fleets. The previous LTP has seen extensive and welcome investment in new bus fleets by many operators and Merseytravel in particular have a long history of working with operators utilising European research funds. We intend to build on this work by continuing with initiatives which have proved successful, such as promoting best practice and facilitating technology trials, whilst investigating the potential for new and innovative projects to overcome barriers to higher environmental standards.

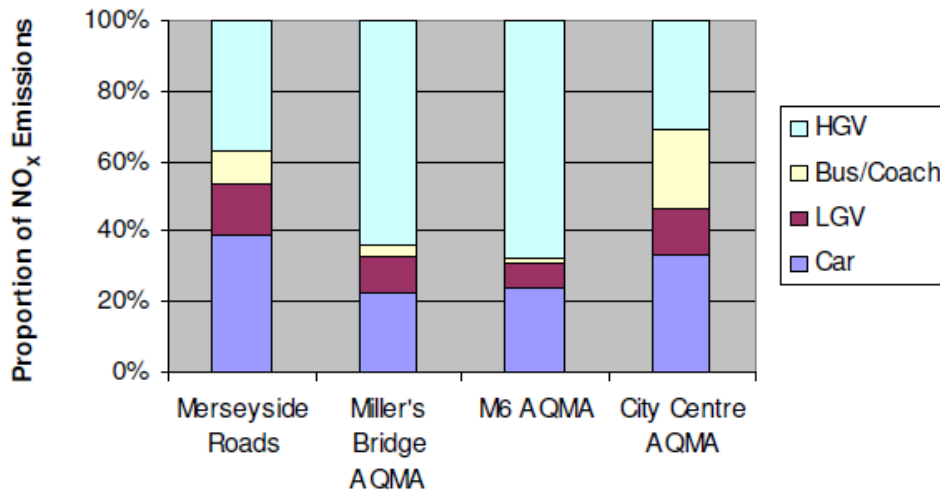
The rail network presents particular opportunities for environmental excellence. We will encourage Merseyrail to become a carbon neutral network by sourcing the electricity consumed from local renewable sources. In addition, the hoped for electrification of lines between Liverpool and Manchester could reduce emissions and increase capacity on services.

3.2.22 To incentivise the use of low emission vehicles we will, following the outcome of feasibility studies, expand the departure charging system implemented by Merseytravel at bus stations to include lower charges for low-emission vehicles. Where an operator wishes to upgrade vehicles to low-emission fuels or technologies we will work with them to make sure that the necessary infrastructure is in place. For example, Merseytravel are currently investigating the legalities of a framework by which financial contributions from developers can be used to fund incremental costs of low-emission vehicles and infrastructure, which could be adopted by the Merseyside local authorities.

Freight

3.2.23 Road freight is a significant contributor to poor air quality as shown by relative proportions of HGV emissions in the AQMAs at Millers Bridge in Sefton and around the M6 in St Helens (Figure 5). Freight traffic, which includes both HGVs and Low Goods Vehicles (LGVs), also accounts for 30% of greenhouse gases arising from domestic transport.

Figure 5: Emissions by vehicle type in Merseyside Air Quality Management Areas



Source: Merseyside Atmospheric Emissions Inventory

3.2.24 Freight is a vital part of the Merseyside economy and we believe that environmental improvements are best achieved through collaborative partnership with operators. The Freight Quality Partnership, set up in the first local transport plan, has seen success in bringing together the freight industry, local government, business and other interested bodies to tackle shared problems and issues and to develop a joint understanding of freight and logistics. We will continue to work through the group to drive forward improvements in ways which are cost-effective and attractive to operators.

3.2.25 Rising fuel prices continue to put pressure on freight operators and we will work with them to investigate alternatives for transporting goods in ways which are more profitable and result in fewer emissions. Sustainable biofuels represent a particular opportunity for the HGV and bus sectors which are very sensitive to fuel price and where there is opportunity for onsite fuel storage and fewer warranty conflicts than with cars ^(Ref 25). We will support the development of the North West Biofuel Strategy and use it as the basis of our local plans; including, as a priority, the investigation of fuelling of goods vehicles by locally-sourced biogas. Our approach is discussed in detail in the Freight Strategy, outlined in Goal Five.

Case Study – Nestle and United Biscuits

Nestle and United Biscuits, despite being competitors, have shared transport resources since 2007. Annually the collaboration saves around 280,000kms of unnecessary trips, resulting in a reduction of around 250 tonnes of CO₂ and a financial saving of around £300,000.

Taxis

- 3.2.26 The role of taxis in contributing to emissions is an area which has had comparatively little attention over recent years. The impact of taxis on the environment is mixed; where there is opportunity to use them flexibly in place of larger services they could bring considerable environmental benefits, however taxi fleets cover large mileages – often in urban settings where air quality is likely to be a concern – and any improvements to the environmental performance of the fleet could bring considerable benefits. We say more about the wider use of taxis under Goal Five.
- 3.2.27 There are some improvements which could be made very quickly, such as increased education around eco-driving techniques and vehicle choice. In the short-term we will focus attention on increasing liaison with operators, establishing best practice guidelines and encouraging improvements where they can be made in a cost-effective way. We will work with public sector partners to develop procurement policies which incentivise investment in low emission vehicles.
- 3.2.28 The long-term strategy for taxis is less clear, the applicability of new fuel and vehicle technologies for taxi use is untested. We aim to lead understanding in this field by supporting a demonstration project, trialling the feasibility of alternative fuels and low emission technologies for use in the taxi fleet. Following the outcome of such a project we will support fleet operators and drivers to invest in appropriate new technologies by exploring financing arrangements such as facilitating leasing agreements with private investment organizations.

Network maintenance and management

- 3.2.29 It is not just the way in which people travel that has an impact on emissions but also how the transport network is built, managed and maintained. We have already outlined plans to improve the efficiency of the network by using intelligent transport systems to reduce congestion and direct traffic away from areas of highest pollution.
- 3.2.30 There is also opportunity to reduce emissions by the materials and techniques we choose to build and maintain the network. When planning or maintaining transport schemes we will choose, where equivalents exist and finances allow, materials with the lowest embodied carbon dioxide – this means the carbon dioxide which has been produced as a result of manufacturing and delivering the material. Procurement processes will specify environmental standards and during construction we will require contractors to adhere to agreed Construction Environmental Management Plans which will set out a framework for controlling environmental impacts. Whenever maintenance, or construction of new assets, is required we will assess the potential for

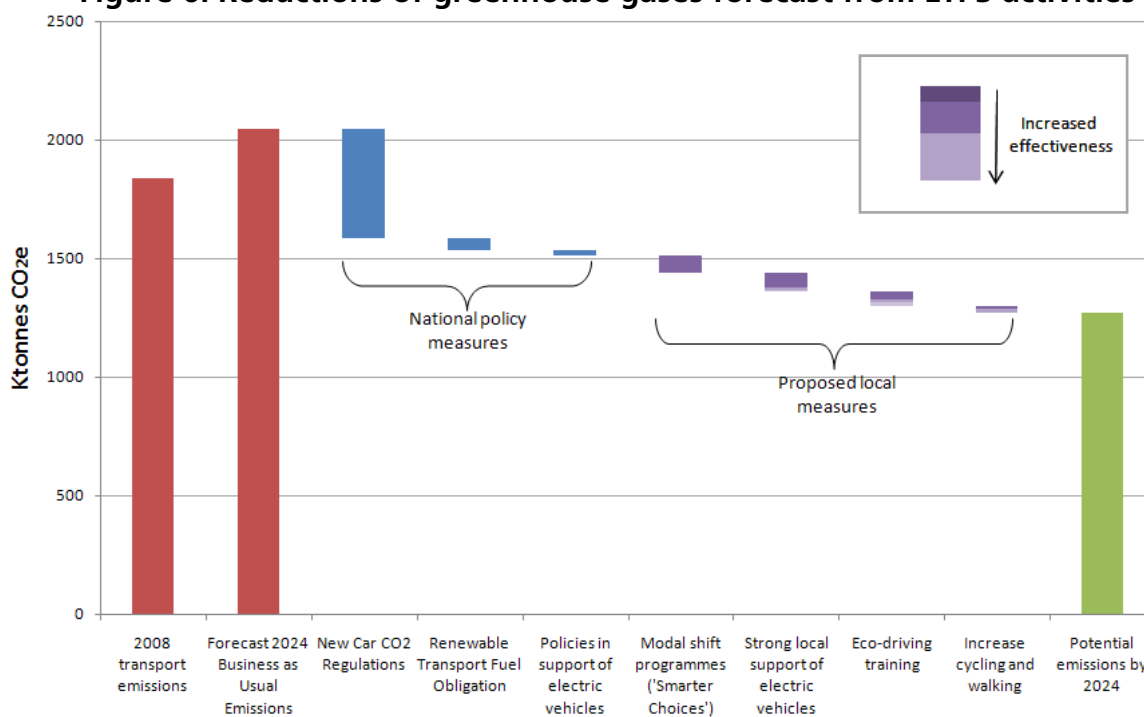
energy-efficient products and on-site generation and appropriate projects will be externally assessed to ensure high building standards.

Anticipated progress

3.2.31 The approach set out above is intended to bring about a change in the way that people think about and make journeys across Merseyside. Local authorities across Merseyside are producing air quality action plans which will provide a quantification of the improvements in air quality expected. We will continue to implement this strategy through these action plans and monitor progress.

3.2.32 Figure 6 illustrates the progress we expect to have made in reducing emissions of greenhouse gases by 2024. Successful implementation of this strategy and supporting national policies will see us meet emission targets for 2020. However, targets for 2050 will remain challenging given our current commitments and available resources.

Figure 6: Reductions of greenhouse gases forecast from LTP3 activities



Source: Merseyside Transport Partnership Analysis (2010)

Adapting to future conditions – climate change

3.2.33 Although the climate changes naturally over time and there have always been extremes of weather, the increased levels of greenhouse gases resulting from human activity are intensifying this process. The previous section outlined our approach to reducing greenhouse gas emissions, yet despite these efforts some degree of climatic change is pre-determined from historic emissions and for which we must plan. We must go much further and ensure our transport system is reliant to changing climatic conditions.

3.2.34 During the lifetime of LTP3, evidence suggests that we may experience hotter drier summers, warmer wetter winters and more extreme weather events such as heatwaves

and increased intensity of rainfall leading to flooding. The transport system must be able to cope with these changing conditions which will impact on the way that people use transport and the conditions under which it must operate.

3.2.35 Local authorities have targets in place to ensure that they have adequately planned for climate change. Work is underway by the Merseyside local authorities to identify and put in place measures necessary to adapt to changing conditions. Transport, as critical infrastructure, has formed a main part of these considerations with extensive consultation between the local authorities, Merseytravel, the Highways Agency and service providers.

3.2.36 The Merseyside local authorities are preparing transport asset management plans (TAMPs) which will allow them to better manage transport assets based on their condition. The plans will aid local authorities in setting priorities and will enable them to identify and manage risks such as climate change. This approach is outlined in Goal Six.

3.2.37 Green infrastructure can provide valuable functions to help us adapt to changing weather conditions; the Northwest Climate Change Action Plan, ^(Ref 26) has funded research to identify how and where green infrastructure can support climate change adaptation in the Northwest. Particularly important to the transport network is the capacity to manage high temperatures, control flooding and surface water, reduce soil erosion and help other species to adapt. To ensure climate change resilience and adaptation opportunities of green infrastructure are exploited we will require, where safety and finances allow, consideration of greater incorporation as part of all transport schemes and projects. In particular this will include opportunities to:

- (a) Provide shade to help people cope with warmer temperatures by increasing tree cover and shading at transport hubs and places where people gather, for example bus stops.
- (b) Protect the road surface from higher temperatures and provide shade for cyclists and walkers by increasing tree cover along routes.
- (c) Incorporate Sustainable Urban Drainage Systems (SUDS) techniques into road verges to help reduce flooding as well as improving water quality.
- (d) Use vegetation and planting to stabilize slopes associated with transport infrastructure.
- (e) Manage linear green transport corridors so that they are multifunctional. Providing for shading, urban cooling, wildlife corridors and Sustainable Urban Drainage System techniques.

Improving the quality of the local environment

3.2.38 The transport system has a considerable impact on the quality of the local environment. Transport can lead to negative effects such as high noise levels and reduced visual and

amenity values. It can also be used to improve the local environment through high-quality habitats and green spaces.

Biodiversity and green infrastructure

- 3.2.39 Investment in grey infrastructure (for example roads and heavy engineering works) has often been prioritized over green infrastructure. Yet, as we note above, green infrastructure could play a central role in meeting challenges such as adapting to climate change and improving health and wellbeing. The Commission for Architecture and the Built Environment's (CABE) Grey to Green Campaign ^(Ref 27) makes the case for a move of funding and skills from grey to green infrastructure.
- 3.2.40 In Merseyside the campaign is supported through a green infrastructure strategy, commissioned through the city region Environment and Waste Board. ^(Ref 28) The strategy, which will be implemented in the region through statutory plans and strategies, aims to improve the value we get from our green infrastructure and where necessary plan for further provision. The transport system has an important role in maintaining green infrastructure and we will continue to promote innovative approaches to improving the landscape and amenity value of the transport network.
- 3.2.41 The transport system can often have a negative impact on wildlife; through habitat destruction, pollution and traffic, however there is also potential to develop habitats and create new wildlife sites. The transport network can make a significant contribution to increasing biodiversity and making areas more attractive. The last local transport plan recognized the importance of biodiversity and put in place commitments to increase the value of highway and railway land.
- 3.2.42 The Merseyside Transport Partnership has produced a best practice guide for incorporating conservation techniques into transport projects. The report, 'Wildflower for Transport Projects' ^(Ref 29) will be used as best practice to guide the design and implementation of transport projects.

Noise

- 3.2.43 The Department for Food, Environment and Rural Affairs developed a Noise Action Plan for Merseyside which covers noise from road, rail, airports and industry ^(Ref 30). The action plan identifies priority locations where noise levels exceed established thresholds and local authorities must consider options to reduce noise levels. We will investigate options to reduce noise levels from transport in locations where it exceeds these thresholds. This could include erecting noise barriers, installing low noise road surfaces, local traffic management measures or improving sound insulation.

Funding considerations

- 3.2.44 Actions to reduce emissions, whilst requiring initial investment, will often result in financial savings in the long-term. As the price of fossil fuels rises and costs of poor air quality are borne out, the measures which we are proposing will become increasingly attractive as payback time on initial investments decrease.

- 3.2.45 Although many of the actions proposed are relatively low cost we recognize that the initial cost of investment can be a barrier to implementation of environmental measures; therefore we are working to identify ways of reducing upfront costs such as funding streams, leasing arrangements and partnership working. Annexe Two outlines potential funding streams which may be available to us, these include; the Green Investment Bank, Plugged-in Places and the EU Economic Recovery Package.
- 3.2.46 Despite the promise of funding streams it is likely that finances over the short-term will be extremely limited. This increases the impetus to put into planning policy a framework to secure the necessary sustainable transport infrastructure funding by requiring developer contributions. It is also worth considering the revenue generation potential of a number of the measures outlined, for instance; charging fees from publicly-owned electric vehicle charging infrastructure and tariffs from on-site renewable energy generation could be reinvested into the transport system to supplement limited finances.

Meeting our multiple objectives

Transport is a significant contributor to greenhouse gases and the primary cause of poor air quality in Merseyside. By reducing the emissions we produce through travelling in unsustainable ways, we will not only improve the environment but also the health of our residents, the attractiveness of our region to visitors and businesses and the prosperity of our city.

Meeting the demands of a future where emissions are increasingly regulated and fossil fuels of limited supply will require the comprehensive reform of our transport system and the way which it is used. Achieving transformation on this scale will take time and collaboration across many sectors. The strategy we have set out provides the first steps in this process; we will continue to build-on and expand our ambitions throughout and after LTP3 as new technologies and opportunities become available.

We can do this by changing the way we travel – making fewer trips by car and instead walking, cycling or using public transport – which will improve our health and make streets safer and more attractive. We can also invest in new technologies which reduce the emissions produced as a result of our journeys. Through investment in low carbon technologies, such as electric vehicle infrastructure, we are supporting the businesses of the future, creating new jobs and skills which will benefit local people now and in to the future.

By taking this approach our businesses and public services will be more productive because they will no longer be reliant on fuels such as petrol and diesel which are continually increasing in price. Local people will benefit through an improved transport network which better meets their needs and offers real alternatives to car travel.

Providing a clean and low carbon transport system for Merseyside will help us to achieve our other priorities of economic growth, improving health and wellbeing and making travel opportunities accessible to all.

3.2.47 By 2024 we aim to have a transport system which;

- (a) Contributes to and exceeds national climate change targets by achieving minimum CO₂ reductions of 18% by 2020 (on 2008 levels) and on track to achieve reductions of 80% by 2050 (on 1990 levels);
- (b) Produces less air pollution, enabling Merseyside to significantly improve air quality and meet National Air Quality objectives;
- (c) Is resilient to changes in climate and oil price and availability;
- (d) Wherever possible has a positive impact on the environment, for example through high quality habitats and attractive spaces;
- (e) Minimises and compensates for any unavoidable negative impacts.

Summary of actions

Short-Term Actions	Long-Term Actions
<p>Traffic</p> <ul style="list-style-type: none"> • Continue to develop a bid to Plugged-in Places to fund provision of electric charging infrastructure. (Goals 1 &5) 	<ul style="list-style-type: none"> • Develop and implement a strategy to deliver the infrastructure required to support electric vehicles and alternative fuels.
<p>Modal Shift</p> <ul style="list-style-type: none"> • Through TravelWise increase smarter choices and behavioural change programmes, particularly around commuting and business travel which are often single-occupancy trips, education trips which contribute significant to am and pm peaks during am and pm, and short trips which can shift from car to cycling and walking. (Goal 3) • Ensure good education, marketing and information provision around sustainable vehicle choice, fuel-efficient driving techniques and car share. (Goals 3, 4 & 5) • Develop and implement a standardised approach to the monitoring and evaluation of CO₂ and air quality impacts of smarter choices programmes. (Goals 2 & 3) 	<ul style="list-style-type: none"> • Ensure infrastructure is in place to support higher levels of cycling, walking and public transport use. (Active Travel Strategy, Goals 3 & 4)

Short-Term Actions	Long-Term Actions
<p>Public Transport</p> <ul style="list-style-type: none"> • Continue to work in partnership with bus operators to deliver Statutory Quality Partnership (SQP) Schemes to help improve vehicle standards, reduce repetition of services on routes and increase patronage. (Goals 4 & 5) • Examine use of Merseytravel contracted services to support trials and use of alternative fuels and new Euro standard vehicles. (Goals 4 & 5) • Investigate the use of flexible services to reduce the number of poorly used or marginal buses on some routes. (Goal 4 and 5) • Subject to feasibility studies, expand the Merseytravel departure charge system at bus stations to promote low emissions vehicles by incorporating differential charging of vehicles. • Through TravelWise, continue to promote public transport as a sustainable mode and as part of multi-modal journeys. (Goals 3, 4 & 5) • Continue to investigate sources of funding for Merseytram Line 1, preserve statutory powers and protect the alignment. (Goals 1, 4 & 5) 	<ul style="list-style-type: none"> • Investigate the feasibility of procuring a fleet of low emission buses to be made available for operators use on contracts. (Goal 5) • Introduce smart ticketing to make public transport use easier and more convenient. (Goals 4 & 5) • Encourage Merseyrail Electrics to decarbonise their energy supply to make the rail network carbon neutral. (Goal 5)
<p>Fleet Vehicles</p> <ul style="list-style-type: none"> • Work with bus, taxi and freight fleet operators to promote best practice and improve environmental performance. (Goal 5) • Work through the Freight Quality Partnership to promote best practice and improve environmental performance. (Goal 5 & Freight Strategy) 	<ul style="list-style-type: none"> • Subject to legal advice produce a framework whereby funds from developer offset contributions will be used to fund low emission infrastructure and vehicles. (Goals 4 & 5)

Short-Term Actions	Long-Term Actions
<ul style="list-style-type: none"> Encourage public bodies to develop procurement policies which support the uptake of low emission vehicles and fuels in their supply chain. Establish a demonstration project to test the feasibility of alternatively-fuelled taxis. 	<ul style="list-style-type: none"> Explore the feasibility of alternative financing arrangements to improve the environmental performance of bus, taxi and freight fleets. (Goal 5) Consider the feasibility of consolidation centres transferring goods to low emission vehicles. (Freight Strategy) Investigate use of alternative fuels for the freight sector. (Freight Strategy)
<p><u>Land-use Planning</u></p> <ul style="list-style-type: none"> Continue to engage with planners to consider sustainable transport and design including the greening of routes to make them more attractive. (Goal 3, 4 & 5) Encourage greater enforcement of existing sustainable transport commitments made by developers. (Goals 4 & 5) 	<ul style="list-style-type: none"> Include LES principles within planning documentation
<p><u>Network Maintenance & Management</u></p> <ul style="list-style-type: none"> Ensure that all new transport projects take account of future climatic conditions and are planned accordingly. (Goal 6) Produce TAMPs which give due consideration to the effects of climate change. (Goal 6) Ensure that all new transport projects are constructed to high environmental standard and, where applicable, are subject to external assessment. 	<ul style="list-style-type: none"> Work with partners to ensure that the transport system is able to operate efficiently in a future which may see limited oil supplies and different climatic conditions. (Goal 6) Ensure that transport contributes to the delivery of the Green Infrastructure Strategy. Consider the options available to reduce noise levels from transport and, where finances allow, implement measures in priority areas where noise levels exceed recommended thresholds. Provision for cycling and walking is embedded as an essential requirement. (Goals 2 & 4)

Short-Term Actions	Long-Term Actions
<ul style="list-style-type: none"> • Ensure effective joined up working arrangements between transport and health sectors along with other key delivery agents, and programmes such as the Green Infrastructure Programme. <p>(Goal 3)</p> <ul style="list-style-type: none"> • Ensure funding sources are effectively pooled. • Ensure all key decision makers recognise the advantages in a pro cycling and walking Active Travel Strategy. As part of the revised Active Travel Strategy we will develop a clear cycle network plan so that all departments and partner organisations can assist with network implementation. 	