



Low Carbon Transport & Mobility Strategy



March 2016

Foreword

Greater Birmingham & Solihull is experiencing a strong economic renaissance, which has established the region as a destination of choice in which to live, work and invest. But in order to sustain it, we must move towards a low carbon economy.

There are three key reasons for doing this: more choice, greater efficiency and improved quality of life for all of our residents.

There are pockets throughout the region where access to a car falls as low as 50%. A sustainable transport system holds the key to enabling those homes to participate in the economy by having more choice about travel.

Congestion across the West Midlands metropolitan area costs as much as £2.3bn per annum – and with national forecasts suggesting that traffic levels are set to rise by over 50% between 2010 and 2040, there is a need to encourage and enable more sustainable travel choices to make the network more efficient.

Finally, Greater Birmingham has earned a reputation for excellent quality of life – which in turn has been vital to securing unprecedented levels of inward investment and to attracting more top talent here than ever before. Improving the quality of the environment is crucial to retaining our position.

We have already secured almost £300m for transport schemes, the vast majority of which is for sustainable modes. The aim for this Strategy, then, is to complement and support those investments and to drive and direct key projects, ensuring that we achieve our carbon reduction targets by delivering smarter, more sustainable networks.

Aligned with our broader Strategy for Growth, this Low Carbon Transport & Mobility Strategy will support a more liveable urban environment and assist with the city region's economic growth – ensuring that Greater Birmingham regains its position as the leading economy outside of London.



Andrew Cleaves

Board Director for Improving Connectivity, Greater Birmingham & Solihull Local Enterprise Partnership

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Introduction: Our Low Carbon Future

To ensure the continued economic renaissance and improvements to quality of life of the Greater Birmingham and Solihull Local Enterprise Partnership (GBSLEP) area, there is pressing need to move towards a low carbon future. This Strategy sets out our approach to targeting suitable EU, national and local and funds in a co-ordinated way towards enabling the sustainability and efficiency of the transportation sector, and increasing low carbon mobility whilst supporting wealth-generating economic activity.

However, this is set against a challenge, 'the challenge to move England's economy towards a low carbon model by reducing the levels of Green House Gas (GHG) emissions, increasing the share of renewable energy, and enhancing the energy efficiency of homes, businesses and transport is one which impinges on all territories across the country', as set out in the national European Regional Development Fund (ERDF) Operational Programme.

The transport sustainability challenge has been estimated at costing nationally some £45 billion per annum – this cost is comprised of £11 billion through excess delays; up to £25 billion per year on the costs of physical inactivity, air quality and noise; and £9 billion on road traffic accidents. In the West Midlands, the figure is estimated to be £2.3bn per annum.

Transport accounts for around a fifth of UK greenhouse gas emissions. The main source of emissions from this sector is the use of petrol and diesel in road transport, which affects air quality at the roadside. In the West Midlands, emissions account for 630 premature deaths linked to respiratory and cardiovascular problems each year. As well as emissions, the increasing use of cars and the declining travel by car and foot has led to widespread inactivity costing the UK an estimated £7.4 billion per year, partly due to absenteeism at work.

Against these challenges, there are significant opportunities on which to capitalise. GBSLEP has secured significant investment for transportation infrastructure including nearly £300 million as part of the Growth Deal. There are also strengths in the wider low carbon goods and services sector which is valued at £4.3 trillion globally and has been identified as a 'High Growth, High Value Added' sector for the GBSLEP. There are over 1,500 companies employing 29,000 people and with sales of £3.8bn in this sector, with strengths in consultancy, renewables and utilities. Our universities have research strengths in this sector, in particular in the areas of low carbon vehicle technologies, bioenergy, hydrogen, sustainable development and biomass.

The purpose of this strategy is:

- **To provide a strategic framework to unlock ERDF, and ensure investment is aligned to deliver low carbon activities, and maximise their impact** – in order to optimise the combined investment of many millions of public and private sector funds, this Strategy will support the integration of low carbon transport and mobility interventions and in particular initially seek to align ERDF and related match funding to support low carbon transport interventions to enable connectivity and sustainability. Specifically, the strategy:
 - **Sets a benchmark for carbon reduction against 2011 data**
 - **Sets out thematic priorities for investment**

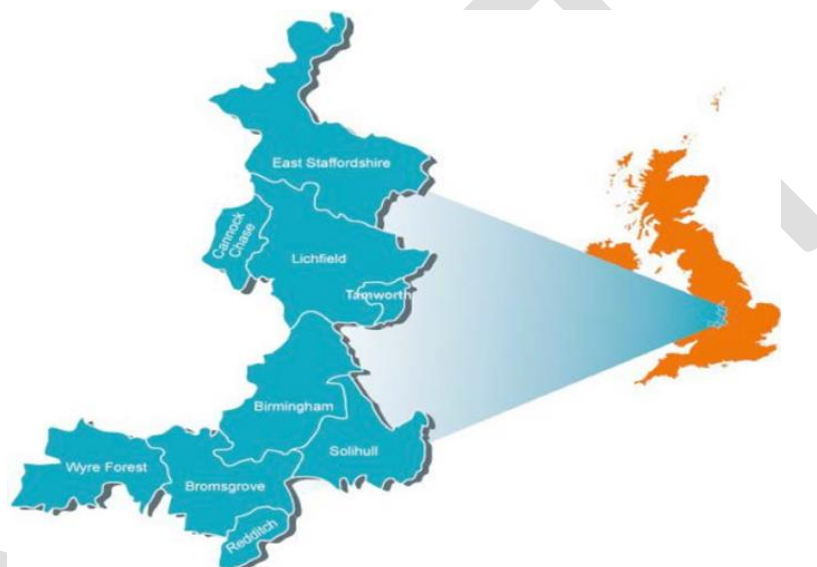
To achieve a sustainable approach that delivers multiplied benefits through 'win-win' integrated approaches, the ERDF Operational Programme provides a steer that 'the implementation of low carbon solutions leading to reductions in GHG emissions is best done holistically as part of integrated strategies transport cannot be looked at in isolation. Urban design, distributed energy, smart grids and other activity also need to be considered within a single, coordinated approach within a specific territory. To deliver on this aim, this Strategy is written with the intention of applying it in tandem with a developing 'sister' strategy: the GBSLEP Low Carbon Energy Strategy, to maximise local impact in terms of seeking integrated direct low carbon solutions, value for money and investments that enable step change towards a low carbon future.

It is acknowledged that this Strategy is an evolving document, and whilst it serves the purpose of securing ERDF funding at present in particular through the Investment Priorities 4e and 4f, and relating to the Sustainable Urban Development Strategy in support of the HS2 Growth Strategy, in the future it could incorporate initiatives and information to secure funding from related match funding, developers contributions and other sources. Therefore this Strategy work will be embedded in LEP strategies moving forward, particularly the refresh of the Strategic Economic Plan (SEP).

Investing in low carbon initiatives makes clear economic sense. This strategy will build on our strengths through providing a focus on specific interventions on **behaviour change, technology and infrastructure** that will reduce carbon and make transportation in the Greater Birmingham and Solihull area more efficient and sustainable. Throughout the strategy, there will be examples and ideas for the types of projects that could be considered under each intervention, although projects should not be restricted to these examples and innovation is encouraged.

Greater Birmingham and Solihull Local Enterprise Partnership

The Greater Birmingham and Solihull Local Enterprise Partnership (GBSLEP) is a business-led partnership of the public and private sectors. Its mission is simple: to create jobs and grow the economy – and in doing so raise the quality of life for all the LEP's population. The GBSLEP encompasses nine local authority areas including Birmingham, Bromsgrove, Cannock Chase, East Staffordshire, Lichfield, Redditch, Solihull, Tamworth and Wyre Forest (also including parts of Staffordshire County Council and Worcestershire County Council; the two local transport authorities).



Context

The area has a population of 2 million residents and 850,000 jobs, car ownership is in line with the national average; 1.1 cars per household in the GBSLEP compared to 1.2 on average in England. The majority of residents in all authorities work in the authority in which they reside. However, there is significant commuting between Birmingham and Solihull, with around 33,000 Solihull residents commuting to Birmingham and around 25,000 Birmingham residents commuting to Solihull. The role of Birmingham as the economic driver is emphasised by the numbers of people who commute into the city from all parts of the LEP. Solihull also exerts a pull, with commuters from other parts of the LEP.

The GBSLEP has a significant advantage compared to most other areas of the UK due to its geographical position which means that it is within four hours travel time of 90% of the UK's population and business. The LEP is situated at the heart of the UK's motorway and rail network, with Birmingham Airport, the third busiest UK airport outside of London and the South East.

The GBSLEP's good physical connectivity brings significant growth opportunities for the local economy, enhanced by recent investment decisions in relation to High Speed Rail, Metro, New Street Gateway and Birmingham Airport – which will further enhance national and international connectivity.

Strategic priorities

Our Strategic Economic Plan identified several 'game changers' as fundamental to driving economic growth. These focused on exploiting the arrival of HS2, UK Central and the Economic Hub. The Midlands HS2 Growth Strategy (2015) built on this and outlined how we are seeking to fully maximise the benefit of HS2 as the home of two High Speed Rail stations (Birmingham City Centre Curzon Street and the Interchange in Solihull) and the National College for High Speed Rail, with a particular focus on skills, sectors and connectivity to ensure the positive effects will be felt across the region.

A key component to deliver the LEP's Strategic Economic Plan is the European Structural and Investment Funds (ESIF) Strategy (2014) which identified low carbon actions as a significant priority. There is a particular focus on driving growth in the low carbon economy, through actions on energy efficiency and its economic impact on the supply chain, sustainable transport and resource efficiency.

Our Low Carbon Transport & Mobility Strategy acts as the Low Carbon Plan for the purposes of satisfying the national ERDF Operational Programme Requirements for delivery of Investment Priority 4e (Appendix A contains guidance for developing proposals), but also with a wider ambition to steer widespread resources in an informed and collaborative way; maximising on the potential to integrate low carbon transport & mobility strategy with other low carbon infrastructure and actions for 'win-win' benefits.

To this end a sister 'Low Carbon Energy Strategy' for the LEP has recently been commissioned and virtuous investment alignments will be sought to maximise use of renewable and decentralised energy in the delivery of low carbon transport in the LEP area. Additional strategic alignment will be pursued, for example the Birmingham's core city ERDF Sustainable Urban Development proposals (utilising 10% of the LEP's ERDF) have been aligned to maximising the HS2 Growth Strategy which has lower carbon transport at its core.

In these ways and more, this strategy seeks to build on the individual strategies and priorities of partners as well as align with key projects and priorities in the LEP's growth agenda as set out in the Strategy for Growth. In doing so, it will provide an overarching approach to low carbon transport and mobility that builds on evidence and priorities established across the LEP's agenda, and recognises the need to reduce carbon emissions, improve air quality and promote and develop sustainable transport solutions in a balanced portfolio for both immediate impacts in terms of reduction of carbon dioxide, and for investing in innovations and demonstrators to bring step-change progression to the medium to longer term horizon.

It is the ambition of this strategy to maintain relevance and flexibility to align, and potentially extend, this locally determined low carbon transport and mobility planning in line with the emerging strategic priorities of the LEP and evolving partnership and governance arrangements.

Partnership Arrangements

There are several groups which support the GBSLEP Board in developing and delivering its strategy for growth, including the Place Board, Improving Connectivity Group the Green Commission and the Smart Commission. The Green Commission became the 'Low Carbon Advisory Group' for the LEP in 2014 and the Green Commission's Low Carbon Roadmap has been adapted to support the delivery of the Strategy for Growth, the Strategic Economic Plan and the ESIF Strategy. There are also partner authorities, organisations and groups who we work closely with, including those in the West Midlands Combined Authority.

In addition, GBSLEP is represented on the West Midlands Cross-LEP Transport Group, which is comprised of representatives from each of the six Local Enterprise Partnerships and national bodies such as Highways England and Network Rail. We will work with wider partners through this group to share best practice and coordinate action where appropriate and when collaboration will add value, for example the Drive West Midlands initiative that has been established to promote the areas automotive sector. It is important to work with the wider metropolitan area and other LEP's to more efficiently tackle joint issues around emissions and air quality.

DRAFT

GBSLEP Transport Carbon Emission Reduction



3,430kt CO₂

2011

-12.5%



3,000kt CO₂

2023

-15%



2,910kt CO₂

2030

Over 500kt CO₂
saved by 2030

Emissions and Air Quality

The Stern Report, (The Economics of Climate Change), published in 2006, highlighted both the need for action to reduce CO₂ emissions, and the consequences if we fail to act. A global target for developed nations was set of a reduction of 60-80 per cent below current levels by 2050. To achieve this would cost around 1 per cent of global GDP; however, the costs of failing to act are around 5-20 per cent of global GDP. Additionally, the Organisation for Economic Co-operation and Development (OECD) set out the need for Green Growth in their 2011 strategy, stating the importance of fostering economic growth and development, whilst ensuring natural assets are not damaged by catalysing investment and innovation that underpins sustained.

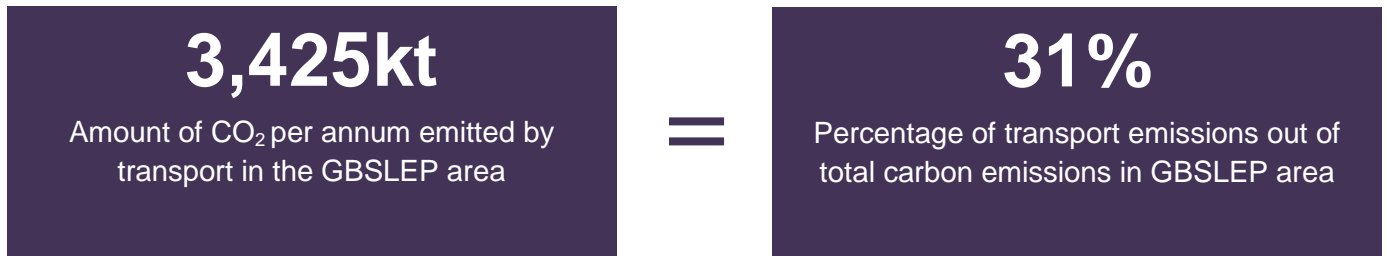
The Climate Change Act 2008 established a framework and targets to reduce UK greenhouse gas emissions by at least 80%, compared to 1990 levels, by 2050. In the Act, greenhouse gas means any of the following: carbon dioxide (CO₂), methane (CH₄), nitrous oxide (N₂O), hydrofluorocarbons (HFCs), perfluorocarbons (PFCs) and sulphur hexafluoride (SF₆). Transport accounts for small amounts of nitrous oxide and methane, they are 300 times and 21 times more potent than CO₂ respectively. However, according to ESIF guidance, the investment priority 4e will measure CO₂ only due to how Local Authority emissions data is reported and CO₂ being the single largest volume of greenhouse gas that is emitted.

Across the LEP area partners have developed targets and plans as to how they will reduce carbon emissions. For example, Birmingham has set a target of reducing carbon emissions by 60% on 1990 levels by 2027; Staffordshire County Council has adopted an emissions reduction target of 80% by 2050, from a 1990 baseline and Worcestershire County Council has a target to reduce total CO₂ emissions by 30% from 2005 levels.

This strategy will help to contribute towards achieving a LEP wide target as well as supporting strategies and emissions reduction targets in other LEP districts, particularly local development plans which support developments that facilitate the use of sustainable modes of transport and enable active travel.

There is also an increasing focus on air quality – air pollution can cause both short term and long term effects on health. In September 2015, the Department for Environment, Food & Rural Affairs (DEFRA) published draft plans to reduce emissions alongside a national framework that seeks to bring key cities, including Birmingham, into compliance with EU air quality limits by 2020. There is a need for regional (and national) collaboration to align interventions for all motorways and key road networks that serve all of the towns and cities in the GBSLEP area in order to ensure compliance. There is a framework of penalties at EU level for those cities that are not compliant. There are opportunities to improve air quality in local areas, especially in locations which incorporate an Air Quality Management Area (AQMA) which are mandatory and feature across the whole GBSLEP area. AQMA's also address nitrogen dioxide emissions; particularly an issue on the A5 trunk road in Cannock Chase district.

Transport carbon emissions within the GBSLEP area represent a significant proportion of overall emissions for the area. Taking the 2011 carbon dioxide emissions estimates as a benchmark, transport emits 3,425kt CO₂ per annum out of a total 11,068kt CO₂ emitted by the area. This equates to 31% of total emissions, which is slightly higher than the national transport proportion of 29%.



However, it is important to note for strategic activity purposes that transport carbon emissions vary across the area, for example, from 21% of emissions in Redditch to 57% in Bromsgrove (see table 1).

| kt CO ₂ (2011) | Total transport emissions | % of total emissions |
|---------------------------|---------------------------|----------------------|
| Birmingham | 1,405.8 | 26.2% |
| Bromsgrove | 450.8 | 58.4% |
| Cannock Chase | 113.1 | 23.4% |
| East Staffordshire | 248.1 | 26.6% |
| Lichfield | 320.6 | 42.7% |
| Redditch | 87.9 | 21.2% |
| Solihull | 574.8 | 39.0% |
| Tamworth | 78.2 | 22.4% |
| Wyre Forest | 146.2 | 28.5% |
| Total | 3,425.4 | 30.9% |

Table 1: Transport Emissions by GBSLEP District

Therefore, it should be acknowledged that different districts may have different issues and priorities but many transport carbon emissions are emitted cross-district from strategic road networks (including motorways and A roads) and rail justifying the Low Carbon Transport and Mobility Strategy being set at GBSLEP level.

Interventions for efficient and sustainable travel in GBSLEP in the future...

Behaviour Change

Travel Planning

Confident travellers are able to easily discover clear information and guidance on sustainable travel modes including public transport and car club programmes. Large businesses and hospitals offer travel planning information which provide information on local public transport and cycling and walking networks.

Sustainable Travel Incentives

Reward systems for those that opt for more sustainable travel such as vouchers for cyclists and walkers and priority parking for users of electric cars and members of Car Clubs.

Reducing trips

Flexible working from spaces outside of the workplace is the normality thanks to fast broadband across the GBSLEP. Businesses make use of teleconferencing and satellite venues as well as working together to identify sustainable travel solutions for their employees. Freight is consolidated where multiple deliveries for multiple businesses are delivered in one trip.

Infrastructure

Alternative refuelling infrastructure

Lorries, buses, coaches and taxis are largely fuelled by hydrogen or natural gas in response to the growing and accessible alternative fuelling network in the GBSLEP area.

Charging points for electric vehicles are in many 'destination locations' across the GBSLEP area (fuelled by renewable energy) making them visible and reliable for users of ultra-low emissions vehicles. This encourages further uptake.

Green Fleets

Public and private organisations where possible use electric, hydrogen or natural gas fuelled vehicles to make use of the new refuelling infrastructure.

Cycle and walking networks

The cycle and walking infrastructure across the GBSLEP area is the preferable and desirable route for many people getting to work and making short journeys due to the increased levels of safety and improved connectivity to other sustainable transport modes.

Technology

Real-Time Information

Users of public transport will be able to instantly access live information about their service as well as receive customised journey information and a tailored service based on predictive journey planning.

Smart Ticketing

There is no cash exchanged on public transport when purchasing tickets and tickets can be used for multiple modes of transport. Transport users are able to buy virtual tickets via an app and top up travel accounts online.

Smart Network Management

Technology plays a key role in monitoring and managing traffic. Smart motorways relieve congestion in busy periods and signals at junctions are very efficient; prioritising freight and buses.

Data Management

Public data is open and available in one place and being utilised innovatively by businesses and entrepreneurs to create new travel solutions.

Interventions

Nationally there has been a focus on developing a Carbon Plan for transportation which sets out how the sector could become less reliant on imported fossil fuels, contributing to a more efficient, low carbon and sustainable economy. Priorities include:

- Supporting people to make lower carbon travel choices, such as walking, cycling or public transport (e.g. through the Local Sustainable Transport Fund (LSTF), now the Access Fund).
- Supporting the market for innovative forms of transport and encouraging a move to cleaner and lower carbon vehicles (e.g. through funding from the Office for Low Emission Vehicles).¹ This includes investment in new technologies and recharging infrastructure.

Taken with the evidence on emissions and the review of local strategies undertaken as part of the development of this documents, this suggests interventions on the three identified themes, **behaviour change, infrastructure and technology** will have the biggest impact on carbon reduction as well as improving air quality.

These themes and supporting interventions will be explored in the sections that follow.

Whilst schemes may fall predominantly into one of these themes, there is often an overlap and inter-relationship between them maximising the impact of interventions on carbon reduction and making them more holistic, and this is where alignment to other strategic work such as our emerging Low Carbon Energy Strategy will be key.

For example, the West Midlands LSTF programme, 'Smart Network, Smarter Choices' contains elements of behaviour change, infrastructure and technology to encourage more sustainable travel for people to jobs, leisure, shopping and education, to achieve economic growth in a low-carbon way. The programme delivers a range of sustainable travel improvements on ten main routes across Birmingham and Solihull, the Black Country and Coventry. Improvements include new cycle paths, real-time information units at bus shelters and upgraded pedestrian crossings. These physical improvements have been backed by tailored support for local residents, commuters, students and jobseekers to enable them to make smarter, green travel choices. It is estimated from the interim research results that car journeys have been reduced by 16 million since implementation in 2012 and it is envisaged the programme should hit its cost benefit ratio of 1:10 making it very cost-effective. Whilst some of the activities in this example are not ERDF-eligible (e.g. leisure travel), the purpose of this strategy is to support co-ordination of packages of funded activity that can be fitted together even where funding sources vary.

There are also cross-cutting aspects of Research and Development, smart technology, sustainability and equality of opportunity that underpin each of the intervention themes. Further, while the primary focus will be on carbon reduction, where possible interventions should also aim to improve health and air quality.

¹ OLEV comprises staff and funding from the Department for Transport, Department for Business Innovation & Skills, and the Department of Energy & Climate Change.

Behaviour Change

To reduce carbon emissions, the most significant impact we can have is by reducing the need to travel by private vehicle. Across the GBSLEP area, 72.3% of households have at least one car or van. Bromsgrove residents have the highest car ownership across the GBSLEP, with 1.5 cars for every household compared to the GBSLEP average of 1.1 cars per household. Around 40% of journeys taken by car are less than 2 miles; these are the journeys that could be easily cycled, walked or undertaken by public transport. By encouraging a change in behaviour from car usage for short journeys to active travel, there is scope to contribute towards promoting positive public health outcomes and tackling the air quality challenge. Behaviour change particularly targets the large volume of emissions on minor local roads.

'Nudge' theory is a way of making 'good choices' the most desirable for users, by presenting them as the most convenient and flexible option and placing emphasis upon the fact that decision making is entirely in the users' control. Often included under the "smarter choices" label in a transport context, examples could include travel planning or free cycle training.

We will encourage people to take up more sustainable transport choices through a package of measures including:

- Travel planning - this would include providing clear information and guidance that are accessible for all through digital devices and other medium, and available before and during a journey, this can help to increase traveller confidence and experience and encourage people to try sustainable transport modes. For example, in Redditch walking and cycling has been encouraged through the 'Choose How You Move' programme, as well as establishing travel plans to help promote car sharing and public transport. This saw a decrease in carbon emissions by 3,900 tonnes per year. It is important for large businesses and other establishments experiencing a lot of traffic, such as hospitals, to make available travel planning information for their users and visitors to reduce congestion and carbon emissions. Partners also encourage travel planning as part of the LSTF programme and developer agreements. When travel planning, consideration should also be given to those residents with mobility issues or whose location makes sustainable modes an unattractive proposition for due to lack of accessibility or safety. In Wyre Forest, major development proposals must include Travel Plans which sets out targets and measures for addressing travel demand by maximising accessibility by sustainable transport modes, minimising traffic generation and mitigating the effects of additional traffic through a package of multi-modal measures. This could also apply to better planning of freight deliveries. By encouraging businesses to receive deliveries "off-peak", i.e. before 07:00 or after 18:00, delivery vehicles can operate more efficiently on the road, significantly reducing both Carbon and noxious emissions.
- Sustainable travel incentives – by introducing initiatives to encourage the use of sustainable travel, such as recognition and reward systems (like Better Points), priority car parking for car sharers or those using electric vehicles or car clubs and improved journey times, transport users are more likely to choose the sustainable option whilst becoming more active. This approach has been supported in East Staffordshire and it has been recognised that targeted marketing could be a tool to direct people towards relevant travel advice and promote discounts to facilitate good choices. For example, Birmingham are seeking to introduce Green Travel Districts (GTDs) in areas of the city where, because of the high volume of inbound and outbound trips, infrastructure and other interventions are most likely to achieve modal shift away from the private car through a range of incentives, including priority car parking for cars transporting 2 or more people, as set out in Birmingham Connected. GTDs will also

ensure a 'Total Transport' approach, particularly in the pilot area of Selly Oak, in Birmingham, which includes stakeholder involvement from the education sector (University of Birmingham) and health sector (Queen Elizabeth Hospital). This will enable a joined up approach to work with others to influence how employees, visitors and residents travel in a sustainable way.

- Reducing the overall number of trips – by encouraging businesses to be more flexible with employees working habits, employees could travel less and be 'nudged' towards the use of teleconferencing, digital technologies, satellite venues, flexible working and business mileage, as is happening in Staffordshire and Solihull. In East Staffordshire there is promotion of 'co-location' of facilities that are likely to generate strong flows of people; this shares congestion between several locations and reduces numbers of commuters. This is especially important in rural areas where commuters rely greatly on the car due to further distances to travel and lack of public transport options. Better planning of freight will also be a key factor in reducing trips, for instance, coordinating supplies and services between neighbouring businesses in a building or along a high street can significantly reduce the number of delivery journeys being made. Business travel networks are being set up in Burton-upon-Trent and Tamworth. In some areas, such as Cannock Chase and Lichfield District it is recognised that initiatives for faster broadband need to be in place to support this. 'Superfast Worcestershire' which intends to implement 24 megabits per second (Mbps) broadband in parts of Bromsgrove, Redditch and Wyre Forest by June 2016, is an example of this kind of initiative. Whilst some of this infrastructure is not the direct remit of this Strategy, as stated elsewhere it is critical that we align with other actions to build optimum local low carbon models. We will also explore how we can develop and apply innovative methods of demand management to enable the transport network to run efficiently and encourage the sustainable movement of goods and people.

A key to enable, or 'nudge', people to take up the most sustainable transport choices is to integrate the transport system across the West Midlands to ensure seamless, personalised and flexible journeys. People and businesses will be enabled and incentivised to make cost effective, informed and sustainable travel choices which will not only reduce carbon emissions and improve air quality, but also help to make the GBSLEP area more physically active.

Projects qualifying for funding could be...

- Behaviour change programmes for shifting to alternative transport modes
- Travel planning toolkits for businesses (public transport or cycle/walk routes)
- Active Travel
- Cycle training
- Behaviour change programmes for employers and businesses

Transport Infrastructure

The Government's vision is for every new car or van to be an ultra-low emissions vehicle (ULEV) from 2040 and an effectively zero-emission fleet by 2050. The electrification of the passenger car fleet will play an important role in decarbonising transport. In addition, the government is also supporting the manufacturing of hydrogen fuel-cell electric vehicles and research and development of low carbon hydrogen production and hydrogen refuelling infrastructure. To move towards a low carbon future we will need to ensure that the transport infrastructure is in place to support the uptake of these vehicles. This will particularly target high levels of emissions on motorways and the strategic network. This will take coordination across district boundaries within the GBSLEP as well as in partnership with neighbouring LEPs.

In addition, the infrastructure for active travel needs to be in place to allow transport users the choice of walking or cycling for short distances. Improving walking and cycling networks can dramatically improve local accessibility with positive benefits for health and the local economy in addition to reducing carbon emissions.

- A lack of infrastructure, and accessibility to it, is a key barrier to deployment of alternative low emission vehicles. There are two areas to concentrate on in terms of alternative re-fuelling infrastructure:
 - Fleet vehicles on the strategic network - in many cases, vehicle emissions in the region are produced from HGVs/LGVs/buses/coaches/taxis passing through on strategic road networks. Implementing a strategy for alternative fuelling, for example compressed natural gas (CNG), liquid natural gas (LNG) or hydrogen fuel cells, would encourage companies to introduce more ULEVs in buses and truck fleets. This would increase market demand, encourage industry to establish supply chains, promote consumer security in the sector and ultimately send a clear message that ULEV are the way forward and long-term solution for improving air quality and reducing emissions. This ties in closely with Drive West Midlands' objectives to develop a robust automotive supply chain in the West Midlands equipped to meet present and future vehicle manufacturer demand. Road space could also be considered and how it can be shared to ensure vehicles can move more freely, thereby reducing their emissions.
 - Plug-in vehicles – partners are already developing strategies for the take-up of plug-in electric vehicles to ensure charging points are situated in visible, accessible and reliable locations with minimal route diversions to access them, for instance the Birmingham Blueprint, and the inclusion of charging points in local development plans. In particular, this work could be implemented in the UKC economic opportunity zones, located in Solihull. However, when implementing new charging infrastructure, it is important to consider where electricity to support the infrastructure is supplied from, in most cases it should be from sustainable sources (such as renewable energy) to avoid displacing vehicle emissions to electricity generation. Also, there should be a strategic approach when looking into where chargers should be located (destination locations) which recognises the modal shift to alternative transport methods such as car clubs. This is important in rural areas where emissions may be higher caused by reliance on the car due to further distances to travel and lack of public transport, making infrastructure particularly important. This should be linked in with the planning process, as previously mentioned.
- Green Fleets - alongside the development of the alternative fuelling infrastructure, public and private organisations should demonstrate the use of this infrastructure by transforming their fleets into 'green

vehicles' such as electric, hydrogen fuel cell, CNG or LNG. For example, Staffordshire's highways partner has invested in a brand new zero emission electric van which will save 7.4 tonnes of CO₂ per year while Worcestershire County Council has invested in low-emission 'Woosh' buses for their park and ride fleet. Centro and the West Midlands Integrated Transport Authority (WMITA) are looking at the potential for the use of hydrogen cell fuelled buses as part of the expansion of the SPRINT bus rapid transit (BRT) network, complementing investment in the BRT secured as part of the Growth Deal.

- Improving the Cycle and Walking Network - key parts of the transport infrastructure are cycle and walking routes throughout the region. If used to their full potential, they can replace vehicle trips for transport users, therefore reducing carbon emissions, congestion and improving air quality and health. By improving this infrastructure and making it more accessible, safe and desirable to use, it can become a viable alternative to cars for short journeys for commuting or leisure. The North Solihull Cycle Network connects residents of North Solihull with key employment sites in the area. It is important that this new infrastructure is linked to bus and rail infrastructure to ensure multi-modal access; this is evidenced at Selly Oak in Birmingham where cycle facilities at the railway station were improved to reduce car travel. Birmingham Cycle Revolution, a 20 year cycle infrastructure and behaviour change plan to improve the convenience and safety of cycling in the city, with a view to making cycling part of everyday life for the masses, has been part funded by the Growth Deal.

The implementation of alternative low and zero-emission refuelling infrastructure has a key part to play in decarbonising the road network and improving air quality. Alternative infrastructure brings many benefits, as well as reducing emissions and improving air quality, there are positive effects on access to employment for deprived areas and health. Increasing public transport access and street connectivity have been significantly associated with more energy expended from walking and less energy generated from motorised transport. This intervention will support and align partners to achieve an integrated alternative transport network across the whole LEP area that aligns to other infrastructure strategies such as the Low Carbon Energy Strategy.

Projects qualifying for funding could be...

- Investment in alternative fuelling infrastructure (including LNG and CNG)
- Installation of electric charging points
- Network improvements to increase multi-modal access
- Improvement of cycle and walking networks
- Car Clubs
- Encourage uptake of ULEV's
- Toolkits to assist businesses in improving supply chain efficiencies

Transport Technology

Technology is key in the pursuit of a low carbon future. Whether it is a new app to aid in passenger bus information, smart ticketing, or new routing software for efficient freight movement, intelligent mobility should be built into all schemes to ensure that the highest level of usage, and therefore carbon reduction, is attained. The GBSLEP area contains specialists who lead on low carbon technologies, such as Cenex. Cenex, specialise in the delivery of projects, supporting innovation and market development, focused on low carbon vehicles and associated energy infrastructure. GBSLEP are working with to other West Midland LEP's (Black Country and Coventry & Warwickshire) to establish Drive West Midlands, a new support programme designed to attract investment into the areas thriving automotive sector of which low carbon technology is a key part.

We will focus on the following priorities:

- Real-Time Information - the increasing number of smart devices has changed how people access information and provides new opportunities to encourage sustainable travel choices via the development of apps to provide up-to-date travel information and tailored services. Journeys can also be tailored to the transport user based on individual circumstances with the development of predictive journey planning. The traditional display screens still have a large role to play at places like bus stops, interchanges, shopping malls and their facilities. Social media, and other digital communication tools, such as Twitter are also being adopted by authorities to broadcast the latest travel news.
- Smart Ticketing - provision of infrastructure for ticketless and smart ticket travel across modes and operators using flexible payment options is a priority. This will facilitate ease of payment on public transport and other potential sustainable modes. For example, in the West Midlands, the Swift Card has been introduced to enable customers to purchase tickets via a cashless system on all buses and the metro in the area. Emerging technologies such as smart phones as payment platforms will also be considered. This makes transactions faster; money management more convenient online and in some cases reduces journey cost.
- Smart Network Management – this can be via urban traffic control systems that use a range of technologies to monitor and manage road traffic or applying technology to manage motorways. For example, between April 2012 and April 2014, Highways England improved the M6 between junctions 5 and 8 in the West Midlands by making it a 'smart motorway.' Smart motorways help relieve congestion by using technology to vary speed limits. The Growth Deal has provided funding for Journey Time for Growth - a project designed to improve junction signal efficiency with priority focussed on freight and public transport vehicles at signalised junctions to reduce congestion. Also, freight demand can be reduced by using technology; internet shopping deliveries at supermarkets can be consolidated by offering customers discounts for shopping to be delivered at a time that vehicles are already in the area. This could be rolled out to other retailers or large courier companies.
- Data management – Open Data presents new opportunities for journey planning. By integrating public data sources and making it available in one place, other authorities, technology businesses and entrepreneurs will be enabled to plan and create innovative travel plans and solutions by carrying out their own research. The Birmingham Data Factory has already been established as an open data portal and is hosting a growing range of data from various sectors. This would benefit the public and local businesses as they would be the recipients of holistic, door-to-door, mobility offers; the GBSLEP could be a regional lead on this area. The Open Transport Network project is currently being developed that

will provide easy to use, easy to access transport data, both real-time and historic. The data, alongside the Birmingham Data Factory, will also provide support for developers by creating a platform for them to demonstrate their applications.

By making data available for authorities and businesses to utilise more easily, these priorities can be realised through the efficient use of historic and real-time data. Transport information will be made smarter, more current and more personalised for the user, at the same time, the network will be less congested and flow as one system.

In summary, projects across the areas of behaviour change, infrastructure and technology will deliver measurable benefits by reducing carbon and improving air quality. As such, they will provide benefits for the 'whole place' (i.e. low carbon transport actions that are integrated at a local level in a holistic way) to achieve a reduction in carbon emissions and improve and support connectivity across the GBSLEP area.

Projects qualifying for funding could be...

- Real-time information apps for public transport
- Smart/integrated ticketing
- Open Data
- Freight demand management
- Road/congestion management

CO₂ Emissions Reduction Target

The purpose of this strategy, as set out in the ERDF guidance, is to set a baseline to satisfy the call requirements for Investment Priority 4e. The baseline of 3,425kt CO₂ has been set which is the 2011 output for the GBSLEP area (as explained in the Air Quality and Emissions section) taken from the ‘2005-2013 Local and Regional CO₂ Emissions Estimates’ which can be found at: <https://www.gov.uk/government/statistics/local-authority-emissions-estimates>.

The available 2010-2013 data shows a declining trajectory in CO₂ emissions, and the projections from DECC also show a decline in CO₂ emissions (figure 1); therefore we are already on track for meeting our ESIF target and want to do more.

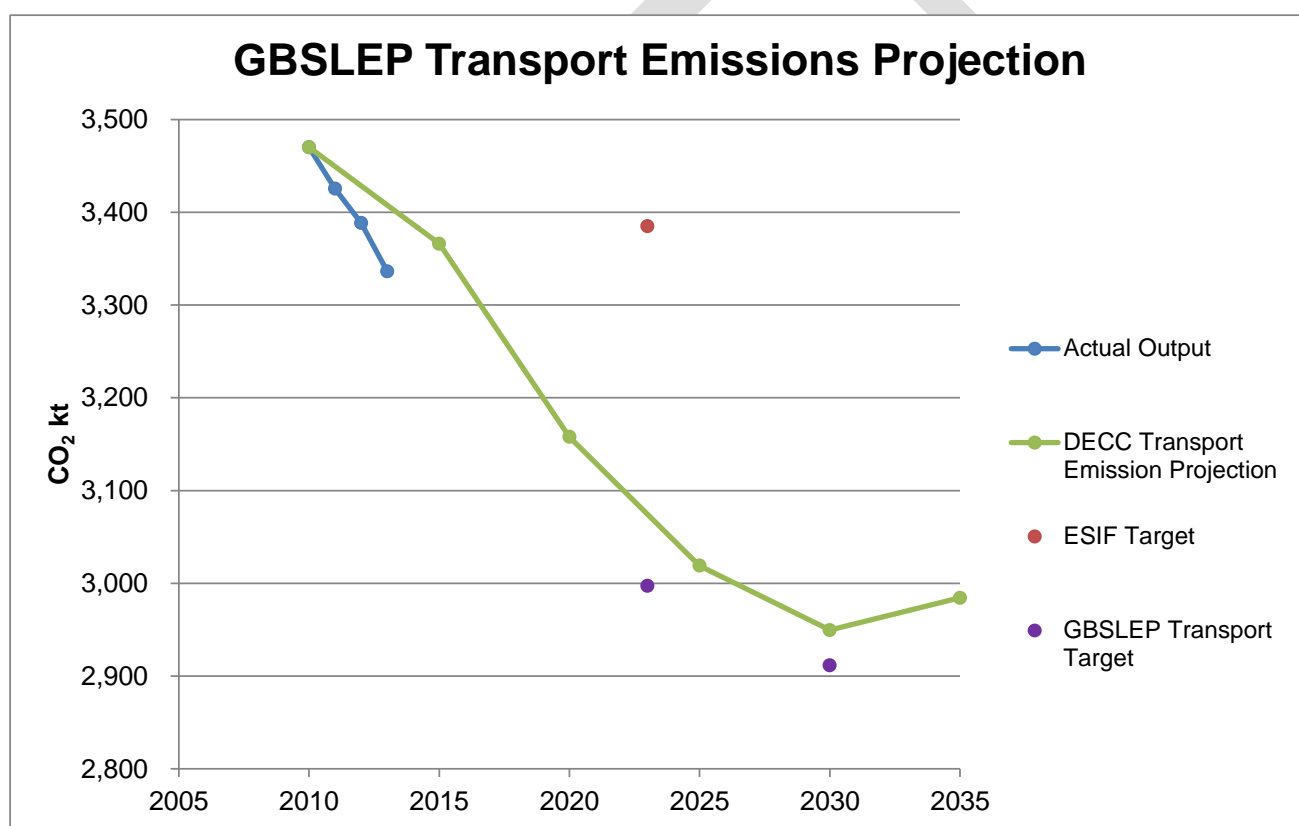


Figure 1: Graph showing actual output, DECC projections, the ESIF target and GBSLEP set target

By utilising ESIF and other funds we will deliver a reduction in carbon emissions:

- **By the end of 2023 we are aiming to deliver a 12.5% reduction of transport emissions on 2011 measures, saving a total of 428.2kt of carbon dioxide.**
- **By the end of 2030, we are aiming to deliver a 15% reduction of transport emissions on 2011 measures, saving an additional 85.6kt between 2023 and 2030, 513.8kt in total**

| | TARGETS | | | |
|--------------------------------|-----------------|---------------|-------------|------------------------|
| (Kt CO ₂) | 2011 (baseline) | 2023 (-12.5%) | 2030 (-15%) | |
| Emissions | 3,425 | 2,997 | 2,912 | Total reduction |
| Reduction from previous | | 428 | 86 | 514 |

Table 2: GBSLEP Targets for CO₂ emissions reduction by 2023 and 2030

This is a more stretching target than the ESIF output target that GBSLEP has been set for sustainable urban mobility and local energy actions of 3,358 tonnes per annum by 2023² (or 3.4kt per annum, **a total of 41kt between 2011 and 2023**). This target (Investment Priority 4e) is part of a wider Priority target (Priority Axis 4). The planned overachievement of the set target will contribute towards the wider Priority target through joined up, whole place actions that will combine transport and energy actions.

It should also be noted that the DECC projections for CO₂ emissions include aviation and shipping which are beyond the control of GBSLEP, and therefore the target set is even more ambitious than presented. Further, we will work to align existing strategies, in particular the sister strategy being commissioned for Low Carbon Energy, to secure funding for interventions that will enable us to make a contribution to reducing carbon emissions across the GBSLEP area.

² The Priority 4 guidance issued by DCLG in December 2015 has been applied to calculate this ESIF target and it has been assumed that the target is savings per annum

Funding & Prioritisation

Securing funding for our carbon reduction initiatives is essential for realising our carbon reduction target. To exceed our target, partners will work together to identify and secure local, national, and international funding to deliver this Strategy.

This Strategy is initially aimed at meeting the requirements of the ERDF Operational Programme, which, as stated above, is available to help advances in both direct delivery of carbon reductions and economic growth, but also to support advances in infrastructure and ensure that research can be tested in real world situations. The EU agenda particularly supports the testing and evaluation of innovative and integrated approaches.

In addition, through the development of its Strategic Economic Plan and in support of the delivery of its Strategy for Growth, GBSLEP will continue to place low carbon transport high on its strategic agenda and will look to support capital projects through its Local Growth Fund programme.

The GBSLEP Low Carbon Transport & Mobility Strategy acts as the Low Carbon Transport Plan for the purposes of satisfying the national ERDF Operational Programme (see Appendix A for guiding principles). When assessing the strategic fit of schemes and interventions, the process will broadly follow the same key criteria as set out in the prioritisation process for the GBSLEP Local Growth Fund programme and will consider:

- **Strategic fit**, for example, alignment to the carbon reduction and air quality improvement criteria as set out in this Strategy and innovation or schemes that may not have significant impact in the short term but could be positioned as a catalyst to enable other developments. There are certain schemes that, given a critical mass, could become mainstream if and when costs fall. Schemes should where possible attract and encourage further investment. The demonstrative projects will operate alongside proven methods to reduce costs and encourage further investment and research in the low carbon industry. Also consideration will be given to whether the project is integrated with other local strategic interventions, and if there is any 'displacement' i.e. schemes should ensure that carbon emissions are being reduced overall, not just relocated to a different area.
- **Deliverability**, including an understanding of the security of match funding and any key risks (for ERDF this aspect of assessment is carried out by the Managing or Intermediate Body as part of a wider assessment).
- **Return on investment**, i.e. the reduction in CO₂ per £ of investment in the project (for ERDF this aspect of assessment is carried out by the Managing or Intermediate Body as part of a wider assessment).

Finally, where applicable, it is envisaged that this Strategy will be used to assist with the assessment of strategic fit for schemes seeking funding from the GBSLEP allocation of Local Growth Funding. The primary criterion for those purposes will be Gross Value Added (GVA) per £ of Local Growth Fund sought, with the other factors noted above also being considered in the assessment.

Where appropriate, calculation methods will be applied such as the DfT's carbon tool and low carbon bus calculators and DEFRA's GHG Conversion Factors for Company Reporting tool.

Scheme Monitoring

As part of the scheme development process, performance indicators which can capture the effectiveness of a scheme will be identified. Indicators will be measurable with data used to monitor performance readily available or easy to collect.

There are a number of specified monitoring indicators relating to the transport sector which are outlined within the ERDF Output Indicator Guidance which will serve as a reference for the development of target indicators. These are

- Length of railway with new or enhanced signalling installation
- Number of alternative fuel charging/re-fuelling points installed
- Improved multimodal connection points
- Number of multimodal transport hubs

The setting of scheme objectives and targets at development stage will allow the monitoring of scheme performance against these targets. The indicators will feature within the framework of scheme monitoring and may be supplemented by other scheme specific targets, such as usage statistics relating to alternative fuelling points, modal share statistics or ultra-low emissions vehicle fleet data.

Appendix A – ERDF Guiding Principles

The GBSLEP Low Carbon Transport & Mobility Strategy acts as the Low Carbon Transport Plan for the purposes of satisfying the national ERDF Operational Programme and providing content towards the 2015/16 refresh to the 2014 GBSLEP ESIF Strategy.

The national European Regional Development Fund Operational Programme sets out the national strategy and priorities for use of the fund to support the Europe 2020 strategy for smart, sustainable and inclusive growth. It also contains high level information on how the fund will be delivered, managed and evaluated.

As such, partners developing proposals should be aware of the guiding principles as set out in the Operational Programme:

- *Investment in low carbon transport should focus on reducing GHG emissions, although they have other significant economic and environmental benefits as well. Investments shall be prioritised according to their contribution to mobility, sustainability and to reducing greenhouse gas emissions.*
- *For urban areas, actions should contribute to the development and/or implementation of sustainable urban mobility plans where appropriate.*
- *Actions should where possible support the deployment of innovative technologies and novel approaches and/or strengthen the capacity of relevant local actors to deliver integrated and sustainable local and urban transport strategies.*
- *Projects will need to demonstrate clearly how they would contribute to the GBSLEP low carbon transport & mobility strategy.*
- *Projects should, where possible, be part of an integrated approach to reducing GHG emissions.*
- *Actions should contribute to air quality plans, where appropriate, in line with the Ambient Air Quality Directive (2008/50/EC).*
- *Actions should be consistent with noise abatement plans where required under the Environmental Noise Directive 2002/49/EC.*
- *Investments in cycle paths and walkways can be accepted only as part of an integrated approach to ensure low carbon transport and sustainable multimodality and will not be recreational, isolated investments.*

The European Regional Development Fund Operational programme is available here:

<https://www.gov.uk/government/publications/draft-european-regional-development-fund-operational-programme-2014-to-2020>

Appendix B – Technical Information

Since 2007, road transport emissions in the UK and GBSLEP have followed a declining trend, driven by improvements in fleet technology, with more fuel efficient vehicles producing less carbon per kilometre travelled. This has been attributed to improved efficiency of all types of engine, but particularly to a shift to using diesel cars. However, as the UK, and GBSLEP area, recovers from the recession there is risk of a rise in emissions, we can't assume the decline will continue, therefore action is imperative to continue maintaining a downward trend.

Whilst use of diesel fuels is good for reducing CO₂ it has led to increases in emissions that affect local air quality such as NO_x and particulates. This has implications for our Low Carbon Transport & Mobility Strategy as we will need to balance the impact of reducing carbon with the need to improve air quality. Reductions in CO₂ have also been accompanied by a drop in overall vehicle miles travelled which has had a lesser effect than the change in fleet composition. The latest data for vehicle activity in Great Britain however records an upturn in vehicle-km for 2014.

Breaking down transport emissions by geography, the proportion of emissions attributable to strategic motorways is in line with the national average, the contribution from A roads is lower than the national level but emissions from minor roads (B roads and smaller) is higher, at 39% compared to the national average of 32%. The GBSLEP emits higher than average emissions on diesel railway, ('other transport' refers to emissions from coal use in rail transport, also higher than national average for GBSLEP).

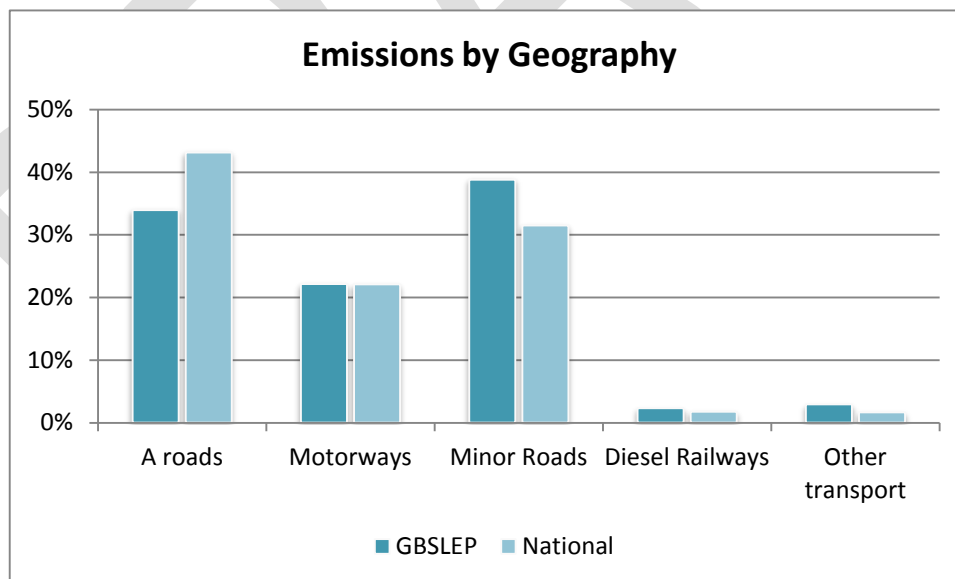


Figure 1: Emissions Disaggregated by Geography (2011, by percentage of total transport emissions)

The highway transport emissions estimates are underpinned by fuel consumption calculations, which have a close correlation with carbon emissions. Analysis of this dataset allows disaggregation of the main

contributors to emissions by vehicle type. By far the largest consumer of fossil fuels within the GBSLEP area is car travel, which accounts for 64% of fuel consumed. This proportion sits higher than the national average of 58%. LGV and HGV activity accounts for almost a third of fuel consumed.

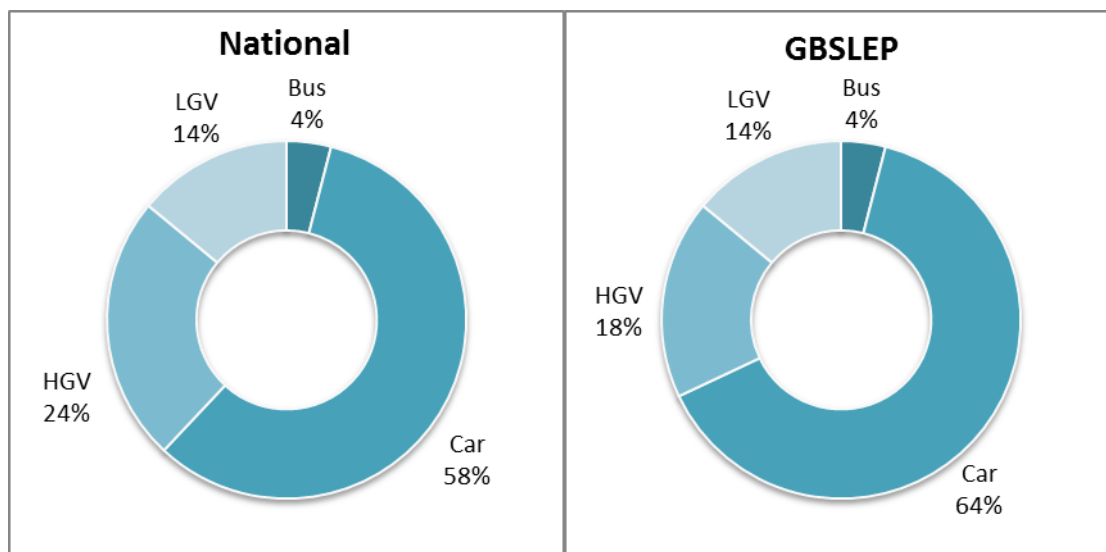


Figure 2: Fuel consumption disaggregated by vehicle

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