Bournemouth, Poole and Dorset Local Transport Plan

April 2011

Supporting Document – 5

Low Carbon Travel Strategy

Foreword

Local Transport Plans (or LTPs) are comprehensive plans which look at the transport needs of the area and set out a way forward to deliver those needs through short, medium and long term transport solutions. They set out how transport can improve our safety and health, support out local economy, protect our environment and reduce carbon emissions and pollution. They are also how funding for maintenance and improvements are secured from central government. LTPs can consider improvements to all major forms of transport whether under the control of local councils or not.

The main LTP documents comprise a strategy for transport for the whole of Bournemouth, Poole and Dorset for the next 15 years and a separate implementation plan which contains detailed proposals for the next 3 years. A separate summary document has also been prepared. These are all available to view or download at:- dorset4you.com/localtransportplan, along with a full set of supporting strategies and related documents.

This document is one of a number of individual strategies that have helped inform the development of the Local Transport Plan. Each has been led by one of the LTP authorities and has generally followed a common structure and format. In many cases these strategies are live documents and will be further developed during the next few months as the Government further develop its own transport policies or as further analytical work is undertaken.

This document will be kept live and updated on a regular basis. If you wish to make comments on the document then email us at ltp@dorsetcc.gov.uk or alternatively telephone 01202/01305 221000.

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Bournemouth, Poole and Dorset LTP3
2011 - 2026

LOW CARBON TRAVEL STRATEGY

Contents:

SED = South East Dorset (Bournemouth, Poole and Christchurch)
Dorset = the Dorset sub-region i.e. DCC, BBC and BoP

1.0 Introduction & Background

1.1 Introduction

This Low Carbon Travel (LCT) Strategy sets out the approach to reducing carbon emissions from transport, adapting to climate change and reducing vulnerability to price volatile and finite oil based transport fuels during the period 2011 to 2026 in Bournemouth, Poole and Dorset. It is a supporting strategy to, and is entirely consistent with, the overall third Local Transport Plan (LTP3) and expands upon the references to carbon.

The LTP is a joint strategy between the three authorities of Bournemouth, Poole and Dorset. The LTP3 area is diverse, comprising expansive rural areas, the smaller urban areas of Weymouth and Dorchester, market towns and the predominantly urban South East Dorset (SED) conurbation of Bournemouth, Poole and Christchurch. The LCT Strategy considers a range of measures which have the greatest potential for reducing carbon emissions and which approaches are best suited to the different areas. This strategy has been developed through a joint LCT Strategy Working Group with input from the Carbon Management Teams in each authority and with reference to the latest relevant policy and guidance.

1.2 Wider connections of the Low Carbon Travel Strategy

The primary aim of the LCT Strategy is to reduce carbon emissions from transport. It will also deliver value for money solutions across the following transport goals[1]:

- Supporting economic growth
- Tackling climate change (reducing carbon emissions)
- Equality of Opportunity
- Better safety, security and health
- Improving quality of life, including air quality

This strategy should not be considered in isolation and has strong links with other areas of the Joint LTP3 as shown in table 1.1.

Table 1.1 – Other LTP3 supporting strategies relevant to the LCT Strategy

	Related LTP3 Strategy
LOW CARBON TRAVEL STRATEGY	
	Cycle Strategy
	Accessibility Strategy
	Sustainable Modes of Travel to School Strategy
	Freight Strategy
	Rail & Bus Strategies

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[1] The three authorities have decided to adopt, adapt and consult on the previous governments objectives as set out by the Department for Transport in "Delivering a Sustainable Transport System" (DaSTS, 2008).

Table 1.2 shows how the LCT Strategy will support delivery of the Multi-Area Agreement (MAA) between the 3 authorities. Note that some of the functions of MAA may be taken on by the new Local Enterprise Partnerships which are replacing the Regional Development Agency, but similar themes focussing on the economy are deemed likely.

Table 1.2 - The impact of the LCT Strategy on MAA delivery

Key themes			Impact of Low Carbon Travel Strategy
Community Strategies (and LAAs)	*Multi-Area Agreement*	*Green Knowledge Economy*	
Thriving and dynamic economy	Business growth & employment land Transport & Connectivity	Creating employment within a Low Carbon Economy	• Transport system resilient to impacts of climate change • Reduced vulnerability to volatile and high fuel prices • Reducing the need to travel reduces related costs to business and supports a competitive economy
Sustainable Environment	Environment	Reducing Carbon Emissions Maximising use of Intangible (human), Produced (built environment) and Natural Capital	• Reduced carbon emissions from the transport sector and mitigating climate change • Increased use of more environmentally sustainable transport fuels • Improved local air quality
Safer & Stronger Communities	Housing	Resilience to climate change	• More people using socially interactive public transport, walking and cycling • Supports improved accessibility by low cost transport modes
Health & Wellbeing		Supporting Employment	• Increased opportunity for and promotion of healthy, active travel modes such as walking and cycling
Valuing & supporting the young and old	Skills	Low Carbon Technology Skills	• Equality of access to low carbon travel modes • Supporting high speed broadband which will reduce the need to travel for all ages

1.3   *Background*

In 2006 the Stern Review quantified the costs and risks to the UK economy of climate change. It established that taking action in advance to mitigate and adapt to climate change would cost less than dealing with its future effects if left unchecked. In May 2010 the Coalition's Programme for Government recognised climate change as a key challenge

to the future prosperity of the UK and made moving to a low carbon economy a key goal. The transport sector, which emits 22% of all carbon emissions nationally[2], must play its role in reducing carbon emissions and achieving this.

1.4.1 Climate Change Act 2008
The Climate Change Act 2008 set a statutory target for the reduction of carbon emissions in the UK by **80% on 1990 baseline levels by 2050**, with five year carbon budgets setting out how this target would by achieved. The Act requires a **34% reduction in carbon emissions below the 1990 baseline by 2020.** The Government expects Local Authorities to play a key role in delivering the statutory carbon budgets across the three sectors of Business, Domestic and Transport. Whilst no specific guidance is provided for setting carbon reduction targets for specific sectors, the Government expects that the transport sector, must make its share of the carbon reduction required.

1.4.2 Carbon Reduction Commitment (CRC) and Carbon Management Plans
Through placing a price on carbon emissions, the mandatory CRC Energy Efficiency Scheme provides a financial incentive to improve energy efficiency and reduce carbon emissions in large organizations. Whilst this does not include carbon emissions from transport, the 3 Authorities in the sub-region are actively managing the carbon emissions they produce through the development and delivery of Carbon Management Action Plans/Programme for their authorities.   These have all been developed as part of the Carbon Trust's Local Authority Carbon Management Programme and specifically include carbon emissions from transport.

1.4.3 Delivering a Sustainable Transport System (DaSTS)
DaSTS was the previous Government's approach to ensuring that long term transport planning and funding was framed within the recommendations of the Eddington and Stern Reviews. It assisted evidence-based decisions on priorities for investment. Whilst the DfT have indicated these are no longer national goals, in the absence of other clear guidance the three authorities have decided to adopt, adapt and consult on the previous governments DaSTS objectives and will continue to use this as the basis of developing their (interim) transport policies. Five broad goals for transport have been set including "*to reduce transport's emissions of carbon dioxide and other greenhouse gases, with the desired outcome of tackling climate change*" with a specific requirement to deliver quantified reductions in greenhouse gas emissions within cities and regional networks.

1.4.4 Low Carbon Transport: A Greener Future
In 2009 the DfT outlined in this strategy that they expect carbon emissions from transport to fall by 14% on 1990 levels by 2020 with a heavy reliance on technology and low carbon vehicles, with alternatives to the car and reducing the need to travel playing a secondary role. In June 2010, the Coalition Government signalled they expected the transport sector to achieve this through:
- Converting the vehicle fleet to electric (presumption of a decarbonised National Grid)
- Increased use of sustainable Biofuels
- Reducing the need to travel

1.4.5 The Multi-Area Agreement and the Green Knowledge Economy

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[2] DfT 2008. This includes domestic aviation but excludes international aviation emissions.

The Bournemouth, Dorset and Poole Multi-Area Agreement (MAA) is a partnership between the three principal authorities, public and private partners to stimulate economic growth in the area. The MAA has identified the development of a "Green Knowledge Economy" (GKE) as a key driver of post recession growth within environmental limits. The concept is based upon the recognition that an area or town's economic growth will be increasingly based on the development of new green industries. These growth poles will be dependent on successfully amalgamating a range of factors – including high environmental quality, digital investment, low carbon commitment, creative and knowledge industry investment.

Establishing a low carbon transport network is an essential pre-requisite for the GKE in terms of its competitiveness and the 'green transportation' credentials of the Sub-Region, as part of a wider place-marketing strategy based on GKE principles. It is also a potential source of growth in business and employment, with measures suggested in the GKE cluster for "Environmental Goods and Services Sector Business Growth" including:

- Alternative fuels, alternative fuel vehicles
- Reduce vehicle emissions
- Drive low carbon vehicle innovation
- Support low carbon local transport planning
- Increase walk, cycle, bus and train provision
- Increase end-of-life vehicles re-use, recycling & waste reduction
- Promote the use of green Information Communications Technology (ICT)

To achieve this the GKE draft Action Plan states that *"a new smart, strategically connected and sustainable transport system will increase the Sub-Region's capacity for wealth creation"* and specifically recommends the development of a Green Transportation Programme within the GKE Strategy Framework and Action Plan as soon as possible.

1.4.6 Financial Austerity
Delivering a low carbon transport network is set in the context of limited Central and Local Government funding to at least 2015. Measures in the LCT Strategy must clearly demonstrate value for money in reducing carbon emissions in a way which supports economic growth.

Reducing the need to travel is a good example of a very cost effective means of reducing carbon emissions and can also save money for individuals and business. This is strongly supported by Norman Baker, Parliamentary Under-Secretary of State for Transport who has indicated this is a key aspect of the Coalition's approach to supporting an economically efficient and low carbon transport network.

1.4.7 Big Society & Local Enterprise Partnerships

A key part of the Coalition Government's programme is "Big Society" where individuals are encouraged to be part of the wider community through supporting local initiatives and volunteering. Central to this is for people to be responsible for their own actions and considerate of how they affect others. The LCTS has an important connection with the Big Society message by emphasising individual responsibility for the carbon impacts of travel choices and the idea that it is not someone else's problem; as individuals we have to take responsibility for our own actions.

1.4.8 Peak Oil

Peak Oil refers to concept that at some point in the future the rate of oil extraction will decline, and supply will not be able to keep up with demand (unless demand is also managed into decline through identification of substitute fuels and energy sources). There is no certainty as to when this may occur, but the effect will be increasingly volatile and high prices for petrochemical fuels including diesel and petrol with consequences for the affordability of private transport which could be felt severely in rural Dorset. There are mutually beneficial synergies between taking actions to combat climate change and reducing our vulnerability to Peak Oil which the LCT Strategy seeks to exploit.

2.0 This is where the three local authorities want to be

2.1 Vision

The Low Carbon Travel (LCT) Strategy sets the following vision for the LTP3 period 2011 to 2026:

> **"Continue to break the links between mobility and carbon emissions by securing a low carbon transport network which is increasingly less dependent on oil, resilient to the impacts of climate change and supports sustainable communities and quality of life".**

This supports the overall LTP3 vision:

> **"To create a safe and reliable transport system for Bournemouth, Poole and Dorset that assists in the development of a strong economy, maximises the opportunities for sustainable transport and respects and protects the area's unique environmental assets".**

2.2 Aims

To achieve this vision, the LCT Strategy set the overarching aims:

OVERARCHING AIM 1: Significantly reduce carbon emissions from transport in Dorset

OVERARCHING AIM 2: Minimise the carbon, supply and financial risks associated with transport's dependency on finite fossil fuel resources

OVERARCHING AIM 3: Reduce the need to travel to cut carbon emissions

OVERARCHING AIM 4: Understand the vulnerabilities of the Transport System to the physical consequences of climate change and adapt accordingly

2.3 Objectives

The LCT Strategy is framed around 12 objectives which will tackle carbon emissions from transport through a variety of approaches including spatial planning, infrastructure, behavioural change, technology and adaptation. Taken together, the objectives will cumulatively seek to deliver the vision and its overarching aims:

1. Minimise the need to travel by supporting the planning system to build sustainable communities where people live near services, employment, education and leisure opportunities;

2. Leading by example in the Public Sector by instigating transport carbon reduction programmes and assisting major public services (Local Authority, schooling and health) to provide their services as close to the client group as possible;

3. Strongly encourage people to choose low carbon travel modes by improving urban centres for walking, cycling and public transport complemented by effective demand management measures;

4. Help individuals and businesses to consider and assess the carbon impacts of meeting their transport needs and change their travel behaviour accordingly through "Smarter Choices"[3] measures;

5. Facilitate walking and cycling especially for children and young people to ensure a significant increase in these modes for short trips;

6. Significantly increase the proportion of journeys undertaken by public transport within the major urban centres and the hinterland of market towns;

7. Promote the adoption of low carbon fuels and vehicle technologies in the domestic, business and HGV fleet;

8. Identify and implement measures to reduce carbon emissions associated with leisure travel and tourism in Dorset;

9. Encourage efficient and low carbon use of the car in areas of poor accessibility by walking and cycling & public transport;

10. Maximise the efficiency of the existing Highways Network through the deployment of Intelligent Transport Systems (ITS)[4];

11. Manage and adapt the Highways network and Structures to reduce vulnerability to the direct physical impacts of climate change

12. Monitor and report on carbon emissions from transport

These objectives support the overall LTP3 goals and the National Objectives to support the economy and tackle climate change. Figure 2.1 demonstrates how meeting the LCT Strategy will make a significant contribution to meeting the LTP3 goals.

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[3] Smarter Choices describes 'soft' measures which make the best use of existing 'hard' infrastructure (roads, railways, cyclepaths, bus routes etc) through targeted information, promotion and incentives.
[4] Intelligent Transport Systems (ITS) apply Information and Communications Technology systems to improve the operation of highways, public transport and parking systems. Examples include real-time passenger information, urban traffic control systems, smart traffic signals which can adjust signal timings and vehicle priorities, variable messaging systems, carpark control, smartcard ticketing and many others
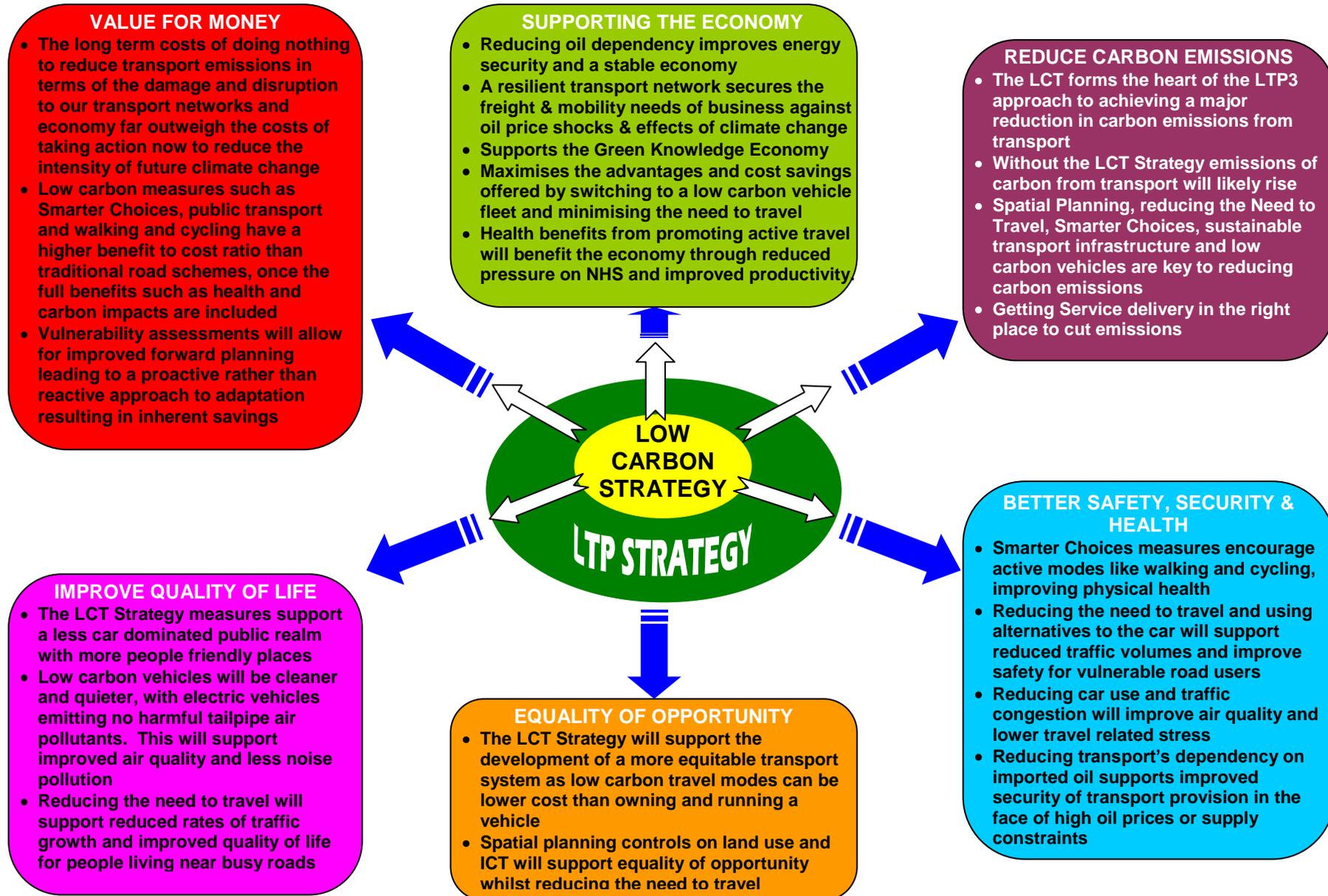
VALUE FOR MONEY

- The long term costs of doing nothing to reduce transport emissions in terms of the damage and disruption to our transport networks and economy far outweigh the costs of taking action now to reduce the intensity of future climate change
- Low carbon measures such as Smarter Choices, public transport and walking and cycling have a higher benefit to cost ratio than traditional road schemes, once the full benefits such as health and carbon impacts are included
- Vulnerability assessments will allow for improved forward planning leading to a proactive rather than reactive approach to adaptation resulting in inherent savings

SUPPORTING THE ECONOMY

- Reducing oil dependency improves energy security and a stable economy
- A resilient transport network secures the freight & mobility needs of business against oil price shocks & effects of climate change
- Supports the Green Knowledge Economy
- Maximises the advantages and cost savings offered by switching to a low carbon vehicle fleet and minimising the need to travel
- Health benefits from promoting active travel will benefit the economy through reduced pressure on NHS and improved productivity

REDUCE CARBON EMISSIONS

- The LCT forms the heart of the LTP3 approach to achieving a major reduction in carbon emissions from transport
- Without the LCT Strategy emissions of carbon from transport will likely rise
- Spatial Planning, reducing the Need to Travel, Smarter Choices, sustainable transport infrastructure and low carbon vehicles are key to reducing carbon emissions
- Getting Service delivery in the right place to cut emissions

LOW CARBON STRATEGY

LTP STRATEGY

IMPROVE QUALITY OF LIFE

- The LCT Strategy measures support a less car dominated public realm with more people friendly places
- Low carbon vehicles will be cleaner and quieter, with electric vehicles emitting no harmful tailpipe air pollutants. This will support improved air quality and less noise pollution
- Reducing the need to travel will support reduced rates of traffic growth and improved quality of life for people living near busy roads

EQUALITY OF OPPORTUNITY

- The LCT Strategy will support the development of a more equitable transport system as low carbon travel modes can be lower cost than owning and running a vehicle
- Spatial planning controls on land use and ICT will support equality of opportunity whilst reducing the need to travel

BETTER SAFETY, SECURITY & HEALTH

- Smarter Choices measures encourage active modes like walking and cycling, improving physical health
- Reducing the need to travel and using alternatives to the car will support reduced traffic volumes and improve safety for vulnerable road users
- Reducing car use and traffic congestion will improve air quality and lower travel related stress
- Reducing transport's dependency on imported oil supports improved security of transport provision in the face of high oil prices or supply constraints

Figure 2.1 Low Carbon Strategy linkage to LTP3 Goals

3. This is where the three local authorities are now

3.1 Recent activity

Many of the policies and schemes in both the Dorset LTP2 and South East Dorset LTP2 supported the reduction of carbon emissions from transport. The relevant schemes are:

- *School Travel Plans (STP's)* – Some 80% of Dorset County Council schools and 90% of Bournemouth and Poole schools have School Travel Plans which encourage pupils and teachers to travel by active, sustainable modes instead of the car. The implementation of STP's has resulted in an increase in the use of alternatives to the car.

- *School Travel Health Check* – This innovative tool is invaluable in tracking the origin, destination and mode of travel for every pupil in the sub-region, allowing the calculation of carbon emissions from each school's travel patterns. This found that about 50% of children walk to school. However, as a result of national policy which encourages parents to choose what they perceive to be the best performing school for their child(ren), nearly half of all pupils do not attend their nearest school and live beyond reasonable walking and cycling distance.

- *Sustainable Modes of Travel to School Strategies*– are a mandatory requirement and have been developed by all authorities, outlining the pathway to securing sustainable travel to school and associated carbon emission reduction. Work is proceeding, as part of the development of the Local Transport Plan, to prepare a single and consistent strategy for the whole Dorset sub region.

- *Workplace Travel Plans* – Roughly a quarter of all employees in Dorset are covered by a Travel Plan, which helps them to travel by more sustainable and lower carbon forms of travel such as walking, cycling, car sharing and public transport, or to work from home.

- *Car Clubs* – Providing "Pay as you go" motoring by the hour, car clubs are proven to reduce car use as members give up their second car, defer buying a new car or give up owning one altogether. Poole has 3 active car clubs secured through the planning process, whilst Dorchester's car club was supported by the LTP2.

- *Walking and Cycling Infrastructure* – Walking and cycling are the ultimate zero carbon transport modes and significant investment has been made from a range of sources in improving routes throughout Dorset. This includes the North Dorset Trailway, a new bridge crossing of the River Stour and a new cycle network in Weymouth in advance of the Olympic games.

- *Promotion of "Smarter Choices"* – Encouraging people to use low carbon, sustainable transport modes has been a key focus of LTP2, using National Bike Week, Walk to Work Week, Walk to School Week, Liftshare day and European Mobility Week as a focus for events to stimulate and engage the public in fun and approachable ways.

- *Electric Vehicle Charging Point (EVCP) Infrastructure* – Bournemouth Borough Council has recently installed a couple of electric vehicle charging points into Richmond Gardens Multi Story Car Park in the town centre. The provision of on and

off-street EVCP infrastructure is currently being investigated and dialogue has been opened with neighbouring Authorities to ensure consistency with regards to the potential deployment of EV infrastructure.

During the LTP2 period work began on considering the implications of transport programmes and policies for carbon emissions and also the potential effects and disruption that the effects of climate change could cause. This includes:

- *South East Dorset Multi-Modal Transport Study (SEDMMTS)* – provides an evidence base for informed transport decision making in the South East Dorset area which can model the implications for carbon emissions under a range of transport scheme scenarios.

- *Met Office Research into Climate Impacts on the Highways Network* – detailed study to understand the specific impacts, severity, frequency and locations at greatest risk of flooding, subsidence and surface / structural disintegration. These phenomenons are predicted due to increased winter precipitation, higher maximum temperature ranges and more frequent extreme weather events associated with climate change. The study will result in the production of vulnerability assessments, allowing improved forward planning of how best to protect transport provision in the face of a changing climate.

- *South West Transport Technical Group on Climate Change* – The three authorities actively participated in this group which improved the understanding of local carbon emissions, monitoring and predicting carbon emissions of different transport policies.

- *Carbon Management Plans* – The three authorities all have action plans to reduce emissions of carbon from their own emissions. This includes emissions from fleet vehicles, business mileage and staff commuting with the latest programmes setting corporate targets to reduce carbon emissions from the three authorities own operations by 30% by 2020, from a 2008/9 base year.

3.2   Performance against targets

Reducing carbon emissions and tackling climate change was not a specific goal in the rural Dorset LTP2 (2006-11). The South East Dorset LTP2 did specifically refer to the need to act on climate change and set a "Long-term goal" to achieve a "20% reduction in CO_2 emissions from 1990 levels by 2011". Progress towards this goal has not been reported, but it is clear that this goal will not be achieved.

The Multi-Area Agreement (MAA) between the three authorities includes several National Indicators relating to carbon emissions and climate change:

- **NI 185: Percentage CO_2 reduction from local authority operations**
- **NI 186: Per capita reduction in CO_2 Emissions in the Local Authority area**
- **NI 188: Planning to Adapt to Climate Change**

Performance against these is considered in section 3.3.3.

3.3   Key facts

Globally, climate change is predicted to lead to changing patterns of precipitation, increasing temperatures and 'extreme' weather events becoming more common, with consequent effects for society, environment and the global economy resulting from droughts, famine, flooding and weather related disruption.

It is not the place of the LCT Strategy to discuss in detail climate change science. There is overwhelming evidence available that climate change is already underway[5] and a consensus amongst scientists and policy makers that due to the volume of carbon already emitted to the atmosphere it is now too late to avoid the effects of a changing global climate.

The focus is now on minimising the extent and extremes of this change by cutting back on further carbon emissions to limit the average increase in global temperature within 2ºC, whilst adapting to the effects of the climate change which is now inevitable. Nonetheless, it is important to briefly consider the current understanding of the climate change that Dorset is likely to experience and how the likely effects on the Highways Network.

3.3.1   UK Climate Projections for Dorset

UK Climate Projections 2002 & 2009 were commissioned by the Government to help understand future climate in the UK for low, medium and high emissions scenarios for 2050 and 2080. These projections indicate that the South West of England will experience hotter, drier summers and wetter, milder winters, more extreme weather events and sea level rise. Table 3.1 shows the findings of the UK Climate Projections 2002 for Dorset's climate.

Table 3.1 A summary of potential climate changes in Dorset for this century

Season	Anticipated climate 2050	Anticipated climate 2080
Winter	- Warmer by 1 to 2ºC - Wetter by 0 to 25% - Windier by 0 to 5%	- Warmer by 1 to 2ºC - Wetter by 11 to 40% - Windier by 0 to 7%
Summer	- Warmer by 1 to 3.5ºC - Drier by 10 to 40% - Wind speeds could be similar to present but could decrease by up to 4%	- Warmer by 1.5 to 6ºC - Drier by 20 to 60% - Wind speeds could be similar to present but could decrease by up to 6%
Annual	- Annual warming by 1 to 3ºC - Precipitation similar to present but could decrease by 0 to 10%	- Annual warming by 1.5 to 4.5ºC - Precipitation similar to present but could decrease by 0 to 20%

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[5] For further information about the science of climate change consult the Intergovernmental Panel on Climate Change at www.ipcc.ch or the UK met office www.metoffice.gov.uk/climatechange

Whilst the detailed summary of the UK Climate Projections 2009 are not yet available for Dorset, they highlighted that for South West England:

- For summer average temperatures, significant increases are identified to the 2080's; this is very unlikely to be less than 2.1°C and very unlikely to be more than 6.4°C.
- For rainfall, significant summer decreases are identified; for the 2080's the change is very unlikely to be lower than -49% and very unlikely to be higher than + 6%
- For rainfall significant winter increases are identified; for the 2080's the change is very unlikely to be lower than +6% and very unlikely to be higher than +54%
- Sea level rise of between 30 and 43cm by the 2080's

The 2002 projections for Dorset Observed patterns in Dorset's climate[6] support this with increased winter precipitation, drier summers and overall increased temperatures.

3.3.2 Effects on Dorset's Transport Network

In 2009 Dorset County Council undertook a "Local Climate Impacts Profile for Dorset" which considered the current vulnerability of Dorset's local authorities to severe weather events. This determined that for the County Council the most significant of these vulnerabilities related to the Highways Network, including delays, dangerous driving conditions and damage to the road surface as a result of ice/snow, flooding of the carriage way and melting of road surfaces in hot weather.

Dorset County Council's roads represent 50% of the total Highways asset by value and incur 75% of all maintenance costs. Understanding and planning for the effects of climate change is essential to manage future maintenance costs and continue to provide the highways network that Dorset's economy and society relies upon. In response, research was commissioned from the Met Office to provide a greater understanding of the impacts of climate change at the local level on the Highways Network. This highlighted key concerns:

- **Structural melting of roads** causing surface deformation is already being observed in parts of Dorset. This is the result of high summer temperatures causing the temperature of the road base to rise to the point at which the bitumen binders melt and move upwards, causing deformation.
- **Increased winter precipitation and more intense storms overloading the drainage network** resulting in surface water flooding and ponding on the highways network. This is predicted to worsen in areas already at flood risk.
- **Subsidence and damage to structures** resulting from ground movement, soil moisture content and temperature extremes
- **Reduced life span of Highways Assets** for example to lamp columns caused by increased humidity and rusting
- **Increased seasonal pressure on the Highway Network** with increasing numbers of tourists visiting Dorset and the Jurassic Coast as a result of the area developing a more Mediterranean climate
- **Managed retreat of coastal roads** may become the only affordable option in vulnerable areas due to a combination of sea level rise and coastal erosion.
- **More intensive maintenance regime,** with for example a longer growing season affecting the vegetation management of the Highways network environment.

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[6] Over the period 1961-1990 and 1971-2000, from the "Local Climate Impact Assessment for Dorset", 2009

3.3.3 Carbon Emissions from Transport in Dorset

NI186 "Per capita reduction in CO_2 emissions in the local authority area" measures carbon emissions by sector. Using the most recent data available, Table 3.2 shows that between 2005 and 2008 overall carbon emissions in the Dorset sub-region fell by 5.6% from 7.00 to 6.61 tonnes per capita. Carbon emissions from road transport fell by 7.0% from 1.87 to 1.74 tonnes per capita in the Dorset sub-region, indicating that the road transport sector is experiencing a reduction in carbon in comparison to the other sectors. How much of this is due to reduced travel as a result of the recession is uncertain.

Table 3.3 shows that the total volume of carbon emitted by road transport over the period 2005 to 2008 dropped by 5.6% from 1308Kt CO_2 to 1235Kt CO_2. In 2008 transport accounted for 26.3% of all carbon emissions in the Dorset sub-region which is slightly higher than the average for the South West and the United Kingdom at 25.7% and 23.7% respectively.

Table 3.3 Trends in Road Transport Carbon (from NI186)

Area	Road Transport Carbon Emissions (kt CO2)				As a % of total Carbon Emissions			
	2005	2006	2007	2008	2005	2006	2007	2008
Bournemouth Borough Council	198	191	193	185	21.3%	20.6%	21.5%	20.6%
Borough of Poole	204	192	194	188	20.9%	20.0%	20.4%	19.8%
Dorset County Council	907	895	903	863	30.4%	30.2%	31.4%	30.1%
TOTAL DORSET SUB-REGION	**1308**	**1278**	**1289**	**1235**	**26.8%**	**26.4%**	**27.3%**	**26.3%**
South West Region	9572	9393	9474	9142	25.4%	25.2%	26.0%	25.7%
United Kingdom	107,379	105,407	106,309	102,155	24.0%	23.6%	24.4%	23.7%

The proportion of carbon emissions sourced from transport in the rural area (Dorset County Council) is significantly higher at 30.1% than for Bournemouth and Poole at about 20%. This could reflect the County's dispersed rural population, greater reliance on the car and longer trip distances. The rural area and market towns also generate the most transport carbon emissions per capita and could be a target for reductions in carbon emissions. However, these are likely to be the most difficult to achieve in comparison to the urban areas which tend to have better alternatives to the car and shorter commuting distances.

Table 3.2: Total Carbon Emissions vs. Road Transport Carbon Emissions per Capita in the Dorset sub-region 2005-2008[7]

Area	Total Carbon Emissions per Capita (tonnes CO_2)				Reduction in Carbon Emissions per Capita		Carbon Emissions from Transport per Capita (tonnes CO_2)				Reduction in Carbon Emissions per Capita	
	2005	2006	2007	2008	(tonnes CO2)	%	2005	2006	2007	2008	(tonnes CO2)	% change
Bournemouth Borough Council	5.79	5.73	5.47	5.43	0.36	6.2%	1.23	1.18	1.18	1.12	0.11	8.9%
Borough of Poole	7.07	6.94	6.78	6.72	0.35	5.0%	1.47	1.38	1.39	1.33	0.14	9.5%
Dorset County Council	7.45	7.36	7.10	7.05	0.40	5.4%	2.27	2.23	2.23	2.13	0.14	6.2%
TOTAL DORSET SUB-REGION	**7.00**	**6.90**	**6.66**	**6.61**	0.39	5.6%	**1.87**	**1.82**	**1.82**	**1.74**	0.13	7.0%

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[7] Data sourced from the Department for Energy and Climate Change at www.decc.gov.uk (2008 data released September 2010)

NI 185: Percentage CO2 reduction from local authority operations[8] indicates that between 12-14% of carbon emissions are emitted by fleet vehicles and business travel in Bournemouth and Poole Councils respectively, whilst in Dorset it is higher at 20%. NI185 excludes commuter travel, but identifies that tackling transport will make a contribution to reducing the overall carbon emissions of the sub-regions local authorities.

3.3.4 Factors Influencing Transport Carbon Emissions

The LCT strategy is concerned with the tail pipe emissions of carbon from transport, which are essentially emitted whenever a journey is made by a fossil fuel powered vehicle (note that an electric vehicle powered by electricity generated from a coal or gas fired power station is included within this definition). There are three key factors which determine the volume of carbon emissions from transport:

1. Number and frequency of Trips
2. Trip Length in kilometres
3. Emissions per kilometre by transport mode

Figure 3.1 shows the influences and interrelations between these factors which will affect the total carbon emissions of a specific journey

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[8] Data sourced from the Department for Energy and Climate Change at www.decc.gov.uk

Figure 3.1: Interrelated factors influencing carbon emissions from transport

Potential for avoiding the Trip i.e. replacing journey with ICT

Number & Frequency of Trips i.e. a function of population, employment and local attractions

Purpose of Trip i.e. can influence whether a journey can be avoided or substituted by a lower carbon mode

Timing of Trip i.e. can influence vehicle choice and efficiency if during congested peak hours

Trip distance i.e. influences whether the journey can be walked or cycled (if short)

Awareness, Choice, Perception of Quality and Availability of Transport Modes i.e. are people aware of the options? What is the perceived quality, what are the options available for the trip, is it low or high carbon?

Vehicle Characteristics i.e. determines the level of carbon emissions per kilometre travelled

Vehicle Occupancy i.e. determines the level of carbon emissions per passenger kilometre

Vehicle Speed i.e. a major influence on vehicle efficiency and carbon emission rates

3.3.5 Carbon Emissions by Vehicle Type

In 2008, road transport accounted for 92% of carbon emissions from domestic transport in the UK (excluding international aviation and shipping)[9]. Within road transport 52.5% of emissions came from passenger cars, 34.8% from freight (including HGVs and LGV's) and 4.5% from other road transport such as buses. Carbon emissions from Freight are therefore a large proportion of the UK transport carbon footprint.

Similar figures are not available for the Dorset Sub-Region, but using consumption of road transport energy (measured as thousands of tonnes of fuel) as a proxy[10], Figure 3.2 shows that 73% of fuel was consumed by personal travel[11] and 27% by freight. Whilst fuel consumption is not necessarily the same as carbon emissions, it is interesting to note that the Dorset sub-region consumes proportionately more fuel for personal travel than the UK average which is 65%. This implies that carbon from freight is less important an issue to tackle in Dorset than carbon from personal travel.

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[9] Carbon Pathways Analysis, DfT 2008
[10] Data sourced from "Regional and Local Authority Road Transport Consumption Statistics 2005-2008" (DECC 2010)
[11] (1) Personal travel includes buses, diesel cars, petrol cars and motor cycles (definition from DECC)

Figure 3.2 Road Transport Energy Consumption in the Dorset Sub-Region, 2008
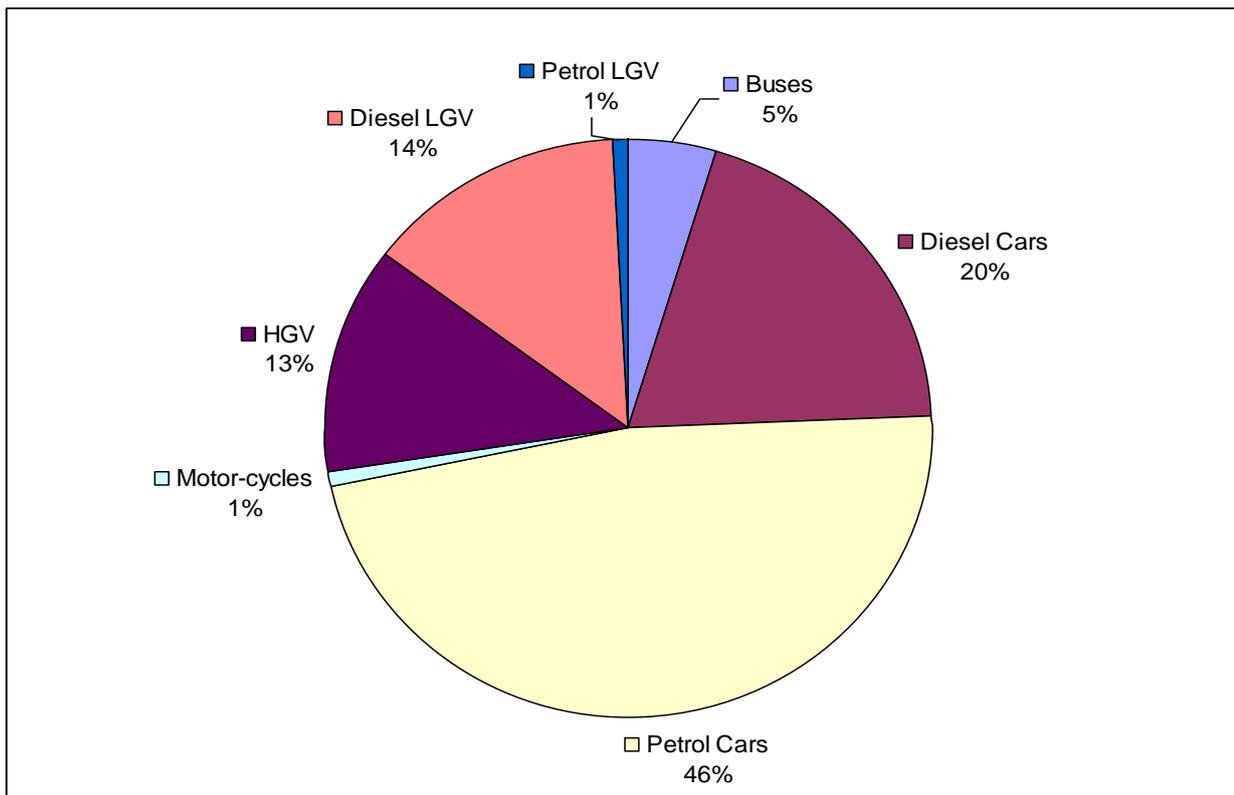
3.5.6 Carbon emissions by Trip Length

Table 3.4 shows the relationship between car trip length and carbon emissions in the UK[12].

Table 3.4 UK Carbon emissions by car trip length

Trip length	% of total Carbon Emissions	% of total car trips travelling this distance	% of total distance travelled by car
Under 1 mile	1	7	1
1-2 miles	4	17	2
2-5 miles	14	33	12
5-10 miles	18	21	16
10-25 miles	25	16	26
25-50 miles	15	4	16
50-100 miles	11	2	13
100 miles +	12	1	14

This shows that although reducing all vehicle trips and overall distance travelled is important, longer trips emit more carbon and could be an area for action. For example:

- only 7% of car trips are 25miles+, yet they are responsible for nearly a third of the total distance travelled by car and hence 38% of carbon emissions.

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[12] Based on DfT's Regional Data Book and Carbon Pathways Analysis

- The majority of car trips (57%) are less than 5 miles but account for a smaller proportion of carbon emissions

Further clarification is required regarding trip length in the Dorset sub-region to examine this relationship and how specific measures could be targeted at longer trips. There is significant scope for promoting walking and cycling for the short trips in the urban areas, for example in Bournemouth where 50% of all commuting trips are less than 2km. This national data does provide evidence that targeting certain low carbon solutions at specific journey distances could achieve a reduction in carbon, as shown in Table 3.5.

Table 3.5 Potential Low Carbon Interventions by Journey Distance (UK)

Journey Length	Proportion of Carbon Emissions	Target Interventions of greatest potential in terms of journey length
Less than 5 miles	19%	- Walking & cycling - Public Transport - Smarter Choices/behaviour change
5 to 10 miles	18%	- Public Transport - Car sharing & Car Clubs - Smarter Choices/behaviour change
10 to 25 miles	25%	- Reducing the need to travel - Public Transport (Rail) - Car sharing & Car Clubs - Eco driving & low carbon vehicles
25 miles +	38%	- Reducing the need to travel - Public Transport (Rail) - Car sharing - Eco driving & low carbon vehicles (subject to range)

3.5.7 Carbon emissions by Journey Purpose

As discussed in section 3.5.5, over half of transport emissions are sourced from private cars nationally, and in Dorset personal transport consumed 73% of all transport fuel. Clearly the LCT Strategy has to tackle personal travel in order to reduce emissions. Key to this is understanding the reason for the journey and hence potential interventions, suitability of transferring to different modes or reducing the need to travel.

Figure 3.3 shows that commuting and business trips account for large proportions of carbon emissions from household car journeys at 37% in total. These types of journey could be addressed through workplace and personalised travel planning. Leisure trips also account for a large proportion at 29% of total emissions (excluding shopping).

Figure 3.3: Estimated CO$_2$ emissions from household car journeys by journey purpose, GB, 2006
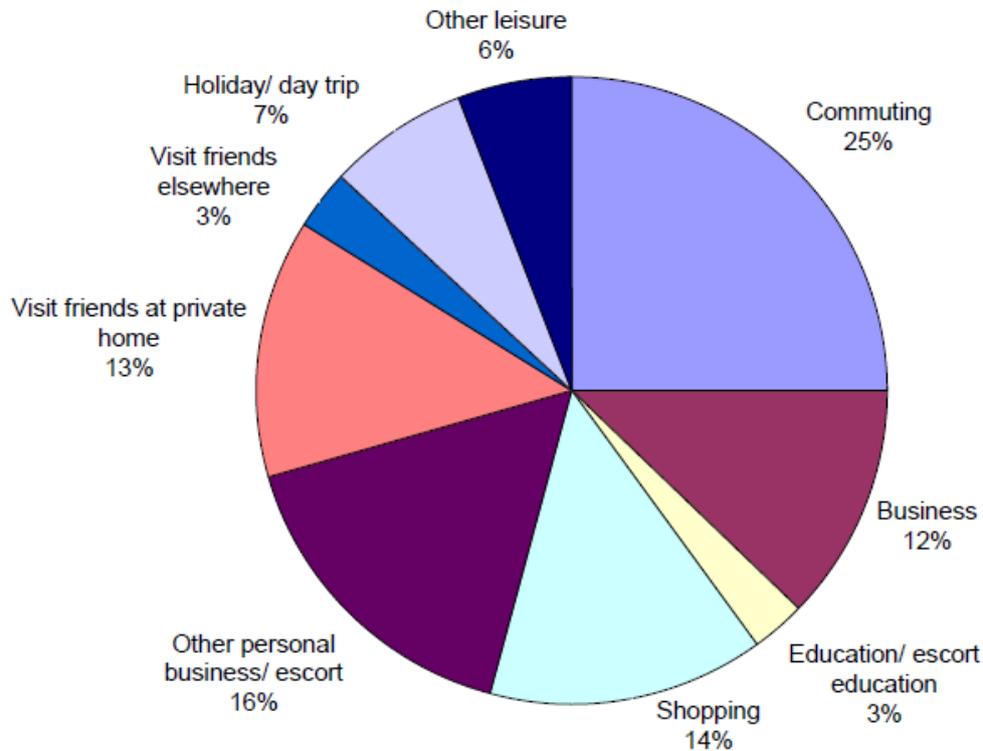

Figure 3.4 compares carbon emissions with journey purpose and length, indicating that certain journey purposes are associated with a greater proportion of carbon emissions than the proportion of passenger distance travelled:

- commuting trips account for 19% of passenger distance travelled but 23% of CO$_2$ emissions from household cars.
- Business trips account for 10% of total car mileage but 14% of total emissions.

Figure 3.4: Estimated CO_2 emissions from household cars by journey purpose and journey length, GB, 2002/2006 average
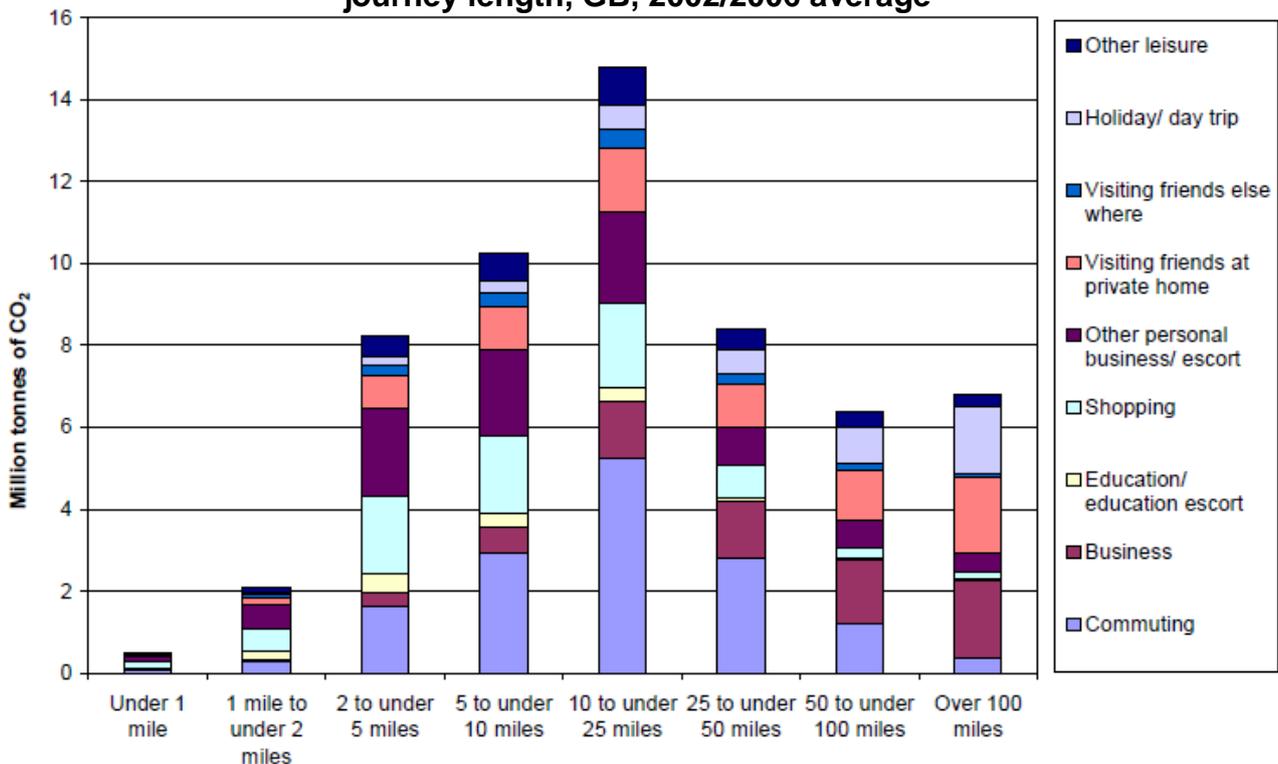
3.3.8 Carbon Emissions and Vehicle Speed

Vehicle Speed is an important influence on engine efficiency and hence carbon emissions. Figure 3.5 demonstrates the variation in carbon emissions according to speed (in km/hr), illustrating that:

- The most efficient vehicle speed is between 50-60km/hr (30-40mph)
- At speeds less than 20km/hr (e.g. 12mph in heavily congested conditions) and in excess of 90km/hr (e.g. 56mph on free flowing dual carriageways), carbon emissions are more than 50% higher than at the most efficient speed of 50-60km/hr
- Efficiency improvements to 2021 are expected to reduce the carbon emission rate
- Road type and conditions have a bearing on emissions (e.g. an urban road may have a 30mph or 40mph speed limit but in congested conditions will contribute significantly greater carbon emissions).

Speed variance will therefore have a significant bearing on carbon emitted and needs to be considered by the LCT Strategy.

Figure 3.5 Relationship between Carbon Emissions and vehicle speed
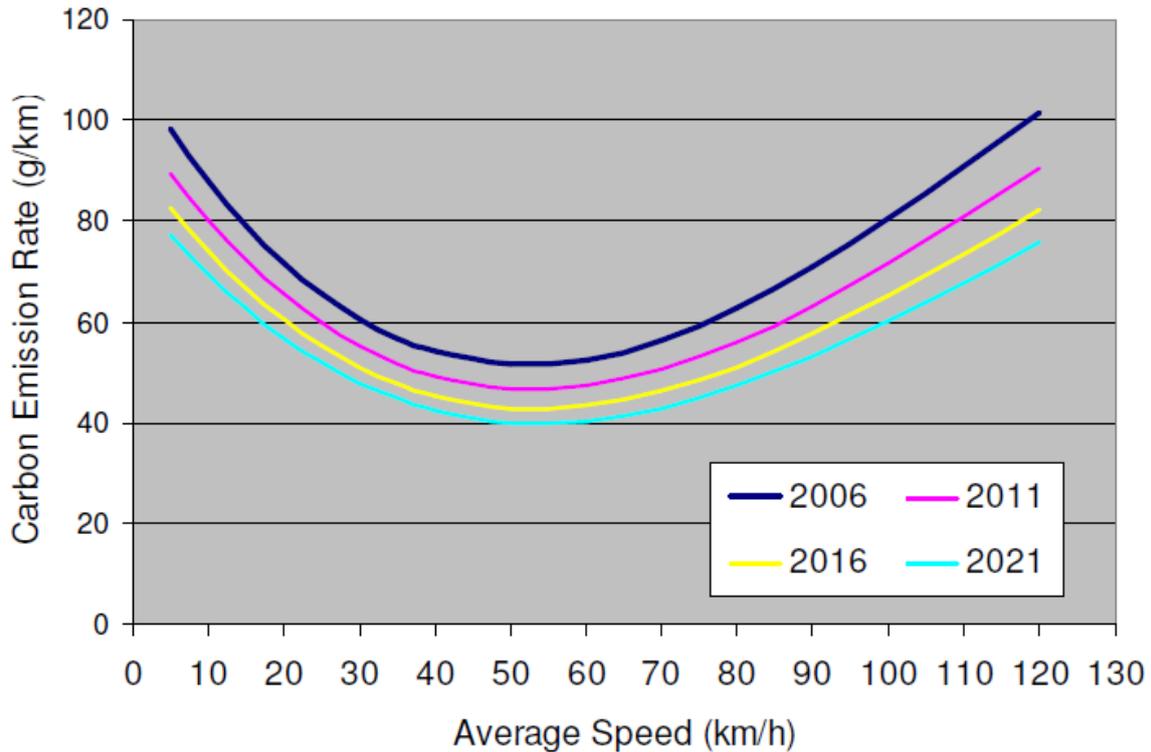
3.3.9 Attitudes to Reducing Carbon from Transport

Nationally, people are concerned about climate change and recognize links with transport and 60% claim to be prepared to limit their car use[13]. *Local data to be inserted here (when available) regarding people's perception on transport and climate change from:*

- *LTP3 & SEDMMTS Consultation*
- *Citizens Panel*
- *Bournemouth "Go Green" survey which also included attitudinal questions related to climate change and travel.*

3.4 SWOT Analysis

Figure 3.6 considers the current Strengths, Weaknesses, Opportunities and Threats in relation to developing a low carbon transport network. It was used as a basis to identify the key challenges to overcome in achieving the aims and objectives of the LCTS (see Chapter 4).

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[13] DfT January 2010 "Public attitudes towards climate change and the impact of transport: 2006, 2007, 2008 and 2009"

Figure 3.6 SWOT Analysis

STRENGTHS	WEAKNESSES
• The MAA & Green Knowledge Economy • The spatial planning system supports locating new homes and employment in a way which reduces the need to travel • South East Dorset (SED) conurbation and the smaller urban areas have a good core public transport & cycling network • SED has seen a strong growth in cycling levels above the national average • Almost all public sector schools have a school travel plan • Between 20-30% of Dorset employees are covered by a Workplace Travel Plan • SEDMMTS provides a sound evidence base to assess the potential for reducing carbon emissions within SED. • Dorset understands the risks to the local highways network from climate change • Dorset is providing leadership through the "Local Carbon Framework" • Sound sub-regional collaboration	• Road transport is effectively dependent on oil based fuels, emitting 27% of Dorset's Carbon (NI186) • Low carbon vehicles are not widespread • Much of rural Dorset can be difficult to access without a car • Car use is high in the conurbation and especially in the rural parts of Dorset • Relatively poor availability of alternatives to the car in rural areas • Public transport is seen as expensive and inconvenient in comparison to the car • Nearly half of all pupils in Dorset, Poole and Bournemouth do not attend their nearest school and live beyond reasonable walking and cycling distance • Inconsistent and under-resourced application of 'Smarter Choices' across Dorset to date • Limited publicly accessible electric vehicle recharging infrastructure
OPPORTUNITIES	THREATS
• Government subsidies for low carbon vehicles & high fuel prices will provide a financial incentive to business & public to use less carbon intense travel modes • Dorset's Green Knowledge Economy will support a low carbon transport system • SED has multiple centres close to residential areas suited to walking, cycling and public transport. • Smarter Choices are proven to reduce carbon emissions (DfT, 2009) and have good potential for reducing carbon emissions by increased application in SED and urban areas / market towns • Smarter choices and walking/cycling schemes are very good value for money • ICT, high speed broadband and demand management has significant potential to reduce the need to travel • Adjusting NI186 using local data will improve the accuracy of monitoring the LCT Strategy • Work with schools & colleges on distance learning/reducing the need to travel for 14-19 diploma etc • Availability of Developer Contributions funding	• Shortage of capital and revenue funding to develop low carbon transport and deliver the strategy • Potentially unpopular measures may generate public and political opposition • Public resistance to changing travel behaviour in light of the perceived convenience and benefits of the car • Unresolved central policy conflict driving car dependent service delivery. • Some elements of low carbon vehicle technologies are unproven • High cost of emerging low carbon vehicle technologies (e.g. electric vehicles) posing a barrier to widespread public uptake • Rapid onset of Peak Oil increasing the cost of conventional fuels before alternatives are in place, causing economic and accessibility problems • Disruption and damage to the transport network as a result of climate change • Challenges against SED Developer Contributions Policy resulting in an inability to mitigate against the cumulative impact of infill development which proliferates in the conurbation.

Left margin (green band): **Supporting Factor**

Right margin (red band): **Opposing Factors**

4.0 These are the key challenges the three local authorities face

From the SWOT analysis a number of challenges to reducing the transport emissions of carbon in the Dorset sub-region are apparent. These can be grouped into 4 key themes:

- **Behavioural;** encouraging people to think about transport implications before they make key life locational decisions about where to live, work, go to school etc and avoid locking in car dependency. Difficulty in persuading people to change their travel behaviour whilst high car ownership and home-work distances preclude easy solutions once locational decisions have been made which ignore transport

- **Physical;** lack of infrastructure for walking and cycling, physical changes to the nature of Dorset's climate, issues of accessibility and transport isolation in the rural areas.

- **Technological;** high financial costs and performance uncertainties surrounding emerging low carbon vehicle technologies

- **Delivery;** historical lack of funding and severe future budget constraints, potentially unpopular measures

Table 4.1 describes each of the challenges and identifies how they will be addressed through the LCT Strategy's Objectives.

Table 4.1: Challenges to Lowering Carbon Emissions from Transport and how the LCT Strategy will tackle these

#	Challenge	LCTS 1. Minimising the Need to Travel	LCTS 2. Leading by Example	LCTS 3. Reducing Car Dominance	LCTS 4. Smarter Choices & Carbon Budgeting	LCTS 5. Zero Emission Travel	LCTS 6. Making the Most Public Transport	LCTS 7. Low Carbon Vehicles & Technology	LCTS 8. Low Carbon Leisure Travel and Sustainable Tourism	LCTS 9. More Efficient Use of the Car	LCTS 10. Maximising the efficiency of existing transport networks	LCTS 11. Adapting to Climate Change	LCTS 12. Monitoring Success
	Behavioural												
1	The perception that "travel is good" when actually avoiding the need to travel at all can have more benefits	■	■		■						■	■	
2	Persuading people to swap the convenience of the car for other modes which are perceived to be less convenient, more expensive or physically demanding		■	■	■	■	■		■				
3	Helping people to think about the transport implications of the decisions they make when moving house, changing job or choosing a school for their child(ren)	■	■		■						■		
4	Emphasising individual responsibility for the carbon impacts of travel choices and the idea that it is not someone else's problem; as individuals we have to take responsibility for our own actions.		■		■						■		■
5	Convincing people of the benefits of using low carbon vehicles and technologies		■		■			■			■		
6	Scepticism about climate change and unwillingness to change habits		■		■				■				■
	Physical												
7	Poor accessibility without a car in some rural parts of Dorset	■				■	■	■		■	■		
8	Many people live too far from their home to walk, cycle or conveniently use public transport to reach their destination	■			■				■				

Challenge		LCT Strategy Objective											
		LCTS 1. Minimising the Need to Travel	LCTS 2. Leading by Example	LCTS 3. Reducing Car Dominance	LCTS 4. Smarter Choices & Carbon Budgeting	LCTS 5. Zero Emission Travel	LCTS 6. Making the Most Public Transport	LCTS 7. Low Carbon Vehicles & Technology	LCTS 8. Low Carbon Leisure Travel and Sustainable Tourism	LCTS 9. More Efficient Use of the Car	LCTS 10. Maximising the efficiency of existing transport networks	LCTS 11. Adapting to Climate Change	LCTS 12. Monitoring Success
9	High traffic volumes and speeds on our Highways, car dominated urban centres and physical barriers which deter people from walking and cycling			■	■	■							
10	Lack of direct, traffic free, convenient and continuous cycle routes which deter people from cycling			■		■							
11	Vulnerability of the Highways Asset to the physical effects of Climate Change	■										■	■
Technological													
12	High price barriers for low carbon (Hybrid/plug-in/full electric) vehicles with reasonable range and performance		■		■			■					
13	Uncertainty regarding the performance of low carbon vehicle technology		■		■			■					
14	Limited on-street publicly accessible electric vehicle recharging infrastructure in Dorset		■					■					
15	Lack of suitable low carbon technologies for freight							■			■		
Delivery													
16	Availability and level of Capital and Revenue funding		■								■		■
17	Staff Resources and experience		■										■
18	Political Commitment		■								■	■	■
19	Corporate Council priorities		■									■	■

5.0 This is how we the three local authorities will get there

5.1 Strategy area

The LTP3 area covers the whole Dorset sub-region and contains areas with diverse economic, environmental and socio-demographic characteristics. The transport issues consequently vary across Dorset and call for a variety of approaches in delivering the overall vision of the LCT Strategy. It is useful to split the sub-region into different areas which have similar characteristics, to allow consideration of the suitability of certain policy approaches. These are described in Table 5.1, along with the main policy strands that may be most effectively employed in tackling transport carbon reduction within these areas.

Table 5.1: Characteristics of the Dorset sub-Region

Area	Description	Policy Approaches with the greatest potential
South East Dorset (including Bournemouth, Poole and Christchurch)	Home to half Dorset's population, high population density with good core public transport and short distances to services in the centre, with the suburban fringes less well served. Generally high car ownership with some pockets of social deprivation and lower car ownership.	• Intensive application of Demand Management e.g. workplace parking levy • Walking and Cycling & Public Transport • Smarter Choices • Low Carbon Vehicle Technologies • Reduction in demand for travel to work, leisure etc through long term planning
Smaller urban areas and the Market Towns	Urban centres of population and associated hinterland with reasonable public transport and walking / cycling options. Generally high car ownership but some pockets of social deprivation and lower car ownership	• Less intensive Demand Management • Public Transport, Walking and Cycling • Smarter Choices • Low Carbon Vehicle Technologies • Reduction in demand for travel to work, leisure etc through long term planning
Rural Dorset	Sparsely populated villages and settlements with limited public transport and longer journeys to service / employment centres. Very high car ownership and dependency on the car to travel	• More efficient use of the car • Low Carbon Vehicle Technologies • Reducing the Need to Travel • Community Transport / DRT?
Jurassic Coast		• Walking, Cycling & Public Transport • More efficient use of the car • Sustainable Access to Tourism, • Waterborne transport

5.2   Strategy measures

The twelve overarching measures necessary to deliver the LCTS Strategy vision during the LTP3 period (2011 – 2026) are summarised in Table 5.2. Whilst many of the measures are valid Dorset wide, some are not applicable equally between the urban and rural areas. For example, public transport and walking and cycling are unlikely to be viable for meeting all the travel needs of those living in the rural area in the medium term and the car will continue to play a central role. In contrast, there is great potential for shifting trips to non-car modes in the urban areas where services and employment are more easily reached by these modes.

Table 5.2: Summary of LCT Strategy measures and application across Dorset

LCT SRATEGY MEASURE		Key challenges addressed	Applicability of Measure			
			SE Dorset	Urban & Market Towns	Rural Dorset	Jurassic Coast
LCTS 1	Minimising the Need to Travel	1,3,7,8, 11	++	++	++	-
LCTS 2	Leading by Example	1,2,3,4,5,6,12, 13,14,16, 17,18,19	++	++	+	-
LCTS 3	Reducing Car Dominance	2,9,10	++	++	-	-
LCTS 4	Smarter Choices & Carbon Budgeting	1,2,3,4,5,6,8, 9, 12,13	++	++	++	++
LCTS 5	Zero Emission Travel	2,7,9,10	++	++	-	-
LCTS 6	Making the Most of Public Transport	2, 7	++	+	-	+
LCTS 7	Low Carbon Vehicles & Technology	5,7,8,12,13, 14,15	+	+	++	-
LCTS 8	Low Carbon Leisure Travel and Sustainable Tourism	2, 6	++	+	+	++
LCTS 9	More Efficient Use of the Car	7, 8	-	-	++	++
LCTS 10	Maximising the efficiency of existing transport networks	1, 3, 4, 5, 7, 15, 16, 18	++	++	+	+
LCTS 11	Adapting to Climate Change	11, 18, 19	++	++	++	++
LCTS 12	Monitoring Success	4,6,11,16,17, 18,19,	++	++	++	++

KEY: -   = less applicable, +   = applicable, ++ = very applicable

LCTS 1: Minimising the Need to Travel

The most effective way of reducing the carbon emitted by the transport system is to avoid the need to travel by encouraging people to live near the employment and services they require. In the case of future housing, employment, education and retail development, the planning authorities can exert control over their location and form through Spatial Planning Policies. They can also consider where and how the public services they provide are delivered and encourage the use of Information Communications Technology (ICT) to its full potential. The three local authorities will:

1.1 Support Dorset's Planning Authorities to deliver the growth requirements identified in their respective LDF's in a manner which reduces the need to travel and where short distances between home and employment, education and services makes walking, cycling and public transport the mode of choice;

1.2 Mitigate the negative impact of additional trip generation from new development through securing Developer Contributions, which then fund improvements to low carbon travel modes including walking, cycling infrastructure, increasing bus provision and car clubs within developments.

1.3 Helping individuals and business think about the travel implications when they make key decisions such as moving house, starting a new job, deciding on a school or where to locate their business (for example through personalised travel planning and social marketing)

1.4 Encouraging parents to consider the health, time and travel related benefits of choosing their local school for their child. This could be delivered through a "Child Miles" transport focused behavioural change and social marketing campaign to provide information on home to school travel and to encourage parents to chose their local school for their children's education

1.5 Developing a campaign aimed at individuals and business to question "Is your journey really necessary?"

1.6 Influencing the transport outcomes of development through implementation of highways development control policies that ensure appropriate provision for low carbon transport modes is secured

1.7 Work with the Primary Care Trust (and their successors) to reduce the need to travel associated with accessing health services, noting the impact of the Coalition Governments' policy to provide patients with the "right to choose" their GP regardless of where they live.

1.8 Enabling more extensive home working, home learning (adults and students), smarter working and home shopping by strongly supporting ICT and high speed broadband in Dorset.

1.9 Support people in rural areas to minimise their travel needs by piloting a Rural Exchange 'hub' as a focus for inbound and outbound service delivery in the community, ICT and meeting rooms and community car clubs

1.10 Support and encourage local businesses and the public sector to develop local and low carbon supply chains e.g. bringing local produce to appropriate retail outlets including farmers' markets as well as the major nationals

LCTS 1: Minimising the Need to Travel

LCTS 2: Leading by Example

The Public Sector generates significant amounts of carbon through its business travel, staff commuting and how and where it provides services to the public. The three local authorities will lead by example and seek to foster public and political support for reducing carbon emissions by:

2.1 Jointly working at the County, Unitary and District Authority level to provide public services as close to the client group as possible or via means suited to remote access

2.2 Working with the Health Sector to establish Transport Carbon budgets for public service providers in Dorset, following a similar approach to that of the Carbon Reduction Commitment

2.3 Implementing, and where necessary, reinvigorating Workplace Travel Plans at all levels of Local Government

2.4 Strengthening the links between the local authority policy delivery teams and schools – sustainable travel, sustainable schools, passenger transport and admissions

2.5 Seeking political support by holding a regular Dorset-wide transport carbon event involving political representation and stakeholders at all levels

2.6 Continue to green the public sector fleet by increasing the proportion of biodiesel in the vehicle fleet[14] and considering the application of biogas for waste collection and highways maintenance fleets and the use of car clubs to replace private mileage for business travel.

LCTS 3: Reducing Car Dependency

Many of the employment opportunities and services within Dorset's urban areas lie within walking and cycling distance or a short journey by public transport from the main residential areas. However the uptake of these low carbon modes is still low, partly because they have insufficient priority over cars which tend to dominate and deter people. The three local authorities will improve the urban environment for pedestrians, cyclists and public transport users and reduce the demand for carbon intensive car use by:

3.1 Ensuring that transport improvements to urban centres place people at their heart and develop sustainable communities, rather than seeing transport as an end in itself

3.2 Supporting development which improves the public realm

3.3 Maintaining and enhancing green infrastructure in our urban centres, including street trees, green walls and green corridors

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[14] In 2010, the majority of the Dorset County Council vehicle fleet used a 5% biodiesel mix.

3.4   Controlling vehicular access to town centres through physical measures and network management

3.5   Strengthening trip-end parking controls across all land use areas and increasing parking charges above the rate of inflation in the urban centres

3.6   Developing park & ride to serve our larger urban centres and (seasonal) tourist destinations, where combined with demand management

LCTS 4: Smarter Choices and Carbon Budgeting

The three local authorities will recognise that poorly considered individual decisions can lock people into high carbon lifestyles. This strategy will promote and provide the information necessary to allow properly informed choices to be made. Walking, cycling, public transport and car clubs provide viable low carbon alternatives to the car for many journeys in the larger urban areas. In many cases they also provide health and financial benefits. Smarter Choices[15] measures will raise awareness of and promote these alternatives and their benefits, helping individuals and businesses to choose low carbon modes of transport. The three local authorities will deliver Smarter Choices and help people to consider the carbon impacts of how they meet their transport needs by:

4.1   Emphasising individual responsibility for the carbon impacts of people's individual travel choices

4.2   Adopting a unified Smarter Travel Branded Package to include comprehensive marketing and promotion strategy for low carbon, sustainable transport

4.3   Continuing to support the development and implementation/review of Travel Plans in schools and workplaces

4.4   Working actively with the rail and bus operators to improve interchange and maximise the potential for greater cycle/bus/rail journeys through the adoption of Station Travel Plans

4.5   Using the planning process to secure Workplace, Residential and Education Travel Plans and extend the coverage of the I-Trace monitoring package

4.6   Promoting the benefits of Car Sharing as a lower carbon form of travel

4.7   Providing travel planning support for sustainable tourism

4.8   Developing a programme of Personalised Travel Planning in Dorset, targeted at those areas which have the greatest potential for modal shift to low carbon transport

4.9   Stimulating the formation of Car Clubs in urban areas, especially within Bournemouth, Poole and Christchurch

4.10 Providing a Web resource and branded information promoting Low Carbon Travel Choices, linking closely with the active travel health and social inclusion / accessibility agendas.

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[15] Smarter Choices describes 'soft' measures which make the best use of existing 'hard' infrastructure (roads, railways, cyclepaths, bus routes etc) through targeted information, promotion and incentives.

4.11 Implementing Travel Awareness Campaigns deploying themes on health, climate change and financial savings to target specific groups to achieve a shift to low carbon travel modes

4.12 Working with business networks to promote the advantages of low carbon travel, particularly those seeking to develop in accordance with the philosophy of the Green Knowledge Economy. For example the Business Link environmental business support programme "Improving Your Resource Efficiency Programme" aimed at reducing the direct environmental impacts (including transport) of 'high growth' SME's in Dorset.

4.13 Working with voluntary groups in Dorset, particularly DA21 and the Transition Town movement, to maximise opportunities for jointly raising awareness on climate change and peak oil issues and are encouraging low carbon solutions.

4.14 Supporting the concept of personal carbon budgets for individuals and business and promoting their use, for example through a web based travel carbon calculator

4.15 Developing a low carbon travel incentive scheme, for example utilising a Travel Carbon Reward Card)

4.16 Adopting and setting a transport carbon budget in Local Government, including incorporating the "whole life" carbon emissions of transport schemes in the decision making process

4.17 Promoting "Buy local" purchasing of goods for example the "Direct from Dorset" accreditation scheme for local food and products.

LCTS 5: Zero Emission Travel

Walking and cycling emit virtually zero carbon emissions. Being physically active modes of travel, they also provide health benefits and offer the opportunity for people of all ages to incorporate exercise into their daily routine without having to set aside time and money to use the gym. The three local authorities will strive to deliver a major shift to these modes, targeting short journeys that are most conveniently suited to walking and cycling by:

5.1 Prioritising the delivery of walking and cycling infrastructure which improves permeability and removes severance in urban areas and will support people to make short, everyday journeys on foot and by bicycle

5.2 Engaging the public in delivering improvements to the walking environment by providing a public facility for audit of walking

5.3 Giving people of all ages the skills and confidence to walk and cycle safely by providing "Kerbcraft"[16] or other forms of child pedestrian training and Cycle Training to children and adults returning to cycling, as exemplified by Borough of Poole's "Pedal Again in Poole"

5.4 Providing support and encouragement to business and large employers to implement cycle facilities and promotions

5.5 Considering the implementation of Cycle Hire Schemes in the main urban centres, transport interchanges and tourist areas, where appropriate and cost effective

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[16] (child pedestrian training)

5.6   Improving the quality and availability of information and maps on Cycling and Walking opportunities across Dorset

5.7   Joining the national Cycle Journey Planner at www.transportdirect.info to assist people to plan journeys by bicycle in Dorset

5.8   Stretching the recommended Walking and Cycling distances to school to 1.6 km for Primary and 3.2km for Secondary.

5.9   Encouraging schools with a majority of pupils living outside the walking and cycling thresholds to implement "Park and Stride"[17], providing the opportunity for children who are driven to school to walk the final leg of their journey.

LCTS 6: Making the most of the Public Transport Network

Rail, bus and coach offer lower carbon emissions per passenger kilometre than single occupancy vehicles and already offer a good alternative within the larger urban areas and market towns and for inter-urban trips. They are also increasing in popularity, with rising trends in bus / rail passenger numbers in the urban centres. The concessionary fare scheme has also supported senior citizens to use the bus instead of the car. The three local authorities will maximise this opportunity by encouraging people to switch from single occupancy cars to public transport through:

6.1   Improvements to the coverage and frequency of Public Transport, especially within the major urban centres and the hinterland of market towns

6.2   Continuing to provide Demand Responsive Transport and support Community Transport targeted at areas of need

6.3   Working with public transport operators to improve the extent of integrated ticketing and marketing

6.4   Securing improvements to the bus/rail/ferry interchange and especially for pedestrians and cyclists in terms of access to and within major travel interchanges

6.5   Providing real-time rail and bus information in the urban areas and market towns to improve the customer experience and remove uncertainty about the journey

6.6   Seeking to improve the range and efficiency of public transport services by exploiting opportunities for combining these with the social and education transport needs of the Local Authorities

6.7   Supporting the creation of a discounted ticketing scheme for young people who may otherwise be unable to afford public transport, encouraging them to get into the habit of using public transport

6.8   Promoting journey planning services which are available free of charge to the public via the internet and telephone (such as gettingabout.com, traveline and transportdirect.com)

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[17] Park and Stride schemes encourage parents to park at a designated area away from the school gates and then walk the short distance to the school (usually taking no more than 5-15 minutes). This has limited benefits in terms of reducing the overall trip length made by car and hence carbon emissions, whilst allowing children to incorporate some active travel into their daily routine and reducing road safety, traffic congestion and air quality issues at the school gates.

LCTS 7: Low Carbon Vehicles and Technology

Whilst not enough on its own, the shift towards greener, zero or low carbon emission vehicles forms a substantial part of the National approach to cutting transport's share of carbon. Coupled to a decarbonised National Grid, electric vehicles have a role to play over the lifetime of LTP3, as do sustainable biofuels and the developing hydrogen transport fuel technology. The three local authorities will support the adoption of low carbon fuels and vehicle technologies in the domestic, business and HGV fleet by:

7.1 Helping people make informed choice when choosing a new vehicle so they can compare the whole life carbon costs of different types of vehicles and fuels, including operating the vehicle, range, cost and its 'embedded' carbon resulting from vehicle manufacture.

7.2 Supporting the national programme of installing a publicly accessible on-street Electric Vehicle Charging Point (EVCP) infrastructure, in appropriate locations.

7.3 Supporting the adoption of sustainable biofuels[18] as an addition to conventional fuels, especially for HGV's which have limited scope for conversion to electric

7.4 Accepting that the future vehicle fleet may be powered by a mix of fuels and energy vectors and not seeking to preclude one fuel/technology over another and supporting the potential future emergence of a hydrogen powered transport fleet

7.5 Working with District Council partners to apply on-street and off-street parking charges tiered to vehicle carbon emissions. These increase the parking charges for the most polluting vehicles and provide free or discounted parking charges zero and low carbon emission vehicles respectively

7.6 Considering the suitability of low emission zones for SED which restrict access only to cars meeting a maximum carbon emission standard. This would also have air quality benefits

7.7 Promoting the support and funding available from the Government to local business and individuals to green their fleets

7.8 Working with bus operators to accelerate the uptake of low carbon and biogas[19] buses in Dorset[20]

7.9 Considering how carbon emissions from the freight and tourism sector could be reduced through the innovative application of alternative vehicle technologies

7.10 Examining the potential for using waterborne transport and the ports of Weymouth, Portland and Pool to meet freight and passenger transport needs

7.11 Working with Bournemouth Airport to examine how the uptake of more efficient aircraft handling techniques on take-off and landing and traffic control can reduce the carbon emissions from aviation in Dorset

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[18] Sustainable Biofuels are those which meet standards set by the Government to discourage negative direct or indirect changes in land use and which have a significantly lower net lifecycle carbon emission per unit of energy than diesel or petrol
[19] Biogass or biomethane is fuel from domestic waste
[20] A bid was submitted by Dorset County Council in October 2010 to the DfT Green Bus Fund 2 to support the purchase and use of 2 electric buses in Poundbury

LCTS 8: Low Carbon Leisure Travel and Sustainable Tourism

Travel related to tourism, leisure and visiting friends accounts for 30% of carbon emissions from transport nationally[21]. This figure is likely to be higher in Dorset due to its popularity as a tourist destination and the majority will arrive by car and are likely to use it. However, how far they travel could be reduced and the SW visitor survey has shown that staying close to accommodation is what most people do on days when they do not use the car, rather than switch mode. Tourism is a key industry of importance to the National Economy and Dorset's economy in particular. The three local authorities will seek to support sustainable tourism through reducing the carbon emissions from this sector by:

8.1 Working with tourism professionals to gain a better understanding of the carbon footprint associated with tourism and leisure travel and how the needs of these journeys can be met through low carbon means

8.2 Focussing on promoting low / no mileage activity once people are within their destination area, coupled with longer dwell times within visitor attractions.

8.3 Identifying potential 'car free' holiday destinations in Dorset that are easy to access and enjoy without a car and market pilots on this theme

8.4 Working with tourism providers to consider the potential for promoting arrival into Dorset by rail and then using car hire or car club for short trips so that holidays are not constrained by being completely car free

8.5 Using existing initiatives to work with the tourism sector to reduce the carbon footprint of their visitor generated trips. For example the Green Tourism Business Award Scheme, which is promoted by Destination Dorset encouraging tourism businesses to reduce their environmental impact.

8.6 Improving the quality, provision and communication of travel information targeted at tourists by linking the Highways Agency and Public Transport Operators with the main communicators with visitors – the tourism businesses, destination organisations and Tourist Information Centres. Crucial to this is not the existence of information but when, how and who presents it.

8.7 Investigating opportunities for tourism businesses to be provided with discounted / free tickets to familiarise themselves with public transport services / options

8.8 Implementing pilot "Micro Park & Walk" schemes at key points along the Jurassic Coast such as the A3052 to relieve pressure from the coastal towns and reduce overall trip lengths and carbon emissions

8.9 Developing event travel plans for key leisure attractions, shows, food and music festivals using existing resources such as GOSW's green event guide http://www.oursouthwest.com/SusBus/gevents.html

8.10 Investigating scope for greater use of smart card technology across public transport modes for reduced entry prices at tourist attractions.

8.11 Support and encouragement of transport facilities, whether heritage or otherwise as attractions in their own right. Examples might include Swanage Railway, West Moors Country Park railway or leisure focused cycling improvements (North Dorset Trailway)

8.12 Promote the use of waterborne transport for meeting tourist access needs in a lower carbon manner, pending the outcomes of further research into this area.

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[21] Carbon Pathways Analysis, DfT (2008)

LCTS 9: Making More Efficient Use of the Car

Large parts of rural Dorset have no or very limited public transport and are too far away from employment and services to travel on foot or by bicycle. With poor accessibility by non-car modes in such areas the car will continue to remain the most viable mode of getting about. In these areas the three local authorities will work with local people and other partners to encourage efficient and low carbon use of the car by:

9.1   Determining the potential for reducing speed limits on Dorset's highways to more fuel efficient speeds such as 40-50mph to reduce carbon emissions

9.2   Supporting the development of Community Based Car Clubs in rural Dorset

9.3   Actively promoting the benefits of both informal car sharing, sharing a lift with a neighbour or friend, and formal car sharing, where people register on carsharedorset.com and search for or offer a lift with people they may now know

9.4   Promoting Eco-Driving to business, freight providers and individuals, including providing subsidised eco-driving training

LCTS 10: Maximising the efficiency of the existing transport network

Intelligent Transport Systems (ITS) offer the opportunity to maximise the efficiency of our existing transport network and also reduce carbon emissions by promoting the most efficient vehicle speeds, avoiding unnecessary mileage and providing accurate real-time travel information easing the use of public transport and avoiding congestion hotspots. The three local authorities will use ITS to maximise the efficiency of the existing transport network by:

10.1   Considering Variable Messaging on the main road corridors to encourage the most carbon efficient driving speed

10.2   Provide parking guidance systems to avoid wasted fuel and time spent searching for a parking space within out town centres

10.3   Providing real-time travel information to road and public transport users about congestion and traffic delays to allow people to plan their journeys more effectively, change routing, delay departure to avoid congestion or use ICT to negate the need for the trip at all

10.4   Using variable speed limits on high speed links to achieve the optimum balance between journey time and fuel / carbon efficiency depending on traffic flows

10.5   Use ITS to communicate the carbon impacts of different travel modes in real-time i.e. within bus / train displays and via use of mobile satellite navigation systems in private cars.

10.6   Utilise Variable Messaging Systems to communicate road side information direct to drivers about carbon emissions and driving techniques, including the potential for real-time emissions

10.7   Supporting Freight Hauliers to use ITS to maximise efficient freight movements and minimise the proportion of 'empty load' trips, for example through Intelligent Data Management, GPS tracking systems and cargo load monitoring

10.8   Utilise the existing network of permanent Automated Traffic Counting Units to provide real time monitoring of traffic volumes and speeds to provide early warning of congestion allowing for improved incident management.

LCTS 11: Adapting our Highway Assets to Climate Change

The Highways Asset is likely to be tested by increased flooding events, structural melting and subsidence as a result of the projected changes to Dorset's climate. The three local authorities will adapt the Highways Asset and change the way we plan and manage our maintenance to deal with the direct physical impacts of climate change by:

11.1   Minimising carbon emissions / energy costs from operation and maintenance of the Highways Asset by adopting low carbon street lighting, traffic signals and green resurfacing (recycled materials, cold processes etc)

11.2   Continuing and expanding the current programme of switching off street lights if current trials are successful.

11.3   Quantifying the likely effects of climate changes and areas at risk through the joint study with The Met Office

11.4   Developing new maintenance processes, techniques and materials which are adapted to the changing climate

11.5   Apply Green Infrastructure Principles to maintaining the Highways Asset by seeking opportunities for planting street trees and using the Highways verge to ameliorate high temperatures in urban areas and buffer flood events

11.6   Consider managed retreat where the Highways Asset can no longer be economically maintained, such as reverting proportions of low traffic volume, minor roads to unmade unmaintained roads and green lanes

LCTS 12: Monitoring Success

The three local authorities will monitor and report on carbon emissions from transport by:

12.1   Using NI 186 "Per capita reduction in CO2 emissions in the LA area" to monitor our carbon emissions from transport

12.2   Adopting this as the key LTP3 indicator for carbon emissions and reporting our progress towards meeting the transport carbon reduction target through the LTP3 monitoring report

12.3   Investigate the potential for developing an enhanced local version of NI186 which includes more local data on traffic flows

12.4 Continuing to apply the School Travel Health Check to monitor carbon emissions associated with school travel

12.5 Using the I-Trace system to monitor carbon emissions associated with workplace travel plans

12.6 Investigate the ability to monitor total volume of diesel and petrol fuel sales within Dorset as a proxy for total transport carbon emissions

12.7 Consider whether monitoring average annual fuel price could be used as a proxy indicator to measure the relative risk of Peak Oil

12.8 Record incidents of weather and related damage affecting the Highways Asset

6.0 Monitoring progress

6.1 Carbon Reduction Target

The Joint LTP3 authorities have an obligation to ensure their activities support the legally binding carbon reduction targets set by the Climate Change Act 2008. The three authorities have jointly signed up to the Bournemouth, Dorset and Poole Energy Efficiency Strategy (2009). This includes a target to achieve a 30% reduction in CO_2 emissions by 2020, relative to 2005, in line with national targets set in the Climate Change Act. The strategy states that 'the same target would need to be applied to transport through the local transport plans, if the overall CO2 reduction target is to be achieved in Dorset'

With this in mind the Carbon Management Teams in the joint LTP3 authorities determined that the domestic, commercial and transport sectors should all strive to reduce carbon emissions by equal measure. **An aspirational target to reduce transport emissions by 30% by 2020, relative to 2005, across the Dorset Sub-Region is therefore proposed in LTP3.** This meets the Climate Change Act 2008 target for a 34% reduction on 1990 levels by 2020[22].

LTP3 CARBON REDUCTION TARGET: Reduce the carbon emissions from the transport sector in the Dorset sub-region by 30% on 2005 levels by 2020.

6.2 Headline LTP3 Indicator – NI186

A report commissioned by the South West Local Authorities[23] to investigate monitoring and forecasting carbon emissions identified that measuring emissions from road transport is difficult, time consuming and potentially resource intensive. It recommended that NI186 Carbon Emissions per Capita by Local Authority be used to monitor carbon emissions from transport. This report suggested that NI186 could be further improved by using more detailed information on local traffic flows, local fleet composition and local data on trip making and trip generation. We will investigate whether NI186 can be adapted in this way data to improve monitoring emissions, within acceptable resource limits.

Progress towards this target will therefore be assessed through NI 186 which offers the following advantages:

- Provides an accepted, standardised indicator which can be easily compared with the performance of other Local Authorities, Regions and Nationwide;
- Data is readily available, collected annually by DECC using robust methodology
- Provides a dataset from a baseline of 2005 and will allow trend analysis annually
- It is an existing indicator within the MAA

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[22] Note that we don't know the actual carbon emissions from transport in 1990 and DEFRA only started producing CO_2 data for Local Authority areas in 2005. Therefore 2005 was chosen as the baseline with the target adjusted accordingly.
[23] "South West Climate Change Assessment Framework; Developing an Assessment Framework and Critique of Existing Methodologies" WSP February 2010

NI186 calculates carbon emissions from road and rail transport by determining hot exhaust emissions from fuel consumption calculations based on emission factors for each vehicle type[24]. These in turn are calculated on the basis of the composition of the vehicle fleet (age profile and fuel mix based on data from the DVLA[25]). The resulting fuel consumption and emission factors are applied to detailed mapped traffic movements, using recorded daily flows on major roads, regional average flows and minor roads (the methodology for mapping traffic flows on minor roads has significantly improved). The fleet mix varies by location and therefore different factors are applied to different road types in different geographical areas. NI186 does not include emissions from motorways, which is not an issue for Dorset, or electric railways as these are included in the emissions from the commercial sector.

6.3 Supporting Indicators

Other sources can provide useful information on the trends in carbon emissions performance. The following indicators will complement NI186 in measuring the effectiveness of the LTP3 in reducing carbon emissions from transport:

1. School Travel Health Check, which records carbon emissions associated with school travel through the annual school census, allowing trend analysis.

2. From 2010 the I-Trace system has been operational. This monitors the performance of workplace and residential travel plans, including carbon emissions, which will provide a quantifiable measure annually of the impact of travel planning in reducing carbon emissions

3. Record incidents of weather and related damage affecting the Highways Asset.

6.4 Reporting Progress

NI186, the School Travel Health Check and the I-Trace system will be interrogated annually to monitor carbon emissions from transport, taking account for the considerable time lag in the publication of NI186 data. This information will then be analysed to assess the effectiveness of the LCT Strategy and LTP3 in reducing carbon emissions from transport, taking into account the impact of other external events which could influence travel demand and emissions such as the cost of fuel and the performance of the UK Economy.

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[24] These are specified by the National Atmospheric Emissions Inventory www.naei.org.uk/
[25] Driver and Vehicle Licensing Agency