



One Planet Dartmoor: Dartmoor Low Carbon Strategy

Chapter 7:
Travelling Better, Travelling Cheaper:
A Sustainable Transport Plan for Dartmoor

March 2011

Andrew Rowell
Andrew Shadrake

T: 01822 8 01822
F: 0845 625 0849
E: andrew.shadrake@dartmoorcircle.org.uk

The Dartmoor Low Carbon Strategy:

Contents

Chapter 1:	Introduction: One Planet Dartmoor and the Dartmoor Low Carbon Plan
Chapter 2:	A Vision for a Low Carbon Dartmoor
Chapter 3:	Where is Dartmoor?
Chapter 4:	Measuring Dartmoor's Footprint
Chapter 5:	Enabling a One Planet Economy for Dartmoor: People, businesses and communities working together
Chapter 6:	Delicious Dartmoor: A Resilient Local Food Economy for Dartmoor
Chapter 7:	Travelling Better, Travelling Cheaper: A Sustainable Transport Plan for Dartmoor
Chapter 8:	Warmer Homes Lower Bills
Chapter 9:	Prosperous Dartmoor: Supporting Low Carbon Business
Chapter 10:	Waste Free Dartmoor
Chapter 11:	A Renewables Plan for Dartmoor
Chapter 12:	Business Plan: Financing the Dartmoor Low Carbon Plan

Chapter 7: Travelling Better, Travelling Cheaper: A Sustainable Transport Plan for Dartmoor

Contents

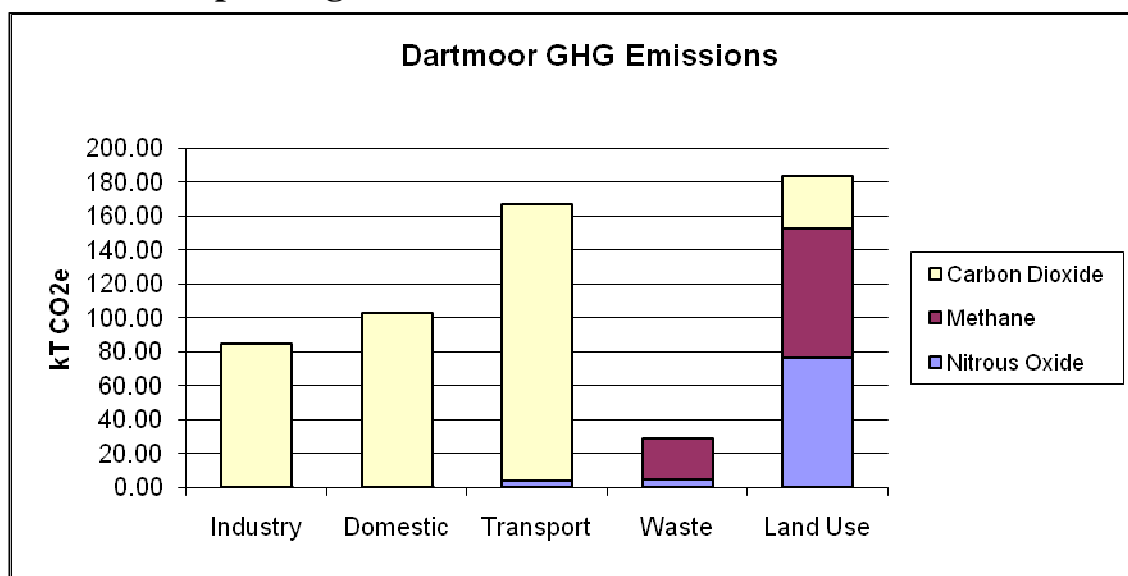
7. Travelling Better, Travelling Cheaper: A Sustainable Transport Action Plan for Dartmoor	33
7.1 <i>Introduction: The scale of the problem</i>	33
7.2 <i>Barriers to reducing transport emissions</i>	35
7.3 <i>Fairer Travel, Healthier Travel: The social, financial and health benefits of a low-carbon transport system</i>	36
7.4 <i>Reducing transport emissions.</i>	37
7.4.1 Encouraging a modal shift from cars to bikes, walking or public transport	37
7.4.2 Reducing distance travelled by mode of transport.	43
7.4.3 Reducing distance travelled by mode of transport.	43
7.4.4 Increasing efficiency of vehicles, or using electric vehicles powered by renewable energy.	45
7.4.5 Reducing car ownership.	45
7.5 <i>Demand-Responsive Multi-Use Transport</i>	46
7.6 <i>Promoting Car-Free Tourism</i>	49
7.7 <i>Reducing Emissions from Aviation</i>	51
7.8 <i>Travel Dartmoor: Actions for Dartmoor sustainable travel</i>	51
7.8.1 Transport Objective – Short-term Activities	52
7.8.2 Transport Objective – Medium--term Activities	53
7.8.3 Transport Objective – Long--term Activities	53
7.9 <i>Next steps: Developing and implementing the programme</i>	53

7. Travelling Better, Travelling Cheaper: A Sustainable Transport Action Plan for Dartmoor

7.1 Introduction: The scale of the problem

This chapter's primary purpose is to offer ways to reduce the transport carbon footprint of Dartmoor. Its secondary purpose is to propose measures to help deliver the Dartmoor National Park Management Plan's aim of achieving "reduced car use, and the development of viable alternatives designed to meet the needs of local communities and visitors".¹ The Management Plan recognises that this has the "potential to enhance Dartmoor's special qualities and visitor enjoyment whilst contributing to a reduced carbon footprint".²

Transport Figure 1: Dartmoor Greenhouse Gas Emissions



The transport related carbon emissions from Dartmoor total 66,610 tonnes.³ The bar chart in Chapter 4, reproduced above as Transport Figure 1, shows that this is by far the greatest level of carbon emissions by sector, and is only marginally exceeded in total greenhouse gas emissions by land. It is therefore critical to any emissions reducing strategy to reduce emissions that the transport sector be addressed.

Unfortunately, reducing transport carbon emissions is very challenging. The UK has failed to do this in the past, and projections show this is not likely to change. According to Parliament's Environmental Audit Committee "transport is the only

¹ <http://www.dartmoor-npa.gov.uk/index/lookingafter/pl-dnpgmtplan-text.htm> cl. 1.36

² http://www.dartmoor-npa.gov.uk/au_mp2007-2012_full.pdf

³ (2010) Combined Carbon Dioxide, Methane, Nitrous Oxide Emissions - English NPs English National Parks Association

sector of the UK economy in which carbon emissions were higher in 2004 than the baseline year of 1990, and the only sector in which emissions are projected to be higher in 2020 than in 1990.”⁴

The national picture is reflected locally. Increases in transport flows across Dartmoor are in line with national trends, at 0.76 per year.⁵ While many summer transport movements carry tourists, over the whole year a great proportion are from people travelling to work, either by car or van.⁶ There is clearly a need to help people to move from private to public transport, reduce their mileage or increase their vehicle occupancy (see next section).⁷ The Dartmoor Management Plan notes that viable alternatives to cars are essential to achieve behaviour change.

Aviation emissions are not part of the total emission figure above, but emissions from both domestic and international flights are likely to be a substantial proportion of emissions in respect of residents of Dartmoor and the surrounding towns. People in the UK fly more, on average, than people anywhere else in the world,⁸ and flying produces 13% of the country’s emissions-related climate impact.⁹ A return flight to New York uses the same per capita emissions as running a car for a year¹⁰.

There is a considerable need to encourage people to fly less and to discourage them “spending” any emissions they have saved from flying.¹¹ In recognition of this, the government has signed up to an EU target of ensuring the total energy consumed by aviation shall not exceed 6.18% of all energy use¹².

The next section looks at the barriers to reducing emissions from cars and also aviation. After that, the different possible solutions are reviewed, and then a plan

⁴ House of Commons Environmental Audit (2006) Committee Reducing Carbon Emissions from Transport Ninth Report of Session 2005–06 Volume I at

<http://www.publications.parliament.uk/pa/cm200506/cmselect/cmenvaud/981/981-i.pdf>

⁵ Dartmoor National Park Authority (2010) *State of the Park Report: 2010 Review* DNPA p.

⁶ “Many people living on Dartmoor commute to Exeter, Plymouth, and Newton Abbot, as well as smaller towns such as Tavistock, Okehampton and Ivybridge. Census data shows that 59% of workers commute driving a car or van.” Dartmoor National Park Authority (2010) above p. 11.

⁷ Another significant proportion is aviation emissions. While Dartmoor does not have an airport, people fly to visit it, and its resident fly overseas for work and leisure. This paper offers some ways in which aviation emission can be addressed.

⁸ In the UK we average four international flights per year. <http://www.d2earth.org/information/facts#57>

⁹ Measured to include flying’s radiative forcing effect. <http://www.d2earth.org/information/facts#57> Figures relating to aviation can be offered in different ways. For example, Short-haul flights within Europe with Ryanair (which describes itself as “Europe’s greenest airline” costs the same in energy terms as if each passenger drove to their destination 2 to a car. David Mackay (2010) *Sustainable Energy without the Hot Air* p 36 at http://www.inference.phy.cam.ac.uk/withoutair/c5/page_36.shtml Carbon emission costs, however, are generally recognised as being more damaging than equivalent emissions at ground level, and are accompanied by other greenhouse gas emissions, and the creation of water vapour, which traps heat. Aircraft CO₂ emissions are normally multiplied by 2.7 to demonstrate the total radiative impact of flying

¹⁰ At average mileage and emissions

¹¹ Which would be an example of the so-called “rebound” effect.

¹² www.r-e-a.net/document-library/policy/policy-briefings/0812REDSummaryWebVersion.pdf

for reducing emissions is laid out. The plan is ambitious, and will only be achievable with concerted local government and community action, and adequate funding.

7.2 Barriers to reducing transport emissions

The UK transport network is designed primarily around road transport, and facilitates car travel. This can be changed, but would take national action. Meanwhile, it means that local actions will have limited effect.

An individual local action is also likely to have little effect. A recent survey from the Yorkshire and Humber Assembly, which concluded that even “with significant large scale implementation of an uncompromising suite of current practical transport policy approaches to delivering low carbon transport in the Yorkshire and Humber region” the aim of delivering a 35 per cent reduction in transport CO₂ emissions by 2021 was “unlikely to be achieved.”¹³ In order to make any progress at all, the study concluded “it will be necessary for action on tackling carbon emissions from transport to be in the form of a combination of measures, as no single transport measure appears to provide the ‘solution’ on its own, nor have an impact of an order of magnitude larger than any of the other modelled measures.”¹⁴

The study examined areas where a large percentage of the population live in cities and towns. In all areas, the most important measure is to help people move from using private cars, to using public transport or other lower emission forms of transport.¹⁵ This is known as “modal shift”. In rural areas such as Dartmoor, modal shift from cars to public transport is likely to be far harder than in urban areas. People living in rural communities are generally more dependent on cars than people living in urban areas, and generally travel more often and further. Dartmoor follows this pattern.

Some plans are more optimistic than the Yorkshire study referred to above. Exmoor National Park believes adopting the sort of initiatives outlined in the next section (together with a heavy reliance on electric vehicles, which is not being proposed in this paper) could potentially reduce transport emissions by around 21.5% by 2025.¹⁶

Reducing car use only becomes feasible and possible if there is an appropriate and

¹³ <http://www.yhassembly.gov.uk/dnlds/JMP%20SEI%20Final%20Report%20%20310308.pdf> This study even went as far as to state that the region may “need to look to sectors other than transport, where remediation measures may be easier to implement, both in technical and political terms, to achieve significant carbon emission reductions, especially in the short term”.

¹⁴ <http://www.yhassembly.gov.uk/dnlds/JMP%20SEI%20Final%20Report%20%20310308.pdf>

¹⁵ ¹⁵ House of Commons Environmental Audit (2006) (above) p.4 point 9.

¹⁶ http://www.exmoor-nationalpark.gov.uk/exmoor_carbon_neutral_programme_consultation_v2.pdf

cheap alternative. Making an alternative affordable can be particularly difficult because many households already have one or more cars. When calculating the value of an alternative, they discount the capital cost of the car.

Furthermore, many people need a car to remain mobile. As the Dartmoor National Park Management Plan acknowledges, “The isolated rural communities of Dartmoor will continue to depend on private transport. The challenge remains to reduce single person car use wherever feasible and possible”.

Aviation emissions present a different challenge, because the infrastructural barriers to change give aircraft an even greater price advantage than cars have. One of the reasons flying is cheap is because there is no VAT on either air tickets or aviation fuel. This is, in effect, a state subsidy. For this reason action is needed at the national level. Nevertheless, some local action is possible, and is described later in this chapter.

Despite the challenges, there are ways to reduce emissions from both land and air transport. Many of them can save people money, time, or stress. They are outlined in the next section. It is clear that transport emissions will be hard to reduce, and that a variety of measures will be needed to do so.

7.3 Fairer Travel, Healthier Travel: The social, financial and health benefits of a low-carbon transport system

A low carbon transport system will have a variety of non-environmental benefits, and these may be a key to achieving change. This is because it should be possible to create partnerships with organisations whose priority is to achieve those benefits, it will be possible to implement activities more quickly and more cheaply than would otherwise be the case.

The non-environmental benefits include:

- Increased mobility for people without cars. Roughly 19% of households in Devon do not have access to a car (though the figure may be lower on Dartmoor itself). While this group of people clearly do not generate significant road transport emissions at present, many are dependent on buses, car-sharing, community transport. Any initiatives which increase the availability of those options will benefit them.
- Improved health. Obesity is a major problem throughout the UK.¹⁷ The

¹⁷ The rates of overweight and obesity amongst adults have trebled since the 1980s. Almost a quarter of men and women are obese. Obesity is also increasing in children. If things do not change by 2050, levels of obesity will rise to 60% in men, 50% in women, and 25% in children. Although data on obesity rates in Devon is said to be limited, adult obesity prevalence in the county is said to be comparable to the national one. Child obesity rates are slightly lower than the national average.¹⁷

NHS Healthy Weight Strategy for Devon, 2008 – 2011¹⁸ has recommended that people should be encouraged to walk and cycle as a way of reducing obesity.¹⁹ It would be worthwhile discussing with GP consortia whether there is scope for working with them to encourage walking and cycling. Because of Dartmoor's hilly terrain, narrow roads and long distances between communities, however, it is unlikely to make a great contribution to reducing overall emissions.

- **Reduced costs.** When people no longer need to own a car (or more often a second household car) because they can rely on public transport, they can save money.²⁰

One way of reducing transport carbon emissions, therefore, is to focus on its non-environmental benefits. To be effective, any initiative needs to address at least one the five ways of reducing emissions. The next section looks these.

7.4 Reducing transport emissions.

There are five main ways of reducing emissions from road transport:

- 1. Encouraging a modal shift from cars to bikes, walking or public transport.**
- 2. Reducing distance travelled by mode of transport.**
- 3. Increasing occupancy of vehicles.**
- 4. Increasing efficiency of vehicles, or using electric vehicles powered by renewable energy.**
- 5. Reducing car ownership.**

These are examined in more detail below, with a description of what is currently happening locally, some examples of good practice from elsewhere, and a suggestion as to what more could be done on and around Dartmoor.

7.4.1 Encouraging a modal shift from cars to bikes, walking or public transport

Around half of all car journeys in the UK are less than five miles. A cold engine

¹⁸ (2008) NHS Healthy Weight Strategy for Devon, 2008 –11

¹⁹ <http://www.devonpct.nhs.uk/documents/Healthy%20Weight%20Strategy%20for%20Devon%20-%20final.doc>

²⁰ This is one of the reasons why Moorcar (www.moorcar.co.uk/, see later in this chapter) has been successful in reducing car ownership.

uses almost twice as much fuel as a warm one.²¹ Although journeys are longer than average on Dartmoor, many will still be less than five miles. The difficulty of cycling across Dartmoor's hilly terrain has already been noted, but some people use cars even for short journey within towns. Some of these can be replaced by cycling, with financial and health benefits, as well as emissions reductions.

Modal shift is not easy to achieve, because it requires behaviour change, because of the limited number of alternatives in rural areas and because of a lack of information about those alternatives.

Behaviour change

Any behaviour change is difficult, but it can be particularly so in the case of transport, because everyone's needs vary, and so they need a solution which is designed for them.

TravelSmart can help people design such solutions, and so change their travel behaviour.

TravelSmart

Sustrans "TravelSmart" programme has succeeded in reducing car use wherever it has operated by 10%-14%.²²

It gives people the tailor-made information and support they need to walk, cycle and use public transport more often. This process is known as Individualised Travel Marketing (ITM). TravelSmart demonstrates that people are very willing to change their travel behaviour when they are given the information and motivation they need to travel differently.

Since its early pilot projects, TravelSmart has succeeded in reducing carbon emissions whilst increasing walking, cycling and public transport use. It delivers measurable and sustained change by encouraging people to make a few changes to their daily travel choices when and where it suits them best.

Every pound spent saves £7.60 on running cars, maintaining roads, providing health services and other costs of unsustainable travel.²³

TravelSmart works because

- Most people are concerned about traffic growth, and support policies favouring walking, cycling and public transport above car travel;
- Most people lack the motivation to access information about alternatives.

²¹ <http://www.energysavingtrust.org.uk/scotland/Scotland-Welcome-page/At-Home/Transport-Eco-driving/Using-the-car-less>

²² The reduction in rural areas may be lower. Personalised travel plans (PTPs) other than TravelSmart may reduce car driver trips by 11% (amongst the targeted population) and reduce the distance travelled by car by 12%, but for rural areas a 2-6% is more usual.

²³ <http://www.sustrans.org.uk/assets/files/travelsmart/TravelSmart%20Project%20Review.pdf>

They lead busy lives, and need prompting to consider alternatives, and ideally need to have them presented face to face. TravelSmart volunteers visit householders to motivate them to think about their day-to-day travel choices, and identify alternatives which meet their individual needs, and those of their families.²⁴

TravelSmart has been implemented mainly in urban areas in the UK.²⁵ It has been very successful in Broxbourne county, which has a population of 8,000, and so might be effective in the market towns around Dartmoor. It would be worthwhile to implement a pilot study adapting its techniques to small communities on and around. Sustrans, which operates the programme, would be interested in a partnership to deliver it on and around Dartmoor.

Any household travel plans developed under the project should also identify alternatives to flying for holidays. This may be the single most effective way local action can reduce aviation emissions.²⁶

Travel Planning for businesses

While the TravelSmart project helps individuals and families to develop appropriate travel plans, there is also a need to provide them for businesses and schools. Most schools have travel plans, but community groups, in partnership with sustainable travel organisations such as Sustrans, could help change behaviour of businesses and their workers.

Such groups could identify businesses who might be interested in taking part in a business travel network and business travel plans. Such a network would facilitate car-sharing and other resources which are usually only open to larger businesses.

Such work can achieve substantial carbon savings. A review by the Department for Transport found that 21 workplace travel plans from around the country reduced car trips by 18%. It also found that travel plans save their organisations money.²⁷

²⁴ http://www.sustrans.org.uk/assets/files/travelsmart/behaviour_change_ff36.pdf

²⁵ One of the most recent projects has been in Exeter. See <http://www.sustrans.org.uk/what-we-do/travelsmart/current-travelsmart-projects/travelsmart-in-exeter> , and the maps produced, such as at http://www.sustrans.org.uk/assets/files/travelsmart/Maps/East%20Exeter%20and%20Topsham%20Map_FINAL.pdf

²⁶ Where there is no local airport which is planning to expand.

²⁷ <http://www.dft.gov.uk/pgr/sustainable/travelplans/work/ngtravelplansworklessons5783.pdf>

Alternatives to car travel

Of course, there is little point in promoting behaviour change if there are no acceptable alternatives on offer. There are several alternatives on and around Dartmoor, including:

- **The Fare Car Scheme:** Devon County Council has partnerships with private hire companies who run eleven “Fare Car” schemes, one of which is on Dartmoor running from Princetown to Tavistock and Yelverton. The “Fare Car” is essentially a subsidised bookable taxi which runs when buses do not.²⁸ It runs on set routes, and picks up passengers at different points during single trip, and is far cheaper for the user than a taxi.
- **Commercial bus companies:** there are various commercial bus companies operating services on the Moor, and each has its own website.
- **Ring and Ride:**²⁹ services, for older people. Many of these have their own websites.³⁰
- **Wheels to Work:**³¹ Devon Wheels 2 Work is a moped loan scheme for people who do not have access to public or private transport to get to work and training. Individuals can borrow a moped for between three and six months.

For shorter journeys, and where terrain is not too steep for the individual concerned, cycling is also an option.

Information about alternatives

A number of attempts have been made to make information more accessible for people. There are several websites which help people to find out about different alternatives. These include:

- **Journeydevon.**³² This site offers a way for people to get information on busses and train, and gain in confidence in using public transport. It is a good access point, with links to bus and train sites.

²⁸ http://www.devon.gov.uk/index/transport/public_transport/buses/services-4/fare-car.htm A similar service runs in the Teign valley

²⁹ Part of Devon County Council’s website

http://www.devon.gov.uk/index/transportroads/public_transport/community_transport/ring_and_ride/ring_ride_map.htm

³⁰ Such as Okehampton, at <http://www.odctg.co.uk/>

³¹ <http://www.devon.gov.uk/dltpupdate0607.pdf>

³² <http://www.journeydevon.info/>

- **Devon County Council's public transport pages**³³: These are wide-ranging, and include information on road works, using an interactive map.³⁴
- **Traveline**:³⁵ a useful site for planning travel by bus and train, and getting up to date departure information.
- **Cycle-route.com**:³⁶ This site has an interactive map allowing users to view a wide range of cycle routes in Devon.

Some of these sites are very good, but each of them deals only with a part of the transport network.³⁷ The very multiplicity of websites is confusing, and makes it hard to find information.

It would help people to find a suitable transport solution if all the information was available on, or through, a single website. Such an approach has been adopted in Brighton³⁸, with the site's home page shown on the next page.

The website could form part of the existing one offered by Devon County Council (since its information should not be confined to Dartmoor, because most Dartmoor users come from elsewhere), or could be hosted by Dartmoor-based organisation. The website could also:

- Offer information regarding events, road works, and private sector services such as cycle hire.
- Provide the technical infrastructure to support demand-responsive transport (see section 7.4.5)).
- Be integrated into Facebook and Twitter. Some car clubs in North America are integrating these social network sites into their online provision.³⁹ This is a valuable way of encouraging younger people to become involved.
- Offer a way to match local producers and distributors to facilitate small-scale and one-off deliveries throughout the Park and surrounding areas. This need has been highlighted by several food producers.

³³ http://www9.devon.gov.uk/WIP/default.aspx?&xmlpath=public_works.xml Searching is less straightforward than on the Brighton site (see later in this subsection). (http://www.journeyon.co.uk/car_67.asp).

³⁴ A page on **Devon Council's website**, at

http://www.devon.gov.uk/index/transport/cycling/cycle_friendly_accommodation_and_devon_cycle_mark.htm

³⁵ http://www.devon.gov.uk/index/transport/public_transport.htm This site covers bus, coach, train and ferry in South West England, and is in many ways excellent. It has a useful bus stop look-up, allows the user to plan a journey between any two points (including with mixed transport modes), and permits texting to obtain the times of the next three busses to a particular stop. It also has a feature allowing mobiles to access maps showing the nearest bus stops to a postcode, and times of the next 3 busses to that stop. It would be useful to make these services more widely accessible by having links through a Travel Dartmoor website.

³⁶ <http://www.cycle-route.com/routes/Devon-Routes-71.html>

³⁷ JourneyDevon.info is the best, but only helps with bus and train information.

³⁸ <http://www.journeyon.co.uk/default.asp>

³⁹ <http://www.zimride.com/about>

- Provide a set of travel planning resources to support groups working with different communities to create travel plans.
- Offer an individualised travel plan builder which will allow anybody on Dartmoor or in the surrounding towns can work through on their own, to review alternatives and develop their own travel plan to suit their lifestyle.
- The website could also provide scope for collaborative networking, which would give easy access to a wide range of resources which will allow people to develop and implement their own transport-related projects.

JourneyOn
Online. On time.

Brighton & Hove City Council

- accessibility
- sitemap
- contact
- help

Search this site:
search..

journey planner
From...
To...
Search

home »

Welcome to JourneyOn

JourneyOn offers travel information for Brighton & Hove. With **real time bus** and **traffic information** plus our unique **journey planner** you can plan a route across the city and work out the time, cost, carbon emissions and even the number of calories you'll burn along the way.

travel around Brighton & Hove

- real-time bus information**
» find out more
- real-time bus map**
» select a stop
- traffic info**
» car parks
» roadworks
» events

latest news

- Are you female, aged 50 or over and a regular Facebook user?** Do you want to be part of an innovative online project about travelling around the city? Read more here...
- Traveline** has further information on all public transport in the south east that may be affected by the severe weather.
- Free iPhone** apps for realtime bus information. Follow this link to find out more.
- Plan journeys across the South and East of England** by public transport with new iPhone app from Traveline South & East. Download it for £1.79 here.

Friday: white cloud, Max Temp: 6°C (43°F), Min Temp: 4°C (39°F)
 Saturday: sunny intervals, Max Temp: 7°C (45°F), Min Temp: 0°C (32°F)
 Sunday: sunny intervals, Max Temp: 4°C (39°F), Min Temp: 2°C (36°F)

© journeyon.co.uk [BETA]

7.4.2 Reducing distance travelled by mode of transport.

Shorter journeys produce lower emissions than longer ones.⁴⁰ They can be achieved by promoting local shopping and flexible working (in the sense of working from home, or at a local office⁴¹) or teleworking.⁴² There are numerous teleworking initiatives in the South West, while Cornwall aims to be the flexible working capital of the UK.⁴³

7.4.3 Reducing distance travelled by mode of transport.

This is achievable through car sharing, promoted through company or community travel plans. There is an existing car share scheme, Car Share Devon⁴⁴ (see boxed text). Launched in March 2003 and provided by Liftshare for Devon County Council, this covers the whole of the county. It promotes sharing by commuters in particular, and includes public access sub-sites for people based in and around Torbay, Plymouth and the rest of Devon.

⁴⁰ This is not inconsistent with the previous point. All journeys, short or long, start with the same higher level of emissions per kilometre. Once the engine is warm, the emissions per kilometre fall and then level out, and so emissions become a function of distance travelled.

⁴¹ While home working can reduce transport emissions, it can increase household emissions, if a whole house is heated during the winter to serve one person. Working from local offices can offer be more emission-efficient.

⁴² “Teleworking” means working at a distance from others by using information and communications technology. The most common example is working from home using a high speed broadband connection.

⁴³ <http://www.flexible-working.org/flex/caseStudies.html>

⁴⁴ <http://www.carsharedevon.com/Default.asp?uxi=&cr=check>; <http://www.devon.gov.uk/ltpprogressreport08.pdf>

Car Share Devon⁴⁵

CarShareDevon is one of the most effective car share schemes in the country and currently has 7,400 registered participants. It is primarily aimed at commuters. It matches people who are making the same commuting journeys, travelling to Exeter, Plymouth or Torquay.

There is significant potential for car sharing – 91 per cent of car commuting and 87 per cent of business car trips are single occupancy. Surveys have shown that over half of drivers would share a car to work if there was someone suitable to travel with.⁴⁶

Car sharing is an effective way of reducing carbon emissions. Commuting is the biggest single source of passenger transport CO₂. Surveys have also shown that the average car commuter drives 19 miles a day. Commuting distances on the Moor are likely to be higher. Car-sharing can also save money. A typical car-sharing arrangement for a journey of 10 miles each way, splitting the running costs between two people, saves £370 per year.⁴⁷

Another way of encouraging car sharing has been developed by Chiltern Railways, and is called “3 for Free”.

3 for Free

Chiltern Railways offer this scheme, under which, if three rail passengers share a lift to the station, they get a free parking space. 700 people take advantage of the offer every month.

Chiltern Railways has also teamed up with Liftshare to set up Chiltern Carshare, a website where passengers can find other people making the same journeys as them. The very informative website is www.chilterncarshare.co.uk

This would be worth exploring with the station operators in the towns around Dartmoor, though it may be that car parking is one of the more lucrative ways in which they generate revenue.

⁴⁵ /www.carsharedevon.com

⁴⁶ http://www.foe.co.uk/living/articles/car_sharing.html

⁴⁷

<http://209.85.229.132/search?q=cache:3bs08Lc1b8cJ:www.durham.gov.uk/durhamcc/usp.nsf/pws/travel%2Bchoi ce%2B-%2Bcosts%2Bof%2Bmotoring%2Band%2Bcar-sharing+costs+of+car-sharing&cd=4&hl=en&ct=clnk&gl=uk>

7.4.4 Increasing efficiency of vehicles, or using electric vehicles powered by renewable energy.

Much of any overall reduction in road transport emissions over the next few years is likely to come from improved efficiency. Technological improvements drive efficiency, and they should result in a 14% reduction in vehicle carbon dioxide emissions between 2010 and 2020.⁴⁸

There are also various targets which are likely to increase use of electric vehicles. For example, the UK is required under EU law to source 10% of its transport energy from renewable sources by 2020. Similarly, Exmoor National Park aims to have 10% of its car mileage within the park powered from electric vehicles by 2025, saving 5% of its transport-related carbon emissions.⁴⁹

There are serious challenges which will need to be overcome to reduce emissions by using electric vehicles. The first is the cost of such vehicles, and the short distance which can be travelled between charges (compared with refuelling stops for conventional vehicles). Charging points need to be available widely, particularly in hilly areas, which reduce mileage per charge. The Exmoor study proposes a network of charging points (perhaps linked to renewable energy generators), as well as hire services. It also envisages using electric busses, bicycles and quad bikes, as well as cars.⁵⁰

7.4.5 Reducing car ownership.

This can be achieved through car clubs (such as Moorcar,⁵¹ see boxed text) and other initiatives.

⁴⁸ <http://www.yhassembly.gov.uk/dnlds/Low%20Carbon%20Study%20-%20Executive%20Summary%20%28glossy%29.pdf>

⁴⁹ http://www.exmoor-nationalpark.gov.uk/exmoor_carbon_neutral_programme_consultation_v2.pdf. Emissions from electric vehicles depend on how the power is generated.

⁵⁰ Above, p.40

⁵¹ <http://www.moorcar.co.uk/> The parent organisation also markets a slightly different scheme, which uses telematics, under the E-cocar brand (www.e-cocars.com).

<http://www.firstgroup.com/ukbus/southwest/devon/timetables/index.php?operator=6&page=1&redirect=no>,

Moorcar⁵²

Moorcar was the first rural car club to be set up in the UK, and started in Ashburton in 2002. Moorcar now has seven cars based in Ashburton, Buckfastleigh, Chagford, Totnes, Bovey Tracey and South Brent. Car clubs allow members to hire a car by the hour.

Twenty percent of Moorcar members no longer own a private car and rely on the car club for all their private transport needs. Moorcar is now looking to grow, in part, by providing car clubs to local authorities.

There is also potential for car clubs like Moorcar to pioneer low emission and alternative fuel vehicles, and integrate their services for both local communities and also tourists. Its latest venture is E-cocars,⁵³ which uses smart technology to enable people to book and access cars without using keys, and records mileage and calculates charges automatically. The first vehicles are based at Totnes Railway Station.

7.5 Demand-Responsive Multi-Use Transport

All of the measures described so far should increase the uptake of existing sustainable transport options on and around Dartmoor. The core difficulty remains, though, that existing options are not sufficiently flexible, or otherwise appropriate to many people's needs.

This reflects the national position. The Commission for Integrated Transport's 2008 report, *A New Approach to Rural Public Transport*, states that "it remains the case that rural public transport services in many areas fall far below the standard for what rural transport in Britain *should* be like". As noted earlier in this chapter, low population density in rural areas and the variety of different requirements of individuals for travel mean that a more flexible approach is required.⁵⁴ At the same time, businesses based on or around Dartmoor face their own problems in getting products to markets, particularly where they need to make small deliveries some distance from their base.

Demand-responsive multi-use transport has been used elsewhere to overcome the difficulties. This approach uses vehicles which carry both passengers and freight, of different sizes, and are equipped to respond quickly to requests for pick ups. They often follow axis routes, but are able to deviate from those routes to reach homes and businesses. The approach is being increasingly supported by other local

⁵² <http://www.moorcar.co.uk/>

⁵³ www.e-cocars.com

⁵⁴ Chapter 3, at <http://cfrit.independent.gov.uk/pubs/2008/rpt/report/03.htm>

authorities. Rutland Council, for example, says “Future transport requirements for the Council will only be met by the implementation of a Demand Responsive Transport type solution.”⁵⁵

Dartmoor can learn from exciting, innovative rural demand responsive transport solutions such as CallConnect, a leading UK example is described in the case study on the next page.

The success of CallConnect is the ability for people to book by text or on the phone within an hour of travelling, something that young people particularly value. CallConnect uses fixed pick up points but diverts to visit isolated properties, or the home of people whose mobility is impaired. The service has now replaced loss-making fixed bus routes by profit making services, offering a better service.

CallConnect say their costs are “comparable” with fixed route buses, but they need less subsidy - £3.50 to £5.00 per head per journey, compared with £12-13 per head per journey for some other rural bus services.⁵⁶ They also offer additional benefits and more flexibility.

Although Lincolnshire’s CallConnect pioneered DRT the UK, other rural councils are following their lead. There are similar schemes in Shropshire, Durham, Norfolk and Hampshire, and one was under consideration for Rutland in May 2010.⁵⁷ Lincolnshire County Council offers its software and expertise on routes that cross county barriers.⁵⁸

⁵⁵ <http://www.rutland.gov.uk/ppimageupload/Image93462.PDF>

⁵⁶ Actual operating costs depend on a number of factors, but one course suggests the cost of operating two busses is £140,000 per year. Ibid. Section 5.1.

⁵⁷ Call Connect, Personal Communication, 2010, August

⁵⁸ Call Connect, Personal Communication, 2010

Case Study: CallConnect

CallConnect is a demand responsive transport service run by Lincolnshire, Northamptonshire and Peterborough. There is no fixed timetable as the route the bus takes is defined by passenger demand and can differ each day. Users may book online, by phone or text giving an hour's notice allowing up to 15% of their passengers to use the service to get to work.

Although CallConnect will pick up and set down at designated locations in village or towns, home pick ups and drop offs are also available for people who are unable to use conventional bus services due to age, disability or mobility impairment. The service is designed to cater for people in wheel-chairs.⁵⁹ Actual operating costs depend on a number of factors, but one course suggests the cost of operating two busses is £140,000 per year.

Since 2001, when Lincolnshire County Council first launched the CallConnect service it has grown steadily. The Council now runs 27 Call Connects carrying some 700-900 people a day. In 2009, CallConnect staff handled some 187,000 booking requests.⁶⁰ CallConnect buses carried 95,000 people in the first six months of 2010. Some services have seen passenger increases of 22-46 per cent over that period. Call connect is now seen as a pioneering solution to transport in a rural setting.⁶¹

CallConnect are now pioneering hybrid vehicles, which can be used for schools in the morning and afternoon, and a general bus service or for social care transport during the day.

Its operators believe DRT is the only way forward for rural transport provision.

European examples of demand responsive transport would also repay close examination. The Commission for Integrated Transport concluded that “We believe the UK would benefit from demand-responsive transport schemes similar to those that have developed in the Netherlands and Switzerland.”⁶²

Some which might be appropriate for Dartmoor include:

Videobus. A small village (60 families and 10-15 companies) northwest of Bologna has its own “Videobus”, an on-demand bus service that links the community with the main public transport options. Operating to a fixed route, it does not run unless booked. People book through computers given by the bus company.

⁵⁹ <http://www.wellandcallconnect.co.uk/information/>

⁶⁰ <http://www.lincsinterconnect.com/files/march-2010-newsletter-.pdf.pdf>

⁶¹ Call Connect, Personal Communication, 2010, August

⁶² *New Approach to Rural Transport*, <http://cfit.independent.gov.uk/pubs/2008/rpt/report/index.htm#exec>

CVV and Regio. In the Netherlands and Switzerland, demand responsive door-to-door services that be booked on the phone 30 to 60 minutes before people travel; In the Netherlands, CVV or Regio Taxi services are fully accessible to disabled people, and available to everyone.⁶³

Drin Bus. In Italy, the Drin Bus connects low-density areas of Genoa through pickup/drop-off points.

All of these are a hybrid of busses and the Fare Car approach, and might be appropriate for parts of Dartmoor.

These examples are either focused on passenger transport, or combine passengers and freight. There is an interesting UK model for freight only called Shiplly.com.

Case Study: Shiplly.com

Shiplly helps customers find cheap courier services able to transport small amounts within the UK, and helps freight companies find small backloads. They are matched through a website, which allows couriers to bid, in a way similar to e-bay.

Shiplly reduces CO2 emissions by matching people moving goods with transport companies making similar journeys. The company says “Our green concept is to utilise the spare capacity in delivery lorries hence cutting down wasteful journeys (saved over 10,000,000 miles so far) and CO2 emissions (4,000,000+ kg)”. At the same time, it reduces delivery costs.

Shiplly allows listings by type of goods to be transported. It does not have a food category, and many small loads on and around Dartmoor are of food.

The approach offered by Shiplly.com could be adapted to suit local food producers and distributors, linking the two through a website, or in real time using smart phones.

7.6 Promoting Car-Free Tourism

The discussion so far has centred around solutions designed for local people, though visitors would be able to use some of them. There is also a need to address the transport emissions of tourists directly. Over 90% of Dartmoor tourists arrive by car. As the number of visitors travelling by car to Dartmoor attractions increases every year, congestion and pressure on parking is becoming more intense. This is unsustainable. The alternative is to promote car-free tourism.

⁶³ http://www.comharsdc.ie/_files/Final%20Rural%20Transport%20Report_Website%20Version.pdf

This will require a coordinated approach from transport authorities and providers, as well as tourist attractions and accommodation owners. Dartmoor has tried small-scale innovative solutions such as the bike bus, canoe bus and Haytor Hoppa with some success. The Haytor Hoppa, currently in the second year of a programme funded for three years, is seen as highly successful. New initiatives building on these could include:

- Shuttle buses and taxis from stations to accommodation.
- Cycle hubs. Devon County Council has created cycling hubs in Newton Abbot, Barnstaple, Exeter, Exmouth, and Tavistock. As only one of these towns is located beside the Moor, the initiative could be expanded to include other Dartmoor towns and villages.
- Holiday bike pools at camp-sites and hotels available for rental by the week.
- Cycling networks and secure lockable cycle boxes on and around Dartmoor.
- Electric bicycles available with exchangeable batteries at different tourism sites.
- A facility for tourists to use electric Moorcar vehicles.

Case Study: Cycling at Rutland Water⁶⁴

Rutland Cycling was established 25 years on Rutland Water and now offers cycles to buy and hire at three locations. It is Europe's largest hire fleet, which offers from eight to 23 miles of traffic free waterside cycle routes around Rutland water – the largest lowland manmade lake in Europe - and Grantham water. Bikes can be hired on a 2/3 hour or daily basis.

⁶⁴ More details are at <http://www.irishrurallink.ie/>

Case Study: Examples from other national parks.

In Northumberland, the National Park Authority is supporting the implementation of ‘cycle hubs’ in two of its ‘gateway’ towns, Haltwhistle and Wooler. These hubs will provide routes to and from the town centre using safe, traffic-free shared-use paths, which pass cyclist-friendly facilities, accommodation and information.

The organisers are now contemplating plug-in centres for electric vehicles that will overlap with the cycle hubs.⁶⁵ Any emission reduction for electric vehicles will depend on how the electricity is generated.

Other National Parks and local authorities are implementing integrated transport solution projects, such as shuttle bus services for tourists in Pembrokeshire (where 95 per cent of tourists arrive by car).⁶⁶

7.7 Reducing Emissions from Aviation

Aviation emissions can be reduced most effectively through infrastructural and political changes, such as introducing caps on emissions, and by increasing duties. These changes will come about only if people and groups lobby for them.

Dartmoor Circle should link with national groups working to change the incentives which favour air travel over rail, and encourage its member groups to take part in national lobbying efforts.

7.8 Travel Dartmoor: Actions for Dartmoor sustainable travel

This section proposes an objective, and set of activities, which should reduce carbon emissions from transport on and across Dartmoor.

Transport Objective

To reduce transport carbon emissions from Dartmoor and its surrounding area by 20% by 2015

Publications/IRL%20school%20transport%20submission.pdf Appendix 1.
tionalparkastrategicactionplanforalowcarbonnationalparkinthenortheastofengland.pdf

⁶⁶ <http://www.pembrokeshiregreenways.co.uk/>;

http://www.bettertransport.org.uk/campaigns/traffic_reduction/examples

7.8.1 Transport Objective – Short-term Activities

1. Establish Travel Dartmoor website

Create a website which carries, or has a direct link to, all the information available on public, shared and low carbon transport on and around Dartmoor and allows people to create individual travel plans.

One of the cheapest ways to begin to change behaviour is to make information on alternatives, and their benefits, more widely available and accessible.

2. Work with Sustrans to pioneer a rural “TravelSmart” programme

This should initially target the 20 per cent most at-risk or in need households on Dartmoor. Using the standard Sustrans approach, this might cost £87,500 (500 households at £25 per household), but there may be options for using local volunteers to reduce the cost. Once the results of this pilot have been assessed, a decision could be made regarding its extension.

3. Create ConnectDevon

In partnership with Devon County Council, Dartmoor National Park Authority and Lincolnshire CallConnect, develop and implement a plan to replicate the CallConnect model.

4. Promote car-free tourism.

Working with tourism and transport partners, Dartmoor National Park Authority and the National Trust, to identify which elements of car-free tourism can be most effectively pursued, and develop and finance the plans to put them in place. As part of this, assess the financial and social viability and appropriateness of developing a network of lockable bike boxes around Dartmoor, possibly using SMS-controlled locks, and of an electric bike network.

5. Support other community and sustainable transport options in response to local demand.

These could include:

- Supporting expansion of Moorcar
- Promote Business Travel Plans with 20 of the region’s largest employers, whose employees live on Dartmoor.

7.8.2 Transport Objective – Medium--term Activities

Promote long-term change to Devon’s transport infrastructure.

1. Work with Devon County Council and others to clarify what contribution Dartmoor Circle can make to developing a new transport infrastructure.
2. Promote the local manufacture, sale and support of electric bikes and trikes, as a very low carbon alternative to a second car.
3. Lobby, with road safety partners and others, for the enforcement of motorway and dual carriageway speed limits.
4. Help promote “eco-driving” and make people aware of an eco-driving film available on Devon County Council’s website.⁶⁷

7.8.3 Transport Objective – Long--term Activities

Reduce air mileage incurred by people living on Dartmoor

1. Raise awareness locally of the damage caused by aircraft carbon emissions and promote a “one flight a year” campaign.
2. Lobby, with others, for VAT to be imposed on airline fuel, and air tickets.

7.9 Next steps: Developing and implementing the programme

The next steps in implementing the ideas described above include:

1. Submitting a small grant application to create the website
2. Preparing a larger funding application, potentially to RDPE measure 321, in consultation with specialist transport partners including Devon County Council, and Sustrans, for a rural TravelSmart pilot,
3. Discussing with Devon County Council, Dartmoor National Park, CallConnect and others the feasibility of potential funding streams for a CallConnect Devon programme
4. Explore with cycling and tourism organisations the options for car-free tourism.

⁶⁷ Eco-driving” schemes are believed to lead to fuel savings of between 5 and 10 per cent.
http://www.assemblywales.org/carbon_reduction_by_transport_e.pdf