Connecting Cornwall: 2030 - the strategy

3.1 Connecting Cornwall goals and objectives

The challenges set out in chapter 2 have resulted in six overarching goals for the Connecting Cornwall: 2030 strategy. Figure 3.1 illustrates this process.

The Connecting Cornwall consultation results showed us that the people of Cornwall think all of these goals are important although supporting equality of opportunity was ranked as the most important and tackling climate change as the least important.

As the scope of each goal is so broad, key objectives have been identified to support their delivery. The evidence behind these objectives is set out in the goal chapters.
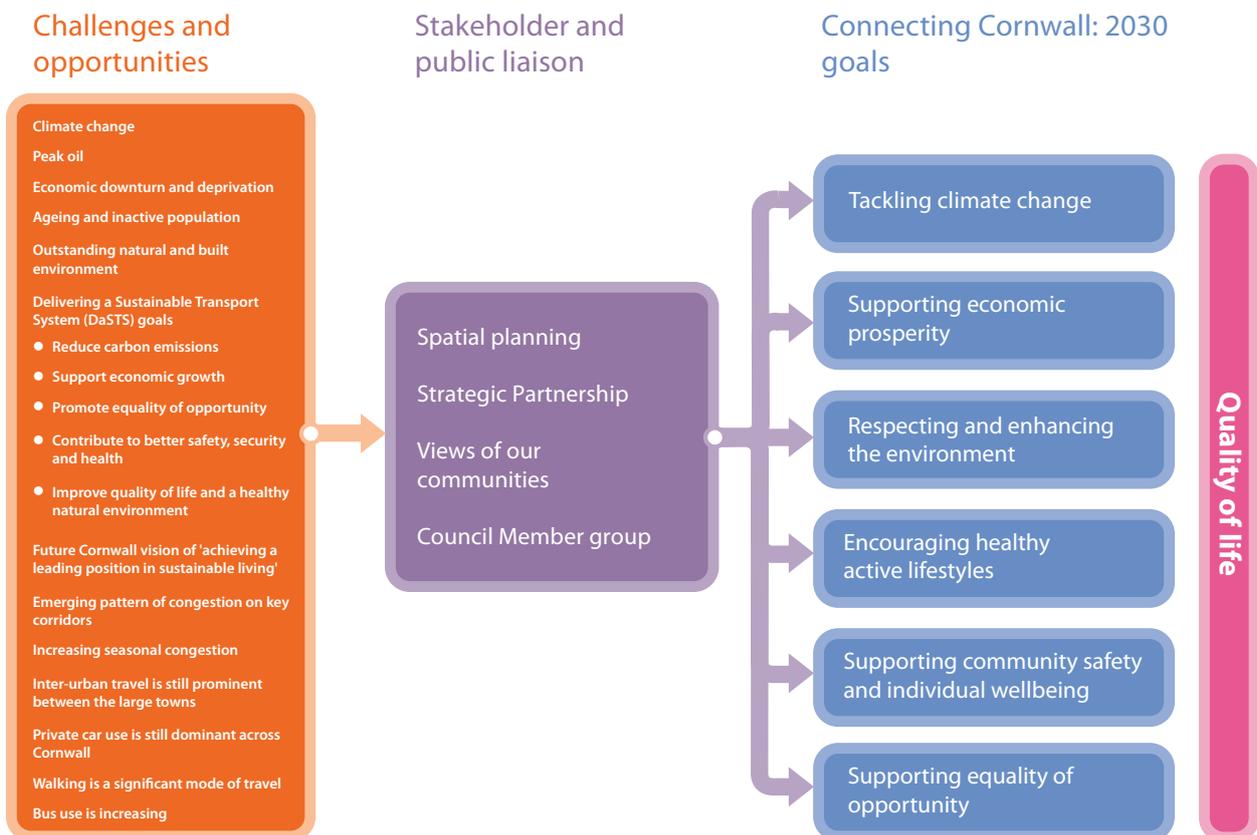
Challenges and opportunities

- Climate change
- Peak oil
- Economic downturn and deprivation
- Ageing and inactive population
- Outstanding natural and built environment
- Delivering a Sustainable Transport System (DaSTS) goals
  - Reduce carbon emissions
  - Support economic growth
  - Promote equality of opportunity
  - Contribute to better safety, security and health
  - Improve quality of life and a healthy natural environment
- Future Cornwall vision of 'achieving a leading position in sustainable living'
- Emerging pattern of congestion on key corridors
- Increasing seasonal congestion
- Inter-urban travel is still prominent between the large towns
- Private car use is still dominant across Cornwall
- Walking is a significant mode of travel
- Bus use is increasing

Stakeholder and public liaison

- Spatial planning
- Strategic Partnership
- Views of our communities
- Council Member group

Connecting Cornwall: 2030 goals

- Tackling climate change
- Supporting economic prosperity
- Respecting and enhancing the environment
- Encouraging healthy active lifestyles
- Supporting community safety and individual wellbeing
- Supporting equality of opportunity

Quality of life

Fig 3.1 **Developing the goals**

Tackling climate change

1 Reduce reliance on fossil fuels and support the introduction of low carbon technologies.
2 Support communities to live locally and reduce the need to travel.
3 Adapt and improve the transport network to ensure resilience to climate change.

Supporting economic prosperity

4 Improve connectivity of Cornwall to the rest of the world.
5 Ensure a resilient and reliable transport system for people, goods and services.
6 Support the vitality and integrity of our town centres and rural communities.

Respecting and enhancing the environment

7 Make the most of opportunities to protect and enhance the environment.
8 Minimise the use of natural resources and minimise waste.
9 Provide sustainable access to Cornwall's environment.

Encouraging healthy active lifestyles

10 Improve the health of our communities through provision for active travel.
11 Increase awareness and an understanding of the health benefits of walking and cycling.

Supporting community safety and individual wellbeing

12 Improve road safety.
13 Increase public confidence in a safer transport network.
14 Reduce noise and air quality impacts.

Supporting equality of opportunity

15 Improve access to employment, education, healthcare and leisure.
16 Improve access to public transport.
17 Encourage community participation in shaping and delivering transport services.

These objectives directly support those of Future Cornwall as illustrated by Figure 3.2.

Fig 3.2 **Future Cornwall objectives and links to Connecting Cornwall: 2030**

| Future Cornwall objective		Connecting Cornwall: 2030 goals						Connecting Cornwall: 2030 objectives
		CO₂	£	leaf	activity	flower	dice	
LT1 The economy	a) To become a market leader in innovative business and low carbon technologies; increase productivity and raise quality across the economy.	✓	✓					Objective: 1, 4, 5, 15, 16
	b) To enhance and build a robust network of small and medium businesses to secure Cornwall's economic stability.		✓					Objective: 3, 5, 6
LT2 Self sufficient and resilient	c) To improve our communities through quality building, using housing development to meet local need and drive the regeneration and sustainability of communities, promoting smaller settlements to be centres of employment and services and set an example in design for sustainable living.	✓		✓	✓			Objective: 2, 6, 7
	d) To promote equality of opportunity and wellbeing, improve access to quality services, increase participation in influencing local decision making and encouraging individuals to engage in shaping and delivering services in their communities.		✓		✓		✓	Objective: 9, 12, 13, 14, 15, 16, 17
LT3 Good health and wellbeing for everyone	e) To make it easier for people to lead healthy, active lifestyles and to get involved in their local community.				✓	✓	✓	Objective: 10, 11, 12, 14, 17
LT4 The environment	f) To make the most of our environment, reduce greenhouse gas emissions and invest in and promote sustainable use of natural resources.	✓		✓	✓			Objective: 1, 2, 7, 8

3.2 **Structure of the goal chapters**

By their very nature, there can often be duplication or even contradiction between the goals. For instance, measures to encourage healthy active lifestyles will also help tackle climate change.   Some of the proposals to support economic prosperity might be seen to have a negative impact on climate change. This strategy is about striking a balance. Our consultation has told us that all of the goals are important so the delivery of one cannot be at the expense of the others. The strategy tries to ensure that the delivery of one goal assists with the delivery of others.

Each goal section is structured around four core components:

- The **objectives**, with an explanation of why the objective is important and a summary of what Connecting Cornwall can do.

- **Policies** which are statements of intent followed by transport **proposals**. The proposals are a set of tools that we can utilise depending on the resources available to us and priorities of that time. This is a 20 year strategy and the applicability of proposals will vary over that time.

- The **outcomes** which we expect to deliver through this strategy that will ultimately achieve the goal.
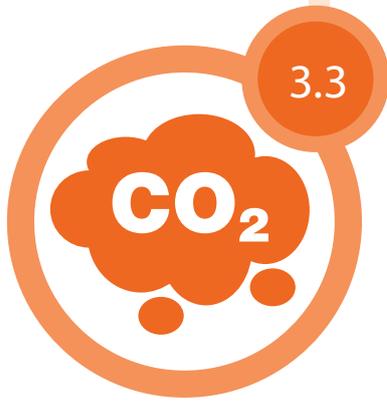
Tackling climate change

Respond to the challenges of climate change by ensuring we have a resilient transport network, we reduce our reliance on fossil fuels in recognition of peak oil and we support communities to live locally.

> "The scientific evidence is now overwhelming: climate change is a serious global threat, and it demands an urgent global response."
>
> Stern Review 2006.

The UK Climate Change Act (2008) has set legally binding targets to reduce carbon dioxide (CO_2) emissions by 80% by 2050, based on a 1990 baseline. Future Cornwall recognises this challenge explicitly through its vision that Cornwall will achieve a leading position in sustainable living. To support this, the Council have put in place an ambitious Green Cornwall programme with a range of measures and initiatives. Connecting Cornwall will make a significant contribution to the delivery of these strategies.

Transport has an important role to play in averting climate change. It is one of the major contributors to the problem; it has a heavy reliance on the finite resources that cause the problem and it is significantly affected by its impacts. While 2030 seems a long way off, it is important we start to make changes now if we are to achieve the necessary CO_2 reductions. Transport is one of the most technically and socially difficult areas in which to reduce carbon emissions. Widespread behavioural change in the way we travel will be required. Such change challenges our own sense of personal freedom and mobility which has resulted from the increasing affordability of both driving and flying. Achieving a lower carbon transport future will be very difficult and a major change in our transport planning will be necessary to achieve it.

The objectives that support tackling climate change are set out individually in the following sections with their policies and proposals.

3.3.1 Objective 1: Reduce reliance on fossil fuels and support the introduction of low carbon technologies.

3.3.1.1 Why is this important?

Transport contributes 21% of domestic greenhouse gas (GHG) emissions to the UK total. Within the transport sector, car associated emissions are by far the largest contributor to the overall total, at 58%[1]. Progress to date shows that since 1990 there has been little change in the level of domestic transport GHG emissions. In Cornwall the situation is even worse with 27% of the total emissions being attributed to transportation, the highest of any sector[2].

[1] Department for Transport, 'Low Carbon Transport: A Greener Future' (2009).
[2] CAMCO, 'Cornwall Greenhouse Gas Emissions Assessment' (2009).

15%
Diesel LGV

52%
Petrol cars

13%
HGV

2.6%
Rail petroleum

1.7%
Petrol LGV

11%
Diesel cars

3%
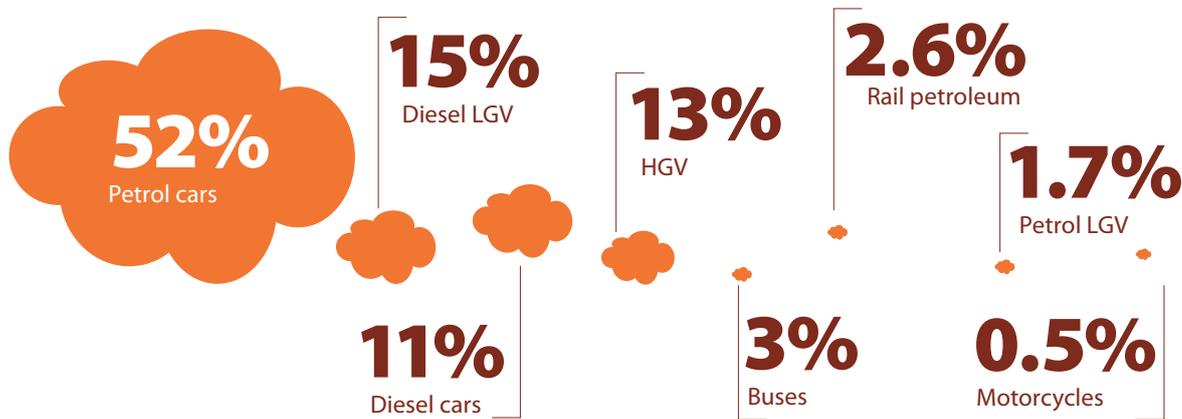Buses

0.5%
Motorcycles

Fig 3.3 **Breakdown of emissions from transport in Cornwall in 2007**
          Source: CAMCO 2009

Cornwall's reliance on the car is of great concern in the face of the predicted rise in global oil prices as production begins to decline. This is heightened by transport's existing 99% reliance on fossil fuels. There are concerns that the global supply of oil may soon reach a maximum, known as peak oil, which would impact on future prices. While opinions differ as to the future levels of oil supply and demand, the risks of significant price rises over the coming years are real.

The International Energy Agency predicts the price of oil will rise by 20% over the period 2015 - 2030, based on 2007 prices[3]. Rising oil prices will lead to higher fuel prices for all forms of transport. The knock on effect of this will be higher prices for everything we use that is reliant on transport, our food, our goods and our services[4].

The need to reduce carbon emissions, the possibility of peak oil, the complications of new fuels and technologies and the potential economic and social outcomes of these changes will put transport at the very heart of addressing climate change. There is a growing urgency for us to mitigate the negative impact of our travel and transport demands on the environment.

3.3.1.2 **What can Connecting Cornwall do?**

Reducing our reliance on fossil fuels for travel and transport is about understanding the impacts of climate change and peak oil and then providing for Cornwall's future transport needs through a package of measures that provide attractive sustainable transport alternatives. There are a range of transport proposals and measures that we can implement to reduce our reliance on fossil fuels. Examples include: soft measures such as increasing awareness; demand management tools; encouraging more walking and cycling; supporting the availability of electric vehicle infrastructure; and investigating more efficient ways to provide lighting. Connecting Cornwall's approach for reducing our reliance on fossil fuels rests on three key issues:

- Being aware of the problem and our role in the solution.
- Delivering behavioural change in the way we travel.
- Utilising alternative fuels with lower GHG emissions.

In order to reduce the impact on the climate, people must be aware of climate change and understand that it is an issue and that the way that they choose to travel is a significant contributor to the problem. The Connecting Cornwall consultation showed that the link between climate change and the way that we travel is not fully understood

Transportation contributes **27%** to Cornwall's total emissions, the highest of any sector

[3] International Energy Agency, 'World Energy Outlook 2008' (2008).
[4] UK Industry Taskforce on Peak Oil & Energy Security, 'The Oil Crunch: A wake-up call for the UK economy' (2010).

or appreciated. The majority of 14-16 year olds asked as part of the Connecting Cornwall consultation, had a limited understanding of the climate change issues. The Council has to take a lead role in awareness raising particularly in children and young people so that behavioural change is embedded before they become the car drivers of the future. Often, people interpret the messages on climate change as being on such a large, global scale that they cannot possibly make a difference. However, the message needs to be made clearer that it is the small changes that together add up to make the difference. If all UK drivers were to reduce their driving by just five miles a week we could collectively save an incredible 2.70 million tonnes of CO_2 a year[5].

The high use of the private car for journeys in Cornwall reflects its rural nature. A focus on initiatives and interventions that recognise the importance of the car in Cornwall while also managing its use and emissions are integral to meeting our objective. In rural areas, where alternatives to the private car are limited, emphasis should be on sustainable car use, including promoting low carbon vehicle choices, eco-driving and car sharing or reducing the need to travel through well planned services, home working or home delivery. All of these interventions can help reduce the impact of private car use.

Sustainable travel solutions have proved most effective in changing the level of car use in urban and semi rural areas where the number and distance of trips can make public transport, cycling and walking realistic alternatives. Cumulatively, trips of less than 10 miles account for 40% of the UK's domestic transport carbon emissions, with trips in the two to five mile category contributing to 40% of these emissions. It is with these trips where there should be considerable opportunity to offer more sustainable choices[6]. Walking accounts for a significant proportion of trips within Cornwall. According to the Cornwall Council travel behaviour survey, 24% of residents identified either walking or cycling as their most used form of transport. Historically, a low proportion of our budget has been spent on walking and cycling in comparison to schemes that assist car use. This has to change throughout the life of this strategy. Sustainable transport schemes not only reduce our carbon emissions but also begin to break our reliance on fossil fuels.

Biofuels and alternative fuels such as electricity and hydrogen have a significant role to play in reducing transport based emissions. Vehicles powered by biofuels (such as organic waste) and hybrid vehicles blending biofuels and traditional fuels can achieve significant CO_2 savings. The Government has introduced a number of incentives to aid the uptake of low carbon vehicles and use of alternative fuels such as the Government scrappage scheme and increases in funding streams such as the bus service operators' grant which supports bus operators' fuel costs. Connecting Cornwall will have a key role to play in encouraging the uptake of alternative fuels use throughout Cornwall.

In many cases, the provision of high quality alternatives to the private car are not enough on their own. The Council has the tools to investigate shifting the balance in costs between using our cars and public transport by travel plans, road user pricing and car park management and to force a change in behaviour. There is also a role for the Council to recognise how it can change its own operations to reduce emissions. According to a recent review of Cornwall Council's carbon footprint, 21% of the total carbon emissions from Cornwall Council operations are attributable to street lighting[7] and it is estimated that through the installation of more efficient lamps that around 50% of the total street lighting related emissions can be saved each year[8].

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[5] Department of Energy and Climate Change, 'Act on CO2 Calculator Version 2.0: Data, Methodology and Assumptions Paper' (2009).
[6] Department for Transport, 'Creating Growth, Cutting Carbon: Making Sustainable Local Transport Happen' (2011).
[7] Cornwall Council, 'Invest to Save: project Impact' <www.cornwall.gov.uk/default.aspx?page=23843> [Accessed 21/02/11].
[8] Cornwall Council, 'Invest to Save: project Introduction', <www.cornwall.gov.uk/default.aspx?page=23842> [Accessed 21/02/11].

Policies and proposals

> ### Policy **1**
>
> We will take the necessary steps at a local level to reduce emissions from road-based transport and contribute towards the 80% reduction in national CO_2 emissions by 2050 as required by the 2008 Climate Change Act.
>
> This also supports objectives: 2, 5, 7, 8, 10, 11,14, 17

Supports the following goals:

How?

We will encourage responsible use of our cars. There are a variety of initiatives that can be used to cut the GHG emissions of private car use. These can be promoted through awareness campaigns, training or initiatives that reduce the need to own a car. Initiatives include:

- Promoting a change in driving habits such as, driving at an appropriate speed, less stopping and starting, avoiding over revving and avoidance of idling can reduce both emissions and fuel consumption by 8% [9].

- Supporting car share initiatives and raising both public and private sector awareness of the community, personal and business benefits of car sharing.

- Supporting the introduction of car clubs and encouraging them to use low CO_2 emitting vehicles.

We will allocate a greater proportion of our capital budget to sustainable travel modes. By prioritising pedestrian and cycle schemes, we can address some of the barriers which prevent people from walking and cycling and encourage more sustainable travel. More detail on proposals related to this are contained in section 3.6.

We will seek to ensure that new developments are designed to minimise car use and that effective planning policy is incorporated into Cornwall's Core Strategy. We will work with developers and planners to ensure sustainable transport is built into new developments. This will be secured through: good quality street design; promoting cycling and walking; reducing car use; provision of on-site facilities; and providing access to public transport links to support a high take up of sustainable transport options. A sustainable transport development guide will be produced to support Connecting Cornwall.

We will measure CO_2 levels of Council transport programmes and establish a carbon reduction strategy. This will give us a baseline and a way forward to direct our processes away from unnecessary carbon production.

We will seek to reduce Cornwall Council's emissions related to street lighting. We will:

- Work with local communities to support the Invest to Save Project and introduce variable street lighting that allows the level of lighting to be adjusted or turned off to suit the needs of the community.

- Replace life-expired conventional signal sets with LED traffic signals.

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[9] Department for Transport, 'Low Carbon Transport: A Greener Future, A Carbon Reduction Strategy for Transport' (2009).

We will encourage transport operators to reduce CO$_2$ emissions. While the total carbon emissions relating to public transport are currently low in Cornwall, we will ensure that it remains this way, even when use of public transport increases, by working with transport operators and utilising our powers where necessary. We will:

- Promote low level CO$_2$ standards for vehicles and transport services procured or regulated by Cornwall Council by specifying the type of vehicle that operates.
- Encourage driver training in order to reduce fuel consumption.
- Encourage bus and taxi operators to invest in low CO$_2$ emitting and low air pollutant vehicles for use on the services that they operate.

We will work with freight operators to maximise the efficiency of freight movement. According to the Cornwall GHG emissions assessment, around 30% of transport related emissions are attributed to the movements of light and heavy goods vehicles. We will:

- Encourage greater consolidation of loads and more off-peak freight movement.
- Encourage the implementation of new technologies.
- Encourage greater use of water and rail-based transport for the movement of freight to maximise the use of the excellent maritime and rail infrastructure that Cornwall possesses.
- Support the uptake of low emission vehicles.
- Support through Cornwall's Core Strategy the provision of, or safe guarding of land in appropriate locations for freight consolidation and/or transhipment facilities and provision of access to waterways and railways for freight movement.

We will investigate the feasibility of using pricing mechanisms in order to encourage a shift to low carbon transport. We will keep under review the option of demand management measures in order to encourage a shift to more CO$_2$ efficient private and commercial road vehicles, and walking, cycling and public transport.

We will reduce the amount of road building. The construction of new roads and the increased levels of traffic they create adds to GHG emissions. New roads will only be considered where it can be demonstrated there is a strategic need that meets the priorities for Cornwall or where they are essential to improve access or a town's economic sustainability. Lower carbon alternatives such as public transport improvements and demand management measures will be considered as alternatives to road building. Further detail on making better use of existing infrastructure is contained in respecting and enhancing the environment section in 3.5.

Cornwall's ecological footprint is **higher** than both global and national levels

CAR SHARE

Case study: Sustainable travel towns

The DfT launched sustainable travel towns project (STTP) in 2004 focused on promoting sustainable travel in three chosen towns, Darlington, Peterborough and Worcester. The results saw a reduction in car journeys by 7 – 9 % between 2004 and 2008. Both walking and cycling levels had increased over the same period (by 2% and 7% respectively[10]). In terms of value for money, a programme of promoting sustainable travel is relatively cost effective. According to the DfT analysis on the STTP outcomes in the three towns, the cost benefit ratio allowing only for congestion effects, is in the order of 1 to 4.5. This would double if environmental, consumer benefit and health effects were included[11].

Policy 2

We will seek to work with our partners to undertake education, training and awareness initiatives to encourage responsible and sustainable travel choices.

This also supports objectives: 7, 8, 9, 10, 11, 14, 16, 17

Supports the following goals:

How?

We will promote the benefits of sustainable travel choices aimed at encouraging more use of low carbon means of travel, more responsible use of our cars, better vehicle maintenance and flexible working patterns to reduce CO_2 emissions. We will:

- Work with businesses and public sector organisations, such as the NHS.
- Continue to promote sustainable choices of travel through events such as cycle road shows and walk to school week.

More information on awareness raising initiatives can be found under the encouraging healthy active lifestyles section in 3.6

Policy 3

We will work with partners in the public and private sector to support and encourage the use of alternative fuels for transport.

This also supports objectives: 5, 8, 14, 17

How?

We will enable and support the development and local uptake of low GHG emission vehicles. Over the next 20 years low carbon technologies will play an increasingly significant role in reducing transport related emissions. On a national and European level there has been a recent shift towards the promotion of low carbon vehicle technologies and the use of cleaner fuels. EU regulations adopted in 2009 mean that by 2020 the average CO_2 emissions from new cars will be 40% less than the 2007

[10] Department for Transport, 'Sustainable Travel Towns' <www.dft.gov.uk/pgr/sustainable/ltp3planning/travelguide/sttresults/stt-table> [Accessed 21/02/11].
[11] Lynn Sloman, Sally Cairns, Carey Newson, Jillian Anable, Alison Pridmore and Phil Goodwin for the Department for Transport , 'The Effects of Smarter Choice Programmes in the Sustainable Travel Towns: Summary Report' (2010).

levels. As Cornwall has high levels of deprivation and low levels of new car ownership, we will be reliant on national incentives to encourage the purchase of low GHG emission vehicles by the general public. We will:

- Support the delivery of infrastructure required for the distribution of alternative transport fuel sources, including electric vehicle recharging points.

- Consider the use of alternative fuels in Cornwall Council's vehicle fleets.

- Require all future developments to assess their requirement for electric vehicle charging points. Associated land use policies will be included in the emerging Cornwall Local Development Framework.

3.3.2 Objective 2: Support communities to live locally to reduce the need to travel.

3.3.2.1 Why is this important?

Living locally develops stronger communities by encouraging people to work, socialise, source their food and access their services locally. They can contribute to the local economy, live more sustainably and help to reduce their carbon impact.

Cornwall is characterised by a dispersed settlement pattern with approximatley half of the population living in settlements of less than 3,000 people. This settlement pattern, coupled with the centralisation of many of our local services has led to a reliance on the car as the main form of transport. According to the 2010 Connecting Cornwall travel behaviour survey, the car is the predominant mode of transport for most types of trip (as illustrated by figure 3.4).

Work 57%

Shopping 52%

Leisure 46%

Healthcare 46%

Education 35%

Fig 3.4 **Car - the predominant mode of transport for specific journey types**
Source: Connecting Cornwall Travel Behaviour Survey 2010

The Commission for Rural Communities[12] suggests that in order to meet the Government targets to reduce carbon emissions, rural transport as it currently exists will be impossible. Therefore we must address how these communities and their services function in the future to assist them to live locally and reduce the need to travel.

3.3.2.2. What can Connecting Cornwall do?

In order to achieve this objective, future development proposals have to be built around sustainable solutions and our communities have to be planned to create an environment for living and working. Our approach to encouraging people to live locally rests on three key issues:

- Delivery of sustainable developments.
- More options to access work, education, healthcare and services locally.
- Utilising technology to reduce the need to travel.

Evidence has shown that the majority of the trips we make are associated with our family and social network, whether it be dropping children off with their grandparents or visiting a friend in the evening. Many of the communities in Cornwall have developed around these strong social networks therefore, provided the walking network is safe and links developments within the community, many local trips could be carried out on foot. If the community is then able to access healthcare, shopping and employment within the area that they live, the number of long journeys for these purposes can be reduced. Planning policy will be critical to delivering this change through the Core Strategy.

Transporting our food around the globe burns fossil fuel and contributes to climate change. The move away from food shopping at small local shops to shopping at supermarkets adds to the climate change impact of our food. These trends have led to an increase in the distance that our food travels known as 'food miles' (as illustrated by figure 3.5), and an increase in GHG emissions. By encouraging local shopping and local food production we can reduce these impacts.
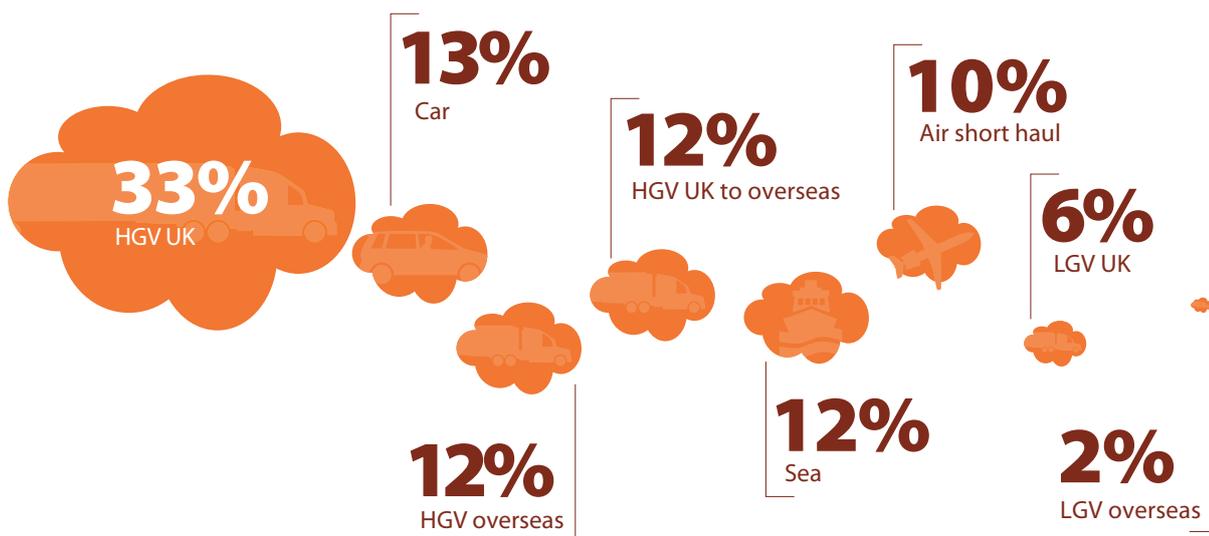

13% Car

33% HGV UK

12% HGV UK to overseas

10% Air short haul

6% LGV UK

12% HGV overseas

12% Sea

2% LGV overseas

Fig 3.5 **CO$_2$ emissions associated with UK food transport** (2002)

[12] Commission for Rural Communities, 'Tackling Rural Disadvantage, Thinking about Rural Transport, Rural life without Carbon' (2008).

Advances in technology and the development of an internet culture offer an opportunity for reducing the need to travel by allowing people to access work and services from home or their local area. If a proportion of journeys to work are being replaced by home-working, business meetings by the use of videoconferencing and shopping trips by home delivery, then advances in technology can reduce travel demand and GHG emissions. By encouraging people to remain in their community and use the services closest to where they live, we also provide the opportunity to improve the viability of these local services. The roll out of high speed broadband through the Next Generation Access project across Cornwall will be essential to support this change.

Travel plans can deliver benefits to employees and the local community. They provide greater travel choice, give those that do not own a car better access to employment and services and reduce parking demand and travel costs. The whole community benefits from environmental improvements, particularly when travel plans result in an overall reduction in motor traffic. Travel plans generally include measures to promote walking, cycling and public transport, but can include car sharing schemes; cycling facilities; a dedicated bus service or restricted car parking allocations. A travel plan might also include flexible working practices such as home working and video conferencing. Good travel plans can cut the number of people driving to work by 15%.

Policy **4**

We will support the provision of local services and facilities to enable people to live locally.

This also supports objectives: 1, 5, 6, 7, 8, 10, 11, 12, 14, 15, 16, 17
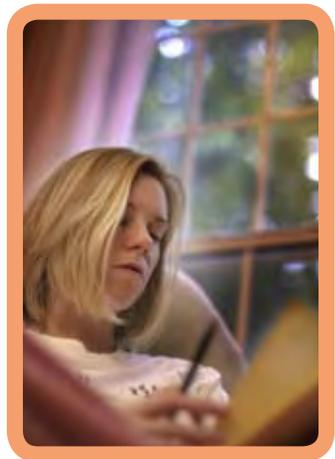
Supports the following goals:

How?

We will encourage provision of local facilities in communities. These could be in the form of a community hub or a mobile service where a permanent static service could not be supported by the surrounding community. A community hub could make use of a village hall or local post offices to enable home working or accessing online services such as internet shopping. These 'hubs' could also act as a focal point in the community for other services such as health, education or a post office. This proposal also supports the supporting equality of opportunity goal in section 3.8.

We will seek to work with employers in the public and private sector to raise awareness of the business benefits of home working and support the delivery of local workspace hubs and teleconferencing. Remote working policies recognise the numerous benefits connected with home or remote working such as; productivity gains through staff having fewer interruptions and less commuting time, increased staff motivation with reduced stress and sickness levels and savings on office space and other facilities[13].

We will seek to raise awareness of the climate change benefits of local food shopping and production. There are a number of ways in which people are able to reduce their food miles such as: customer supported box schemes; conservation based initiatives; urban food growing projects; and community allotments.

Policy **5**

We will use the local and strategic development control processes to ensure that development is planned, delivered and managed to reduce the need to travel.

This also supports objectives: 1, 6, 8, 10, 11, 14, 15, 17

Supports the following goals:

How?

We will encourage mixed use development in order to reduce the need to travel. We will explore opportunities through the emerging Core Strategy and work with our partners in health, education and the private sector to plan and provide services so that they can be accessed from the home or by walking, cycling or public transport.

We will ensure sustainable travel is built into new developments. In order to influence travel behaviour it is imperative that the future needs of a community are considered and captured through good quality planning before infrastructure is put in place. In order to encourage sustainable travel we will look for new development to:

• Provide a comprehensive and direct network for walking, cycling and public transport that includes priority cycle and public transport routes.
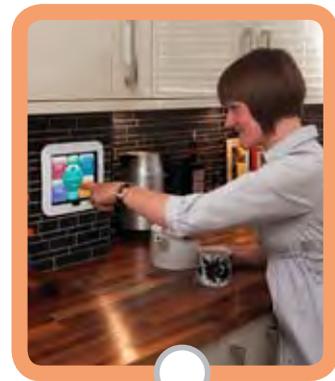
[13] Business Link, 'Working from home - Advantages and Disadvantages of Employees Working at Home', <www.businesslink.gov.uk/bdotg/action/detail?itemId=1074447134&type=RESOURCES> [Accessed 22/02/11].

- Deliver walkable neighbourhoods, so that a range of services and facilities are within walking distance.

- Provide a street layout that is easy to read and that pedestrians and cyclists can navigate.

- Ensure walking and cycling routes are attractive and safe.

- Provide high quality interchanges to improve connectivity between transport modes.

- Provide high quality sustainable transport infrastructure within the development, such as real time passenger information (RTPI), bus shelters and cycle shelters.

- Implement and monitor travel plans.

We will work with new and existing employers to develop travel plans. To ensure that the benefits of reduced travel are considered in the planning and servicing of employment sites. We will:

- Use the local planning process to secure travel plans in line with the thresholds given in 'Travel Plans – Advice for Developers in Cornwall'.

- Seek planning conditions or obligations which commit developers to implementing the travel plan on first occupation.

- Measure the effectiveness of a travel plan through compatible monitoring mechanisms and/or automatic traffic counters, where appropriate.

- Develop and deliver area wide workplace travel plans.

- Develop travel plan networks which bring together organisations involved in preparing travel plans to share information, costs and facilities.

3.3.3 Objective 3: Adapt and improve the transport network to ensure resilience to climate change.

3

3.3.3.1 Why is this important?

Our current transport system was designed and built for local climate and weather conditions using historical temperature and rainfall data. Predicted temperature and weather variations due to climate change mean that our existing infrastructure will become vulnerable. The impacts of climate change on the way we travel are wide ranging and potentially catastrophic. These impacts are set out in table 3.1.

Climate Change	Potential implications for transport
Increased temperature	Deformation of road and airport runway surfaces Rail tracks buckling Passenger discomfort Risk to passenger safety Changes in seasonal demand for transport Changes in travel patterns e.g. tourism
Increased rainfall	Flood damage to roads, railways and airports Increased run off from adjacent land Standing water reducing safety e.g. on roads Reduced visibility Increased demand for car use Rising water tables flooding underground networks
Rising sea level	Permanent asset loss at coastal sites Periodic flooding of coastal infrastructure Threat to port operations Restricted access to ports
More frequent extreme weather events	High winds blow downs trees, rail power lines blocking transport links Impede aircraft operations Infrastructure damage e.g. flood damage to bridges Increased expenditure on road grit

Table 3.1 **The potential impacts of climate change upon the transport network**
Source http://www.defra.gov.uk/environment/climate/documents/dft-climate-change-plan.pdf).

Cornwall's transport network has been developed over many years and to varying standards without the use of modern materials or building techniques. In periods when we experience extremes of temperature, intense rainfall or tidal surges, our transport network is put under strain. The predicted impact of climate change means these periods of strain will become more frequent. As a coastal peninsula, Cornwall will become increasingly vulnerable to the predicted impacts of climate change. Current predictions indicate a 9 -16cm rise in sea level by the 2020's and a 20-80cm rise by 2080[14]. Cornwall's Shoreline Management Plan II identifies 27 locations that are at significant risk from flooding or coastal erosion, many of these include areas where important transport links are located . Areas identified as being

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[14] Climate South West, 'Impacts on the South West and Background Information', <www.oursouthwest.com/climate/impacts.htm> [Accessed 22/02/11].

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HTL – Hold the line
MR – Managed Realignment
NAI – No Active Intervention

| No.	Location (in no particular order)	2025	2055	2105
1	Downderry	HTL	NAI	NAI
2	Looe	HTL	HTL	HTL
3	Lostwithiel	HTL/MR	HTL/MR	HTL/MR
4	Par/St Blazey	NAI	MR	MR
5	Pentewan	MR	MR	HTL
6	Mevagissey	HTL/MR	HTL/MR	HTL/MR
7	Truro	HTL	HTL	HTL
8	Coverack	HTL	MR	MR
9	Praa Sands	MR	MR	NAI
10	Marazion - Penzance	HTL	MR	MR
11	Penzance - Newlyn	HTL	MR	MR
12	Penzance/Chyandour	HTL	HTL	HTL
13	Hayle – St Erth	HTL/MR	HTL/MR	HTL/MR
14	Perranporth	HTL	MR	MR
15	Wadebridge	HTL	HTL	HTL
16	Bude	HTL	HTL	HTL
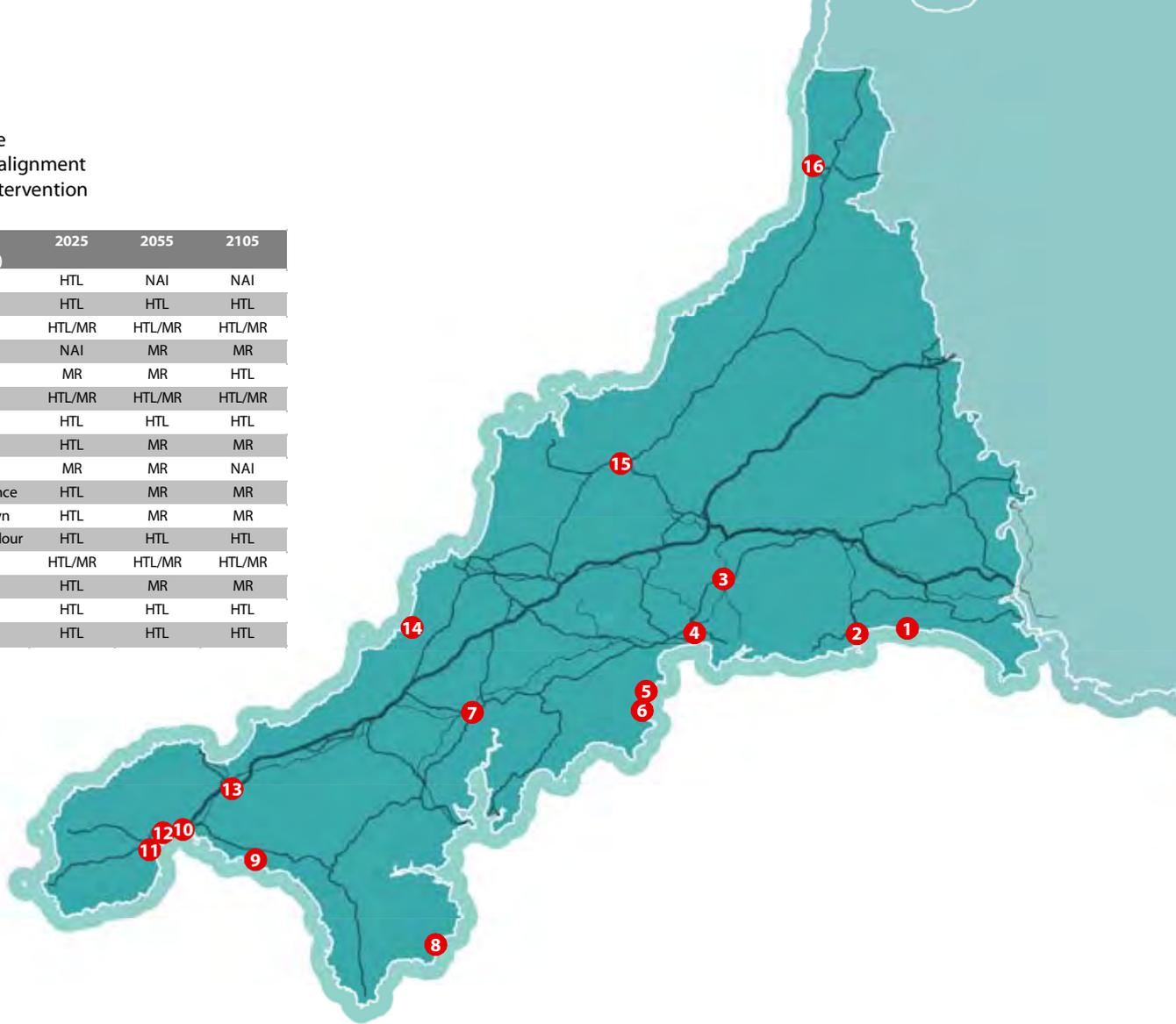
Fig 3.6 **Areas at very significant risk of coastal flooding**
(Shoreline Management Plan II March 2010)

at 'very significant' risk include Penzance and Marazion and in particular the mainline railway and A30, both vital strategic links. Locally significant erosion risks exist on the B3247 which links Downderry with both Seaton and Looe. Studies suggest that in total, over the next 100 years 15 – 30km of Cornwall's roads are liable to be frequently exposed to tidal flooding[15].

The potential impacts of climate change also threaten Cornwall's transport links with the rest of the UK. In 2007 flooding near Tewkesbury, Gloucestershire closed sections of the M5 motorway, which links with the A30 at Exeter and connects Cornwall with the rest of the country. The strategic south west rail main line from London to Penzance is also at risk from potential sea level rise, particularly along sections of the Cornish and south Devon coast[16]. Figure 3.6 shows areas that are at very significant risk of flooding based on Shoreline Management Plan II.

[15] Cornwall County Council, 'Sea Level Rise Implications – Geographical analysis of future high tides' (2009).
[16] South West Region Climate Change Impacts Scoping Study, 'Warming to the idea: Meeting the Challenge of Climate Change in the South West' (2010).

Case study: Boscastle

In August 2004 floods devastated the village of Boscastle in north Cornwall. Around 200 mm of rain fell in just 4 hours, a significant amount when you consider the total annual rainfall for much of Cornwall is between 900-1000 mm[17]. The resulting flash floods caused around £50m of damage, more than 150 people had to be airlifted to safety and 50-60 cars were washed away. Viewed alone such extreme weather events are difficult to link to climate change. However, it is clear that a pattern is emerging of a changing climate where such events are becoming more commonplace. The flooding at Boscastle demonstrates that the impacts of extreme weather events will be felt at a local level. We cannot afford to view climate change as someone else's problem, it is vital we take action at a local level to protect Cornwall and reduce the impacts of global climate change.

Boscastle Flood 2004, extreme weather events such as this are expected to become more common as a result of climate change.

3.3.3.2 What can Connecting Cornwall do?

Connecting Cornwall's approach for adapting to climate change and greater resilience rests on two key issues: targeted maintenance; and identification of future potential risks to the network. We must protect Cornwall's transport network where it is most at risk from the potential impacts of climate change.   Cornwall's Shoreline Management Plan II identifies numerous sites at severe risk of tidal flooding as a result of sea level rise, specifically sections of the A30 and Cornish mainline. We must work with our partners to maintain strategic links on all parts of the transport network, including rail. Our continued research into the potential impacts and areas of risk can allow us to target our resources where they can be most effective.

The 2008 Pitt review was produced as a response to the 2007 summer floods in Gloucestershire, which caused the death of 13 people and caused massive disruption to the transport network, including the closure of the M5. The review recommends that local authorities should lead on the management of local flood risk, with the support of the relevant organisations.

It is not just about managing the problems we know about. Effective maintenance of the transport network can ensure its resilience against the impacts of climate change.

Our communities and visitors recognise the importance of a resilient transport network, and identified ensuring the transport system is built to last as the most important proposal during the consultation on the strategy.

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[17] Met Office, South West England: Climate, <www.metoffice.gov.uk/climate/uk/sw/> [Accessed 22/02/11].

Policy 6

We will seek to adapt Cornwall's transport network and services and improve their resilience to the impacts of climate change.

This also supports objectives: 4, 5, 6, 12, 14

How?

We will work with partners to identify areas of the transport network that are at greatest risk from the impacts of climate change. We will monitor the potential impacts of climate change on our transport network and assess what level of intervention is necessary. The type of intervention will depend on how critical the infrastructure is, the available resources, the environmental significance of the land and the wider social implications.

We will seek to use materials in construction and maintenance that are resilient to the impacts of climate change. The use of resilient materials will reduce maintenance costs associated with extreme weather. We will also introduce the use of surfacing materials that minimise the CO_2 emissions associated with their use.

We will increase investment in drainage solutions. We will:

- Continue to work closely with the Environment Agency to ensure that drainage schemes are prioritised on a risk basis.
- Ensure the transport network remains resilient to flooding events.
- Ensure that drainage solutions meet both the needs of the community and environment.

The respecting and enhancing the environment goal in section 3.5 contains more information on mitigating environmental impact.

3.3.4 Outcomes

Figure 3.7 sets out the outcomes we will achieve if the policies and proposals relating to the tackling climate change goal are implemented.
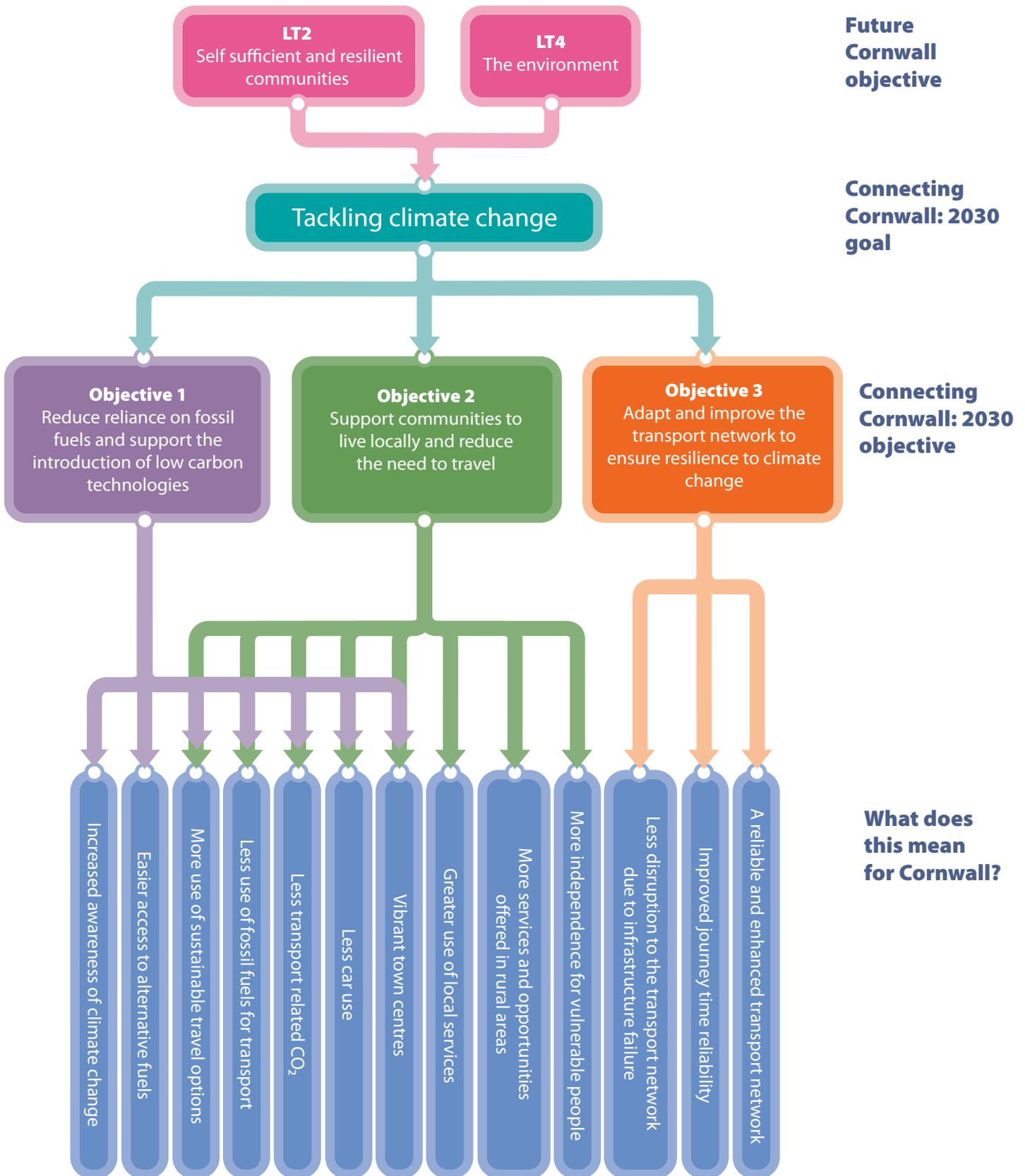

Fig 3.7 **Tackling climate change outcomes**