

# Shipbourne Climate Change Strategy and Action Plan

October 2022



**This Plan was drafted by Cllr Jenny Bate in August 2022.**

**The Plan was adopted by Shipbourne Parish Council on Monday 10<sup>th</sup> October 2022 and endorsed by Cllr Mike Taylor, Borough Councillor for Borough Green and Long Mill Ward.**

## Shipbourne Parish Council Climate Change Strategy 2022

### Foreword

Shipbourne Parish Council (SPC) has declared a Climate Change Emergency and supports T&MBC declaration of Climate Change Emergency made in 2019.

Government and scientists recognise that climate change is the most important environmental challenge that we face and we are all increasingly aware of the impact of climate change in our own lives.

Scientists have said that we need to stop the carbon emissions in our atmosphere if we want to avoid the planet warming by more than an average of 1.5°. That's the temperature that the Intergovernmental Panel on Climate Change (IPCC) has warned will be a major point of no return for the climate crisis. The IPCC's most recent report (<https://www.wri.org/insights/ipcc-report-2022-climate-impacts-adaptation-vulnerability>) emphasises the speed with which we should all be addressing the issue.

In July 2019 Tonbridge and Malling Borough Council agreed that the Borough would aim to achieve carbon neutrality by 2030 and produced a Climate Change Strategy for 2020 – 2030 <https://www.tmbc.gov.uk/climate-change/climate-change-1>

Their strategy sets out the Borough's commitment to local action on climate change, biodiversity protection and enhancement and their approach to partnership working.

In April 2021 Shipbourne Parish Council agreed that to respond to the climate change emergency it would set out a strategy and vision for both the Parish Council and the whole Parish which would indicate the steps the Parish needed to contribute to meeting the carbon neutral target of 2030.

As part of this strategy Shipbourne Parish Council has looked at the *carbon footprint* of the emissions that it has control over and sets out actions that can help reduce that footprint. SPC will investigate what it can do on an annual basis to offset any emissions that it cannot reduce.

This strategy also looks at the carbon footprint of the whole Parish, estimated by the 'IMPACT' Carbon Calculator<sup>1</sup>, identifies the most important issues that need to be targeted to help reduce the footprint and what actions SPC is able to take to help others reduce their personal and organisational footprints. Actions identified that will have the most impact in reducing the carbon footprint of the parish are personal ones and depend on individuals' response, particularly relating to the use of energy for heating, cooling, lighting and cooking in our own homes, how much we are able to insulate our homes, how much energy we can

generate ourselves through renewable technologies, how we use energy to travel, the consumer choices we make and how we manage our land.<sup>1</sup>

At the end of this report is a glossary of terms. The language of climate change is confusing and constantly new terms are being introduced. For instance what is the difference between carbon footprint and Green House Gas inventory, carbon neutrality, carbon zero/zero carbon, and net zero, carbon sequestration and carbon offsetting, natural climate solutions (NCS) and nature based solutions?

This strategy investigates the capacity Shipbourne Parish and our community may have to help meet the challenges of adapting to and mitigating the impacts of increased temperatures, drought, flash flooding, more extreme weather conditions and changes in biodiversity and habitats, by making small changes and making a contribution to the use of renewable energy, carbon offsetting and sequestration through natural climate solutions.

It is easy to get bogged down by what seems an enormous task, but we can all make a contribution by making both small and larger changes and acting where we can as a community to influence the changes we need in our Parish to meet the challenge.

**We hope this strategy will be welcomed as a positive step to meeting the challenges ahead for us all and call for your support to help our small parish achieve the ambition of *carbon neutrality* by 2030.**

**We look forward to receiving your comments, ideas and support that will contribute to achieving these carbon reduction targets.**

*Cllr Nick Tyler*

Chairman Shipbourne Parish Council,

*October 2022*

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<sup>1</sup> Refer Appendix 1

# **HOW TO COMMENT ON SHIPBOURNE PARISH'S STRATEGY AND ACTION PLAN:**

Send any comments and ideas you have to:

Sarah Huseyin, Clerk, Shipbourne Parish Council:

Email: [shipbourneparishcouncil@gmail.com](mailto:shipbourneparishcouncil@gmail.com)

Or post to:

Mrs Sarah Huseyin,  
Clerk, Shipbourne Parish Council,  
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## **1. What does carbon neutrality by 2030 mean?**

a) Tonbridge and Malling Borough Council (TMBC) aim to achieve carbon neutrality by 2030 and SPC support this objective. Carbon neutrality is however not the same as zero carbon. Carbon neutral includes an element of carbon offsetting to reach a certain target and TMCB have indicated that this target can only be achieved by an element of offsetting.

Offsetting is an inexact science, for instance the full impact of tree planting as a means of offsetting air travel can only be achieved once the tree has reached a certain maturity. It could of course die, be removed or lost long before its potential to offset the original carbon generation has been realised.

However it is universally recognised that zero carbon for a community is an unattainable goal. The aim should be to reduce our carbon footprint as much as we can and offset as much as we can, by whatever means are available to us, to reach stated targets. Some methods of offsetting are more quickly attainable in terms of the offset than others which require longer term investment. (The difference in natural and technological methods of offsetting is set out in Appendix 1 Glossary.)

### **b) Why work out a carbon footprint?**

Working out our carbon footprint will help us as a Parish work out where best to target our efforts, both as individuals and as a community. As a Parish Council we have worked out our current footprint which has shown areas where we can reduce our impact.

We have used the 'Impact tool'<sup>2</sup> to work out those areas where we could make an impact as a community either through individual actions or where we can work together within the Parish, with our neighbouring Parishes, the Local Authority, utility providers and others to help reduce our footprint and contribute to carbon reduction.

Without having an idea of our carbon footprint it is impossible to know what is needed to reach carbon reduction targets.

### **c) Is a carbon foot print the same as a Green House Gas inventory?**

Green House gases are gases that stop heat escaping from our atmosphere. Not all greenhouse gases contain carbon. Nitrous oxide, ozone and water vapour are not carbon gases but they also contribute to the warming effect. Carbon dioxide, Methane and Chlorofluorocarbons are all part of our CARBON footprint and the most important to reduce in making a contribution to reaching targets that will mitigate climate change. However a 'carbon' footprint, (carbon dioxide equivalent, CO<sub>2</sub>e) includes all gases which impact the climate.

## **2. Shipbourne Parish Council: carbon footprint**

### **a. Activities**

- i. Attendance at Parish, Borough, other meetings and site visits:  
For some journeys this involves use of a car by the Clerk and councillors. These are kept to a minimum and some have hybrid or electric cars. Recently Teams and Zoom meetings are used unless statutorily in person meetings are required.
- ii. Administrative activities require use of laptops, printers, toners, some paper, mobile and landline phones and broadband.
- iii. Heating and lighting of the Village Hall for Parish meetings.

SPC have undertaken an estimate of the carbon footprint of these activities. Currently the annual foot print is estimated as 0.622 tonnes per year. With small changes a reduction to 0.501 tonnes could be achieved over the next 12 months.

#### b. Land ownership

Shipbourne Parish Council own and manage Wightwicks and Dunks Green, both Common Land. The carbon footprint of management of these areas could be reduced and the biodiversity improved.

Reducing the mowing regime and managing the hedges and woodland areas sensitively would reduce the use of fossil fuel, and increase the biodiversity. Careful choice of planting species to create shade, reduce flooding, sequester carbon and provide for a richer biodiversity and habitats are currently being considered. The more diverse the habitat the more robust it will be to cope with changing climate conditions. Use of battery or electric machines will also be investigated. The aim will be to ensure that our land and its management do not only reach zero carbon, but also can contribute to sequestering carbon by the way it is managed. SPC will seek professional advice and if zero carbon cannot be achieved will seek ways to offset through nature based solutions (NBS) on other land.

#### c. Village Hall

The Village Hall Trust manages and maintains the Village Hall and garden. It is owned by the Parish Council. The Trust intends to undertake a carbon footprint calculation but in advance of the findings it is clear that the Hall needs insulating and double glazing needs to be undertaken. Despite recent improvements the electricity demand to heat the hall to acceptable levels for hire is high. The maintenance of the garden also requires fuel. These are issues that the Parish Council and the Trust are looking into.

#### d. Offsetting

SPC's activity carbon footprint is estimated to be in the order of 0.600 to 0.500 tonnes per annum. It is unlikely that SPC manage sufficient land to offset the footprint 'in house' but we will work with local landowners and the Kent Wildlife Trust to look into opportunities to both reduce our footprint further or fund offsetting elsewhere. Kent Wildlife Trust is currently setting up a scheme whereby donating money will aid the Trust to buy and/or manage land in a way to sequester more carbon and improve biodiversity locally. SPC could invest in 'donation credits' to compensate for the carbon used. A dialogue will be opened

with KWT to advise on management of the Parish owned land and the use of nature based solutions (NBS).

### **3. The Parish of Shipbourne: carbon footprint**

#### **a. The Impact report:**

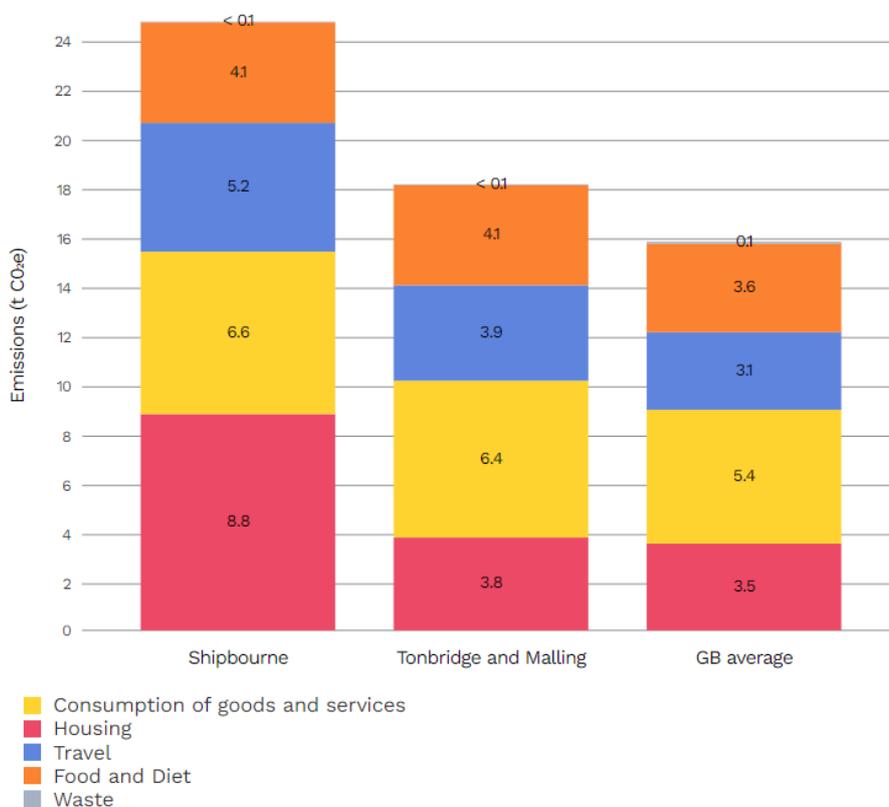
The Impact report tells us about Shipbourne Parish’s carbon footprint – both the scale of emissions and the main activities responsible for the emissions. This information is obtained from ‘Impact ‘– an online region-level carbon emissions estimator: [Impact | Community carbon calculator \(impact-tool.org.uk\)](https://impact-tool.org.uk)

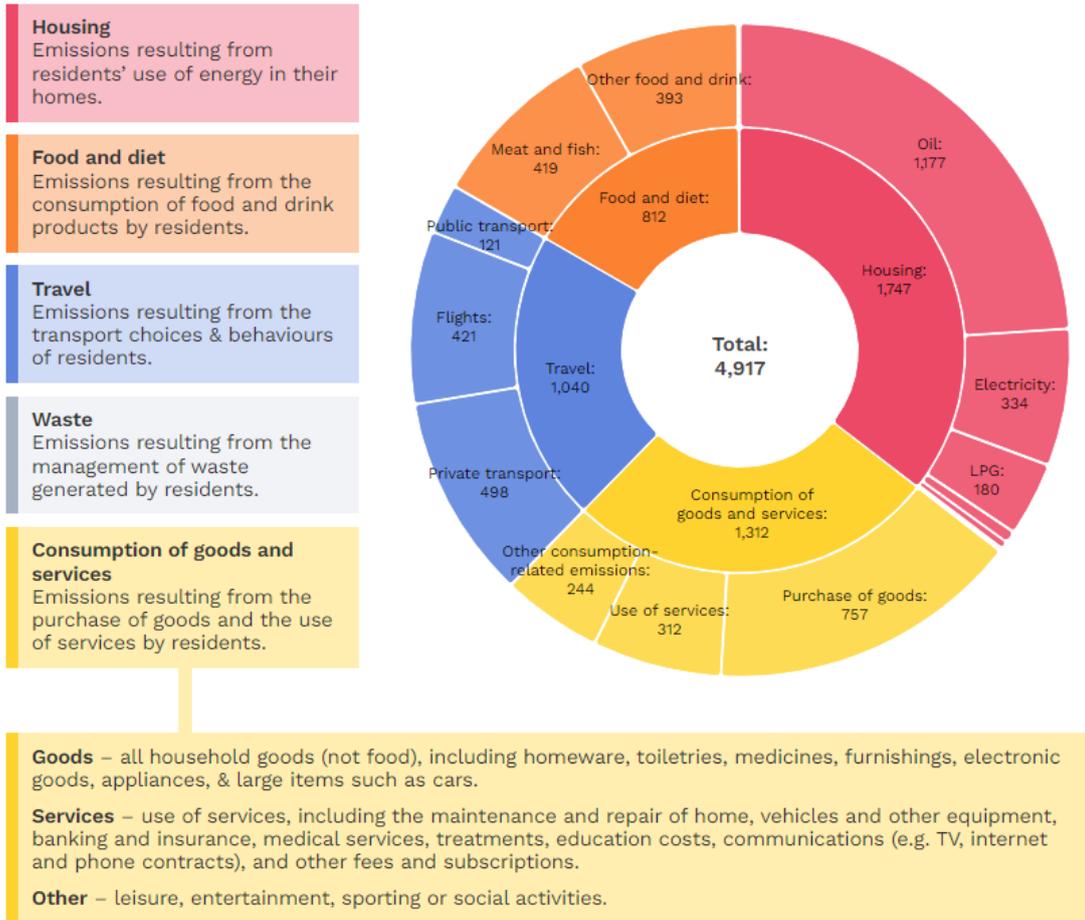
The tool was developed by the Centre for Sustainable Energy and the University of Exeter, initially to make carbon foot printing at parish level possible.

The full report shows both ‘consumption based’ and ‘territorial’ emissions, and also shows how our footprint compares with the district average and the national average. The Impact reports are a useful tool that are updated regularly on the webpage

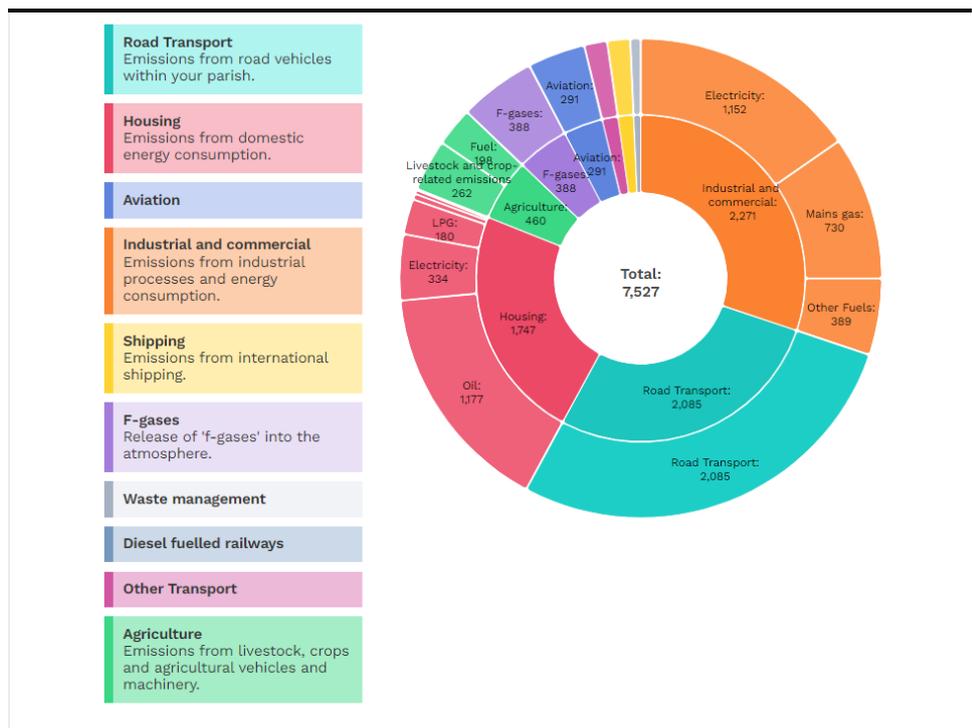
The report dated August 2022 for Shipbourne indicates the following:

#### **b. Consumption figures:**





**c. Territorial figures:**



The territorial figures in the Shipbourne graph are ‘skewed’ by the major A road going through the parish since figures for road usage emanating outside the parish but experienced on that part of the A277 within Shipbourne are calculated as being part of Shipbourne footprint. Also the industrial and commercial figures are based on figures for the whole Borough not individually for Shipbourne. The 2 methods of calculation do however give a clear steer as to where the emphasis for action in the Parish could be.

#### d. The footprint

The Impact report shows that the Parish of Shipbourne emits about 50% more CO<sub>2</sub>e than the average for Great Britain and it confirms that our biggest footprint is through use of fossil fuels in our households, followed closely by transport. Reducing emissions from our building stock by insulating, changing to renewable sources of fuel, and addressing our methods of travel present themselves as priorities for attention.

The figures are understandable due to our reliance on oil or LPG to heat our homes due to not being on the gas grid, having a high level of older and heritage properties, a higher proportion of larger homes and having a high dependence on car usage. Interesting comparisons can be made with neighbouring Parishes and the Borough and National averages. Shipbourne has a slightly lower footprint than Ightham, Plaxtol and West Peckham, but higher than Hadlow and Hildenborough – both these latter two Parishes having better public transport services, a larger proportion of younger and smaller housing stock and a gas supply that is more efficient than oil.

The figures above show how important it is to stop using fossil fuels of oil and LPG if we are to reduce our footprint. Currently Shipbourne is dependent on electricity, oil or LPG for heating and cooking since 95% of properties in Shipbourne and surrounding area are not serviced by the gas grid (source: [Non-gas map \(nongasmap.org.uk\)](http://nongasmap.org.uk) and this means that in the future Shipbourne will not be able to access Hydrogen gas. Elsewhere the current grid is being upgraded slowly to accept hydrogen but extensions to the gas grid will not be provided. Other renewable carbon zero options will therefore be needed. The existing electricity grid is currently not capable of supporting all properties in the parish moving from the fossil fuels of oil and LPG to electricity for heating and cooking etc. (Wood burning stoves also, although a renewable source, increase the carbon footprint.) **It is therefore important that our electricity grid provider (UK Power Networks) is made aware that the capacity of the grid in our Parish is in need of upgrading to cope with future demands.** This will include a higher demand on the grid for car plug in points, heating and cooking and for powering heat pumps. Also greater capacity will be needed for the grid to accept more electrical energy provided by householders from the increase in PV panels. It is important that individuals trying to change their energy supply are not caught by high costs of connection to the grid due to lack of capacity. SPC is currently working with South East New Energy (SENE) and initiating contacts with the Local Authority, UK Power Networks [UK Power Networks Innovation - Home](http://UK Power Networks Innovation - Home) and Kent County Council to ensure the Parish can cope with

future changes necessary to lower our carbon footprint and have a source of renewable energy. **Shipbourne is one of the few parishes in Tonbridge and Malling that will not be able to convert to hydrogen due to the lack of an existing gas grid.**

e. So what can we do?

Compared to the national average the 2 most important areas for us to address are housing and transport. Most of this is therefore within the power of individuals, so we can all make a huge contribution to lowering this impact.

In addition there are some major blocks to delivery, generic to all of us, which could be addressed through action at Parish, Borough and National level which could help us reduce Shipbourne's and our own personal footprint. This is useful evidence for the Parish Council when setting out actions the Parish Council can take when working with the Borough, Kent County Council and infrastructure providers.

f. Priorities

The Impact report indicates that priority should be as follows, moving from highest to lowest impact:

- i. To insulate homes to a higher standard**
- ii. To change from oil, wood and lpg to a renewable form of power to heat, cool and cook**
  - Depending on the property and its location individuals could install Photo Voltaic (PV) panels, solar heat panels (for heating hot water), air source or ground source heat pumps, or a mixture of these.
  - The Parish community could investigate opportunities for district heating and community renewable energy production.
  - ensure that Shipbourne is high priority for upgrade of the electricity grid.
- iii. To reduce aviation, particularly frequent flights**
- iv. To lower the number of journeys by car/private transport**
  - avoid unnecessary journeys, walk, cycle, use public transport, invest in energy efficient cars, share travel
  - work from home where possible.
- v. To reduce consumption and reuse and repair to make best use of embodied energy**
- vi. To make changes in diet to reduce emissions: a complex issue but plenty of advice available.**
  - move to meat and fish which are produced by more sustainable methods (e.g. domestic and local grass-fed animals, locally caught fish)

- move towards other sources of protein which themselves have a lower carbon footprint than meat, dairy and fish

**vii. To make considered choices in consumption**

- buy local where possible
- reduce use of non-recyclable materials,
- use or buy pre used and Freecycle or sell used items
- buy products with the smallest carbon footprint
- recycle waste
- use a provider of renewable electricity and reduce use.
- manage water consumption.

**viii. To look carefully at the ways we manage our land**

- think about gardening for changing climatic conditions. Need for shade, choice of species, water demand, and choice of gardening products (e.g. impact of using peat compost on destroying peatbog carbon sinks) and use of machinery.
- review agricultural practices

## 4. A Climate Change Action Plan for Shipbourne

August 2022

The table below sets out some actions that we can all aspire to, identifies who can take the lead, indicates where SPC can act and where blocks need to be addressed.

Action	Who responsible	Advantages	Blocks	Possible SPC Action	Timing
<p><b>Insulate homes (and other properties requiring heating) to higher standards where not already undertaken</b></p>	<p>Individual owners Lady Vane Trust Upper Green Lane Housing Association Other land owners renting out properties SPC and Village Hall Trust</p>	<p>Immediate reduction in fuel bills and carbon footprint. Improvement in air quality due to less use of fuel. Loft insulation fairly easy. Improvement in housing stock offers better living conditions to tenants and reduction in their fuel bills. Some properties in Upper Green Lane have already had air source heat pumps installed and insulation improved.  EPC rating improved.</p>	<p>Cost: Up to individual investment and management.  Insulation more difficult in heritage buildings.</p>	<p>Raise awareness of sources of grant support available.  Share experiences of those who have undertaken work.  Support insulation of property over which SPC have control/interest. E.g. Village Hall.  Encourage local Housing associations and other landlords to improve insulation in their properties.  Speak with the HA for Upper Green Lane to share their experience with the installation of air source heat pumps and insulation.</p>	<p>Ongoing</p>

Action	Who responsible	Advantages	Blocks	Possible SPC Action	Timing
<p><b>For those not on the gas grid: Change from fossil fuels -oil and lpg and wood to a renewable form of power to heat and cook. As Shipbourne is not on the gas grid Hydrogen will not be available in future.</b></p> <p>Installation of ground source or air source heating. installation of PV and/or solar panels</p>	<p>Property owners not on the gas grid including SPC and Village Hall Trust.</p>	<p>Reduced carbon footprint.</p> <p>Better air quality.</p> <p>Long term cheaper fuel source.</p> <p>EPC rating improved</p>	<p>Costly.</p> <p>Payback long term.</p> <p>Technology not yet fully trusted.</p> <p>Intrusive internal changes required.</p> <p>Dependence on improvements to electricity grid.</p> <p>Requires households to manage.</p>	<p>Share experiences of those who have undertaken work.</p> <p>Raise awareness of different technologies and grant schemes available.</p> <p>Start dialogue with Borough, County infrastructure providers (UK Power Networks) over improving the electricity grid and the vision for future fuel in rural areas.</p> <p>Raise need to improving grant funding from local and national level for those in rural areas. Raise awareness of fuel poverty where experienced.</p> <p>Investigate potential for renewable energy sources in Shipbourne. Currently SPC is engaging with 'South East New Energy' (SENE) investigating opportunities in Shipbourne.</p>	<p>Ongoing. find potential by April 2023</p>

Action	Who responsible	Advantages	Blocks	Possible SPC Action	Timing
<b>Building projects – extension, new build, renovations etc.</b>	Individual owners and developers.	<p>Reduced carbon footprint.</p> <p>Better air quality.</p> <p>Long term cheaper fuel source.</p> <p>High EPC rating.</p>		<p>Within the planning constraints of the Green Belt, AONB, Conservation Areas character and heritage constraints and other constraints, support planning applications that recognise embodied energy, reuse materials, and seek <b>zero carbon construction and renewable heat and power sources.</b></p>	Ongoing
<b>Lower the use of journeys by car/private transport</b>	<p>Individuals</p> <p>Bus service providers and funders.</p> <p>Local Authority</p>	<p>Reduce the carbon footprint. Improve air quality.</p>	<p>Cost of electric cars</p> <p>Electricity grid capacity and cost of putting in plug in points</p> <p>Main roads to local railway stations dangerous for cyclists.</p> <p>Poor public transport.</p>	<p>Support improvement in local bus service.</p> <p>Support local initiatives for car sharing, community bus schemes etc.</p> <p>Support initiatives that support working from home. E.g. broadband connectivity, mobile coverage, initiatives for shared use of facilities and networking.</p> <p>Support initiatives to make local roads safer for cyclists.</p>	Ongoing

<b>Action</b>	<b>Who responsible</b>	<b>Advantages</b>	<b>Blocks</b>	<b>Possible SPC Action</b>	<b>Timing</b>
<b>Reduce travel by air, particularly frequent flights</b>	Individual choices.	Reduction in air miles = reduction in carbon footprint.	Individual preference for holidays abroad requiring air flights traditionally more popular than holidays using rail or road. Comparative costs.  Need for working face to face abroad.	Support initiatives that relate to working from home - conference calls etc.  Support initiatives for carbon offsetting.	Ongoing
<b>Reduction in meat and dairy eating</b>	Individual choice	Reduction in carbon footprint	Individual preference.  Concern about economy of agriculture and local farming  Concern about energy costs of alternatives to meat etc.  Concerns about nutrition	Support local farming through Farmers Market.  Support education about relationship of food choices with carbon footprint.  Support education about nutrition that supports a lower meat and dairy diet.  Support local farming diversification, use of government schemes and subsidies and new ideas that support a thriving agricultural and rural economy.	Ongoing

Action	Who responsible	Advantages	Blocks	Possible SPC Action	Timing
<p><b>To reduce consumption – reuse and repair to make best use of embodied energy</b></p>	Individual choice	<p>Reduction in carbon footprint.</p> <p>Involves community working together and engaging making for a strong and robust community spirit</p>	<p>Involves community working together and engaging.</p> <p>Individual preference</p>	<p>Support for swop shops, and sharing facilities – tools, garden machinery etc.</p> <p>support for local communications through website, newsletter etc.</p>	Commence Autumn 2022
<p><b>To make considered choices in consumption:</b></p> <p>e.g.</p> <ul style="list-style-type: none"> <li>• buy local</li> <li>• reduce use of non-recyclable materials,</li> <li>• recycle waste.</li> <li>• buy products with lowest carbon footprint</li> </ul> <p>Refer paras f v and f vii above .</p>	<p>Individual choices.</p> <p>Borough Waste Service</p>	Reduces carbon footprint	<p>Difficulties in knowing the difference between products that have a lower or higher carbon footprint.</p> <p>Knowing whether something uses recycled materials in construction and delivery, and /or whether in doing so it involves using more energy.</p> <p>Possibly more expensive.</p> <p>Needs government legislation to get products labelled.</p>	<p>Support the Farmers Market.</p> <p>Support a Borough waste disposal service and County provision that maximizes recycling.</p> <p>Support government initiatives for labelling and taxing products with highest carbon footprints.</p>	Ongoing

<b>Action</b>	<b>Who responsible</b>	<b>Advantages</b>	<b>Blocks</b>	<b>Possible SPC Action</b>	<b>Timing</b>
<b>Land management</b>	Owners and Farmers	Increase biodiversity and climate change resilience. Reduce water consumption Increase shade Increase carbon sequestration through good soil husbandry Reduce carbon footprint	Individual preference. Agricultural practices and requirements	Support actions that increase biodiversity and carbon sequestration. Use website to encourage blogs from gardeners etc. to share knowledge and experience.  Engage with local land owners on land management practices. Support local farming diversification, use of government schemes and subsidies and new ideas that support a thriving agricultural and rural economy.	Spring 2023
<b>Provide information and enable sharing of experience</b>	Initially SPC	Community involvement	Involves time and commitment from a small and very busy community.	Improve website. Provide Climate Change webpage. Initiate a Climate Change Community Action Group	Commence Autumn 2022

## **5. Strategy review and call for help**

The Strategy and Action plan are iterative and evolving documents that will be updated regularly to ensure they reflect changes in evidence and progress.

SPC will encourage all Parishioners to work out their own footprint. The Shipbourne Newsletter and website will be used by SPC to endeavour to support all Parishioners in their efforts to reduce and offset their footprint. A dedicated climate change page will be provided on the Parish website.

The biggest impact we can have is to insulate our homes and change what fuels we use. SPC is investigating the potential for generation of renewable energy within the Parish and ways of supporting Parishioners to make changes to their properties. However much is up to our individual life choices.

**SPC needs help and support from individuals to help keep the website active and up to date and become involved as a community with the challenges we face.** SPC is currently recruiting members to form a 'Climate Change Action Group' for the village.

**SPC know that there is both energy and expertise within the community, everyone can be involved and every little helps in this endeavour.**

**We have a duty to the next generation to get on with this and we need you!**

**Shipbourne Parish Councillors hope that you will contact us so we can together all meet the challenge of the net zero target by 2030.**

### **Contact:**

Sarah Huseyin, Clerk, Shipbourne Parish Council:

Email: [shipbourneparishcouncil@gmail.com](mailto:shipbourneparishcouncil@gmail.com)

Phone: [07733250185](tel:07733250185)

### Or post to:

Mrs Sarah Huseyin,  
Clerk, Shipbourne Parish Council,  
Gable Cottage,  
Ismays Road,  
Ightham,  
TN15 9BE

## **Appendix 1. Glossary and useful links**

### **Carbon footprint and greenhouse gases:**

Do we need to worry about other greenhouse gases as well as carbon di oxide? Yes because greenhouse gases are gases in Earth's atmosphere that trap heat. They let sunlight pass through the atmosphere, but they prevent the heat that the sunlight brings from leaving the atmosphere. **CO<sub>2</sub> e** stands for "carbon dioxide equivalent" and is a standard unit of measurement in carbon accounting. It expresses the impact of a number of different gases collectively as a common unit.

The main greenhouse gases are:

- Water vapour
- Carbon dioxide
- Methane
- Ozone
- Nitrous oxide
- Chlorofluorocarbons

Of these methane is the most powerful in increasing the 'blanket' effect. As a greenhouse gas, methane is some 25-30 (according to a range of sources) times as potent as CO<sub>2</sub>. Reducing the burning of plant matter, eating meat, using fossil fuels and burying organic matter in landfill can all help to reduce methane emissions and global warming.

**A 'carbon' footprint includes both carbon dioxide as well as other gases which impact the climate.**

### **Climate Change Adaptation:**

This refers to actions that individuals or organisations can take to reduce the impacts of climate change, such as changing methods of agriculture to avoid run off from flash floods, providing more shade in landscaping of buildings, providing more flood defences.

### **Climate Change Mitigation:**

This refers to actions that can be taken to reduce the production of greenhouse gases that are increasing temperatures and cause deleterious changes to our environment. Examples are changing from the use of fossil fuels to using renewable energy, reducing the use of fossil fuels for transport, changing industrial processes, and adapting land management techniques to reduce carbon emissions.

### **Carbon neutrality or carbon neutral:**

Reaching carbon neutrality or carbon neutral means that an individual or organisation or demographic population/group etc. has reduced its carbon footprint as much as it possibly can, and any remaining carbon dioxide (CO<sub>2</sub>) that is released from their activities is offset by 'carbon offsetting'. This can be done in a number of ways. Either they finance someone else to do it for them, or they themselves remove carbon from the atmosphere by an activity that uses up or changes the same amount of carbon di oxide identified as their carbon footprint.

### **Carbon zero or zero carbon**

This is complete achievement of zero production of greenhouse gases including carbon emissions. Some buildings like Passivhaus claim to be 'zero carbon' as they are built to have zero CO2 emissions by high insulation building standards and use of renewable energy technologies. However this does not take account of the embodied energy and carbon cost of producing and building the house. This would need to be offset by the producing organisation.

### **Net zero:**

'Net zero' is similar to carbon neutral. It's still a fairly new term, so sometimes you might hear it used interchangeably with other words. But as governments and corporations adopt net zero targets worldwide, organisations like the United Nations are beginning to agree on a definition. When companies or organisations say they're 'net zero', it means they've cut their emissions down as much as they possibly can. For what's left, they offset it by taking steps to permanently remove carbon from the atmosphere.

### **Carbon offsetting**

A carbon offset involves a permanent removal of emissions of carbon dioxide or other greenhouse gases from the atmosphere in order to compensate for emissions made elsewhere. If carbon reductions are equivalent to the total carbon footprint of an activity, then the activity is said to be "carbon neutral." Carbon offsets can be bought, sold, or traded as part of a carbon market.

Examples of offsetting are:

#### 1. Nature based solutions or natural climate solutions (NCS)

This involves creating or restoring habitats which absorb emissions. Carbon can be either released or stored in our environment through the way in which we manage land. Nature based solutions provide ways in which carbon can be stored. Examples are planting trees and increasing forest cover, restoring peat bogs and coastal marshes, and increasing the biodiversity in our soils

Natural climate solutions (NCS) are a more international term than Nature Based Solutions but basically they are the same thing. NCS are actions that avoid greenhouse gas emissions and increase carbon storage in forests, grassland and wetlands. Well-known examples include forest conservation, restoration and management. Restoration not only returns forests to a healthy state, but also increases the amount of carbon sequestered, improves biodiversity and the quality of soil and water in the ecosystem, and provides economic benefits for communities that depend on that forest. **NCS and nature based solutions play a critical role in supporting the future of both climate and nature.**

In most cases the costs of nature based solutions and NCS per removal of a tonne of carbon are significantly less than technology based removal. Also they are more easily available and not dependent on new and emerging technologies.

**Find out more:** <https://www.kentwildlifetrust.org.uk/blog/evan-bowen-jones/nature-based-solutions-more-trees-and-not-just-carbon>

However because nature based solutions and NCS take a very long time to sequester the same amount of carbon as is originally and/or continually being produced for offsetting,

technology based removal will remain the most important method of offsetting for large carbon emitters.

## 2. Technology based offsetting: rapid, direct decarbonisation: Carbon capture and storage, or 'CCS' technology

An example of carbon storage technology is by transporting the captured CO<sub>2</sub>, usually in liquid form, via pipeline, and injecting it deep underground in geologic formations, but there are an increasing number of new technologies emerging for carbon capture.

### **Find out more:**

[https://www.globalccsinstitute.com/wp-content/uploads/2018/12/Global-CCS-Institute-Fact-sheet\\_Capturing-CO2.pdf](https://www.globalccsinstitute.com/wp-content/uploads/2018/12/Global-CCS-Institute-Fact-sheet_Capturing-CO2.pdf)

<https://www.globalccsinstitute.com/archive/hub/publications/191018/fact-sheet-capturing-co2.pdf>

<https://www.imperial.ac.uk/news/227653/new-research-shows-carbon-capture-technology/>

(If the links do not work try pasting them into Google search.)

### **Carbon sink:**

A carbon sink is anything that absorbs or has absorbed more carbon from the atmosphere than it releases – for example, plants, the ocean and soil, peat bogs. The carbon remains locked up until disturbed.

### **The electricity grid covering Shipbourne: UK Power Networks:**

Look at Power Network's Heat Packs:

<https://innovation.ukpowernetworks.co.uk/2021/02/03heat-packs/>

To reduce Shipbourne's carbon footprint an improved capacity of the electricity grid is essential.

### **Embodied energy:**

Embodied energy is the sum of all the energy required to produce any goods or services, considered as if that energy was incorporated or 'embodied' in the product itself. [Wikipedia](#) Embodied energy calculations are becoming more important in all consumption decision making.

### **Decentralised Energy:**

Energy produced by private individuals, companies or communities that provide local energy to communities and exports electricity onto the grid.

### **Energy Service Company (ESCo)**

An ESCo is a commercial structure created specifically to produce, supply and manage the local delivery of decentralised energy to a 'whole site' development'.

### **Community energy projects: Examples.**

Renewable energy in Loftus:

[https://www.cpre.org.uk/wp-content/uploads/2022/06/CPRE\\_Loftus-community-vision\\_leaflet\\_web.pdf](https://www.cpre.org.uk/wp-content/uploads/2022/06/CPRE_Loftus-community-vision_leaflet_web.pdf)

Barcombe:

<https://www.bbc.co.uk/news/uk-england-sussex-55844053>

<https://ovesco.co.uk/barcombe-energy-group>

## **Appendix 2. Impact report.**

Links to the Impact Carbon Calculator and Impact Report for Shipbourne, August 2022

<https://impact-tool.org.uk>

<https://impact-tool.org.uk/report?regionId=E0400106&geography=parish>

You can read the whole report for Shipbourne – which is updated regularly, and compare Shipbourne with other Parishes, Boroughs, and the UK

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