Buxton's Carbon Emissions – two online tools for prioritising activism

Buxton Central

27,998t CO$_2$e*
total consumption footprint (p.a.)

EMISSIONS BREAKDOWN (t CO$_2$e)

Consumption of goods and services	9,851
Housing	6,717
Food and diet	6,251
Travel	4,957
Waste	221

PDF Report 📄

*CO$_2$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.

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Prepared by Peter Burgess-Allen

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Introduction

Marches Energy Agency were commissioned to produce an assessment of Buxton's carbon emissions using existing online tools by the newly-formed Buxton Environment Action. This work is funded by High Peak Borough Council through the Local Authority Energy Partnership of authorities in Derbyshire & Nottinghamshire.

The UK's target footprint per person set out in the Committee on Climate Change's 6th Carbon Budget, covering 2032 to 2037 is 2849kg CO2 equivalent per person. Data from both the Impact tool and the Place-based Carbon Calculator show that we are a long way from reaching that target. To get there requires urgent commitment and action across all sectors – government, industry, leisure, transport, agriculture, housing and individually. A radical culture change is needed to shift consumption patterns and energy awareness, in addition to adoption of sustainable technology.

In 2021 Buxton's Rotary club convened a gathering of concerned local activists and residents to devise plans for a campaign to encourage local people to pledge to reduce their personal carbon footprints. As a consequence of these gatherings Buxton Environmental Action (BEA) was recently formed, and looks like providing an umbrella branding for local climate change action in the town. During conversations the existence of tools to aid organisations to prioritise actions was raised – this short report is intended to outline which parts of daily life are responsible for most carbon emissions in the hope that behavioural and cultural changes can be encouraged, in order to reach the critical goal of 'Net Zero'.

There is no more time to waste.

The Tools

**Impact
(https://impact-tool.org.uk/)**

Impact is an estimator of a community's carbon footprint that works for parishes wards, district councils and unitary authorities. Designed by a collaboration between University of Exeter and the Centre for Sustainability in Bristol, it draws on more than 30 datasets to estimate the total amount of greenhouse gases produced directly and indirectly as a result of everyday human activities in the given locality - heating homes, using electricity, transport, producing and distributing food, disposing of waste, etc.

It presents this information in a visually engaging way that is easy to interpret and easy to share.

Impact has been designed to help you and your community to access, analyse and act on your community's carbon footprint and to give you a better idea of where to target your efforts for the greatest impact in tackling the climate emergency. The tool produces two different types of carbon footprint for each parish, ward or council area, which represent two different carbon accounting approaches:

Consumption-based carbon footprint - This shows the emissions produced as a result of what people within your parish, ward or council area use in their daily lives. This includes the obvious things like gas, electricity and petrol, but also products like food and drink, clothes, shoes, consumer electronics and appliances, as well as financial services, even where these emissions take place outside of the local area.

Territorial-based carbon footprint - This shows the emissions produced within the territorial boundaries of your parish, ward or council area, and is based on what happens in that space. So this includes emissions from the presence of roads or other transport systems, or local agriculture and manufacturing, whether or not local people were travelling on that road or use those products and services.

**The Place-Based Carbon Calculator
https://www.carbon.place**
The PBCC is a free tool which estimates the per-person carbon footprint for every Lower Super Output Area (LSOA) in England. LSOAs are small statistical areas with a population of about 1,500 - 3,000. It draws on a wide range of data and research to give a representative view of how carbon footprints vary across the country. PBCC is intended to help communities and policy makers understand where their carbon footprints come from and what we need to do to reduce them.
The tool takes a **consumption based** approach to carbon footprints, this means that the emissions are counted by the consumer of a good or service not the producer. For example, if you buy a new phone made in China, the emissions from making that phone will be produced in China but will count towards your carbon footprint in England as you are the consumer.

This report primarily considers Consumption footprints. Activists may want to use the Impact tool to identify local high carbon-emitting industries (eg quarrying, cement, transport, agriculture) and activities for campaigning purposes.

Consumption footprints

Please see appendices for full reports by ward generated using the Impact tool, which contain a more detailed assessment of the data for each ward. The 'doughnuts' below describe the relative proportions of carbon emitted by the 5 sectors –
- consumption of goods and services
- Housing
- Food and diet
- Travel
- Waste

Table 1 below summarises emissions per household and total, on a Consumption basis. Territorial emissions totals are also given for comparison.

For details of how values are calculated, data sources and other technical information, please refer to the reports and to the online tools themselves.

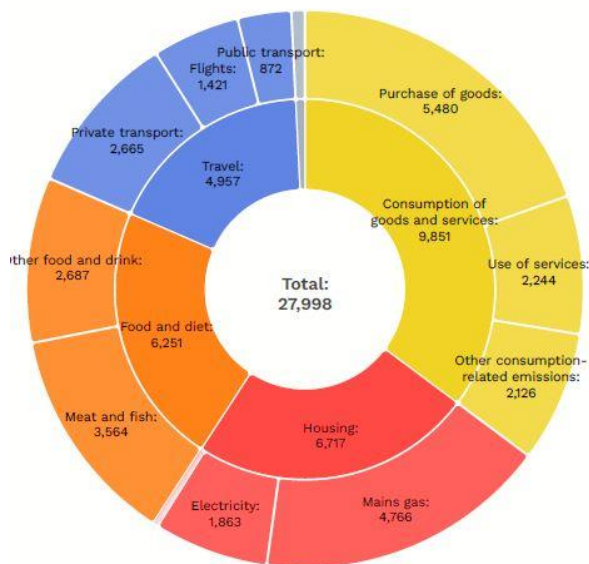### *Consumption footprints by Ward (total CO2 equivalent, per year, in Tonnes)*
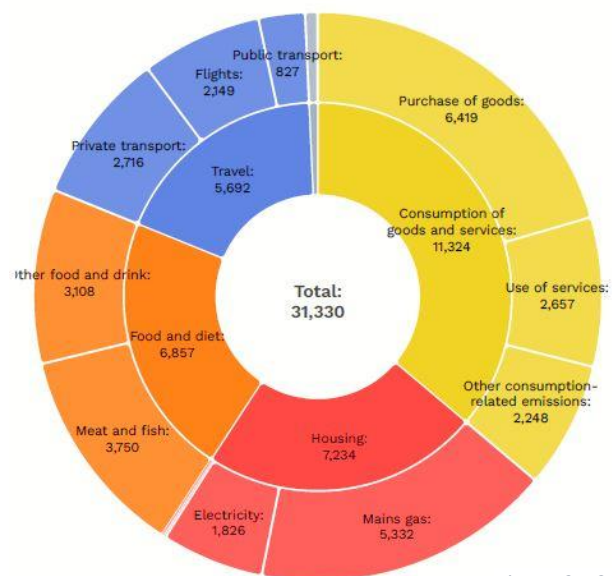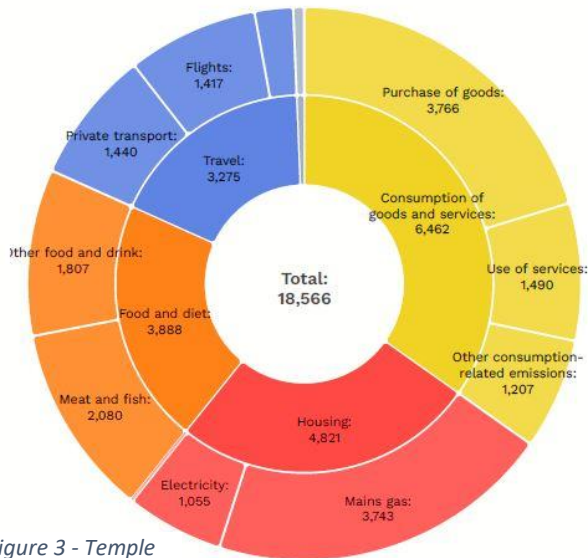

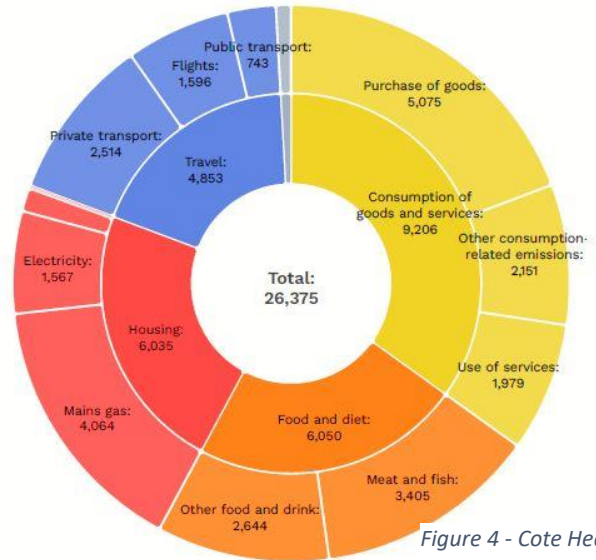*Figure 1 - Buxton Central*

Figure 2 - Corbar

Figure 3 - Temple

Total: 18,566

Travel: 3,275
- Flights: 1,417
- Private transport: 1,440

Food and diet: 3,888
- Other food and drink: 1,807
- Meat and fish: 2,080

Housing: 4,821
- Electricity: 1,055
- Mains gas: 3,743

Consumption of goods and services: 6,462
- Purchase of goods: 3,766
- Use of services: 1,490
- Other consumption-related emissions: 1,207

Figure 3 - Temple

Figure 4 - Cote Heath

Total: 26,375

Travel: 4,853
- Public transport: 743
- Flights: 1,596
- Private transport: 2,514

Housing: 6,035
- Electricity: 1,567
- Mains gas: 4,064

Food and diet: 6,050
- Other food and drink: 2,644
- Meat and fish: 3,405

Consumption of goods and services: 9,206
- Purchase of goods: 5,075
- Other consumption-related emissions: 2,151
- Use of services: 1,979

Figure 4 - Cote Heath

Figure 5 - Burbage

Total: 15,394

Travel: 2,968
- Public transport: 407
- Flights: 1,046
- Private transport: 1,515

Food and diet: 3,378
- Other food and drink: 1,545
- Meat and fish: 1,833

Housing: 3,518
- Oil: 375
- Electricity: 870
- Mains gas: 2,241

Consumption of goods and services: 5,414
- Purchase of goods: 3,119
- Other consumption-related emissions: 1,147
- Use of services: 1,147

Figure 5 - Burbage

Figure 6 - Barms

Total: 12,694

Travel: 2,258
- Public transport: 389
- Flights: 655
- Private transport: 1,215

Food and diet: 2,810
- Other food and drink: 1,197
- Meat and fish: 1,613

Housing: 3,198
- Electricity: 860
- Mains gas: 2,266

Consumption of goods and services: 4,322
- Purchase of goods: 2,352
- Other consumption-related emissions: 1,038
- Use of services: 932

Figure 6 - Barms

Figure 7 – Stone Bench

Total: 24,965

Travel: 4,399
- Public transport: 800
- Flights: 1,302
- Private transport: 2,296

Food and diet: 6,016
- Other food and drink: 2,556
- Meat and fish: 3,461

Housing: 6,059
- Electricity: 1,594
- Mains gas: 4,427

Consumption of goods and services: 8,218
- Purchase of goods: 4,683
- Use of services: 1,795
- Other consumption-related emissions: 1,740

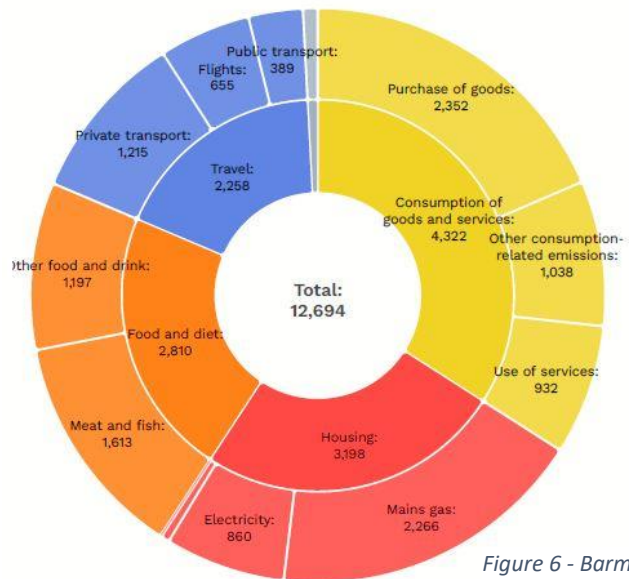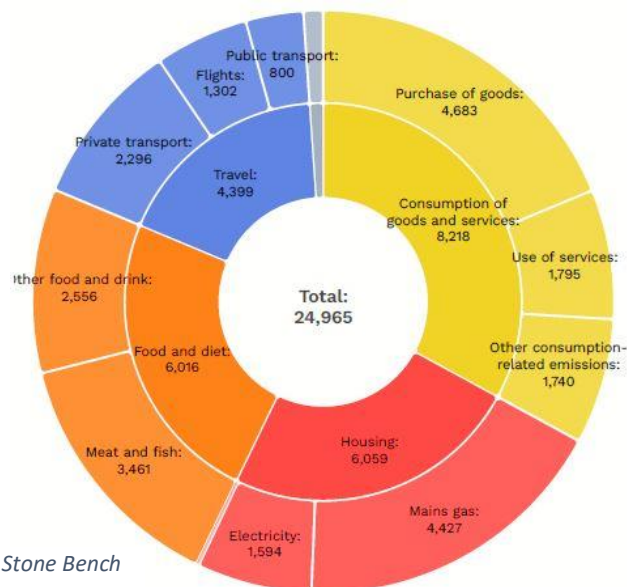*Figure 7 – Stone Bench*

	Table 1: Consumption Emissions: Tonnes CO2 equivalent, per year, per household (from Impact-tool.org.uk), by Ward for Buxton.	Ward						
		Buxton Central	Corbar	Temple	Cote Heath	Burbage	Stone Bench	Barms
	Consumption of goods & Services - purchase of goods	2.7	4.3	3.9	3.1	3.7	2.1	2.5
	Consumption of goods & Services – use of services	1.1	1.8	1.6	1.3	1.3	0.8	1.1
	Consumption of goods & Services – other related emissions	1.1	1.5	1.3	1.2	1.3	0.8	1.0
	Housing – mains gas	2.4	3.6	3.9	2.5	2.6	2.0	2.4
	Housing – electricity	0.9	1.2	1.1	1.0	1.0	0.7	0.9
	Housing – coal/oil	0	0	0	0.2	0.4	0	0.1
	Food & Diet – meat & fish	1.8	2.5	2.2	2.1	2.1	1.5	1.7
	Food & Diet - other	1.3	2.1	1.9	1.6	1.8	1.1	1.3
	Travel – private transport	1.3	1.8	1.5	1.5	1.8	1.0	1.3
	Travel - flights	0.7	1.4	1.5	1.0	1.2	0.6	0.7
	Travel – public transport	0.4	0.6	0.4	0.5	0.5	0.4	0.4
	Waste	0.1	0.1	0.1	0.1	0.1	0.1	0.1
	TOTAL Consumption Emissions/household/yr	**14**	**21**	**19.4**	**16.2**	**18**	**11.0**	**13.4**
	Total consumption emissions by ward (T/CO2e/yr)	**27998**	**31330**	**18566**	**26375**	**15394**	**24965**	**12694**
	Total Territorial emissions /household/yr (for comparison)	7.4	23.3	10.8	13.6	362.4	7.3	13.2

What are the main contributors to Buxton's emissions?

Consumption emissions data excludes emissions from heavy industry & agriculture. Cement works and other energy-intensive industry cannot be held accountable for the values in the above table (with the exception of the last line, provided for comparative purposes.) whilst significant reductions in thse industries will be needed, the comments below relate primarily to household consumption data, as this is where local activists are likely to be able to exert influence.

It is apparent that wealthier wards have significantly higher total emissions per household. Buxton Environment Action may wish to bear this in mind when designing carbon-descent activities – targeting more affluent neighbourhoods.

The areas of greatest disparity are :
- Consumption of goods and services
- housing (especially gas consumption)
- meat & fish consumption
- Travel (flights, and private transport)

In terms of absolute impact – **Consumption of goods & services** has the greatest environmental impact overall, with households in Corbar and Temple averaging 4.3 and 3.9 tonnes CO2e annually. In Stone Bench this value is 2.1T. Figure 8 grades the impacts by LSOA and Ward (green boundaries) on a scale of A+ to F- (Temple, Cote Heath & Corbar are below average).
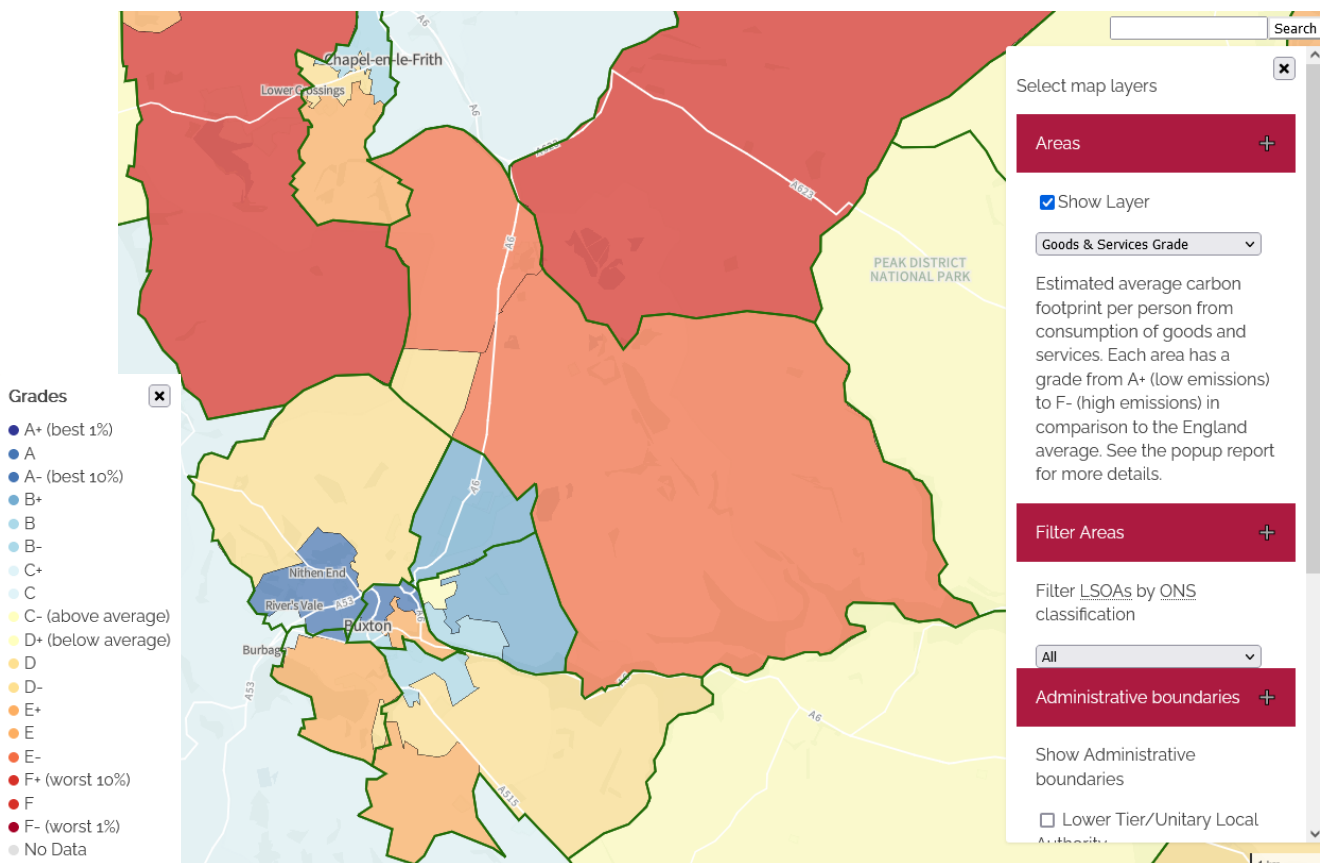

Figure 8 - emissions from Consumption of goods & services (PBCC)

The Impact tool highlights the proportion of greenhouse gas emissions that comes from the use of **gas for domestic heating**. Dramatic savings could be made if 'able to pay households' could be persuaded to invest in insulation, reduce energy waste & inefficiency, and to convert to more sustainable heating technologies such as air-source heat pumps.

Fig. 9 below from the PBCC shows emissions from domestic gas consumption and appear to confirm that the greatest emissions come from properties in Temple and Corbar wards.

BEA may want to consider coordinating a major campaign around domestic energy efficiency & insulation, perhaps with a focus on loft & interior wall insulation for the predominantly stone-built solid-walled houses in these areas.
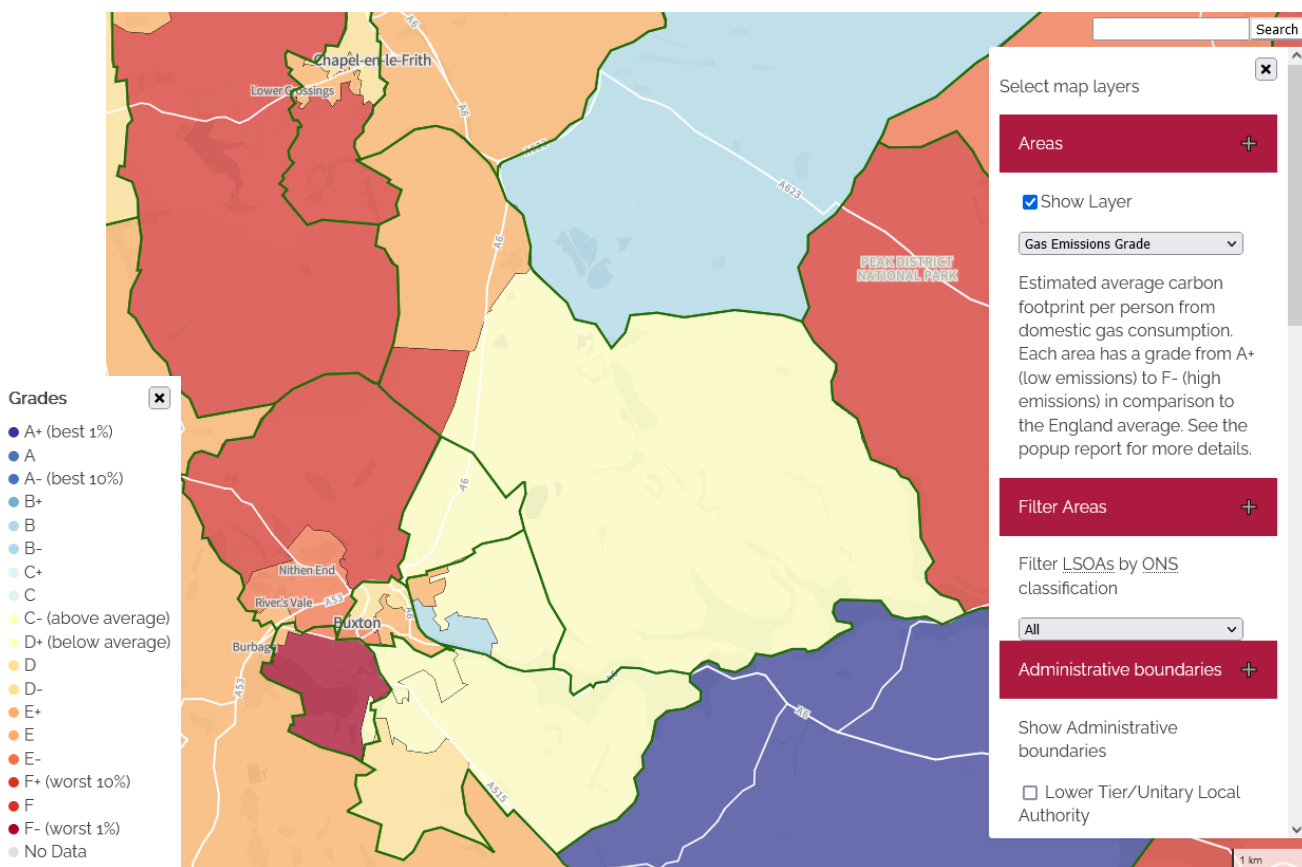

Figure 9 Emissions from Domestic Gas consumption (PBCC)

The data on **food and diet** indicate higher total consumption of food & drink of all types in more affluent areas. This may be down partially to the size of the household – ie more single-person occupancies in Stone Bench & Barms. Some of the higher CO2 emissions may be due to greater propensity to eat out at resaurants which are known to have higher energy usage and rates of waste. Food waste may be an issue to consider focusing a campaign on, both in the service sector and domestically. But the greatest impact could be achieved by reducing the amount of **meat & fish** consumed, particularly by more affluent householders.

Emissions from travel vary greatly by household (both **private transport and flying**). Households in Temple ward are responsible for 2.5 times more carbon from flying that those in Stone Bench, for example. Hope Valley displays s red in figure 10 – among the worst offenders. Environmental campaigners may wish to focus on ways to highlight the avoidable damage caused by flying, perhaps presenting alternative travel and holiday options, and working toward better train connectivity.
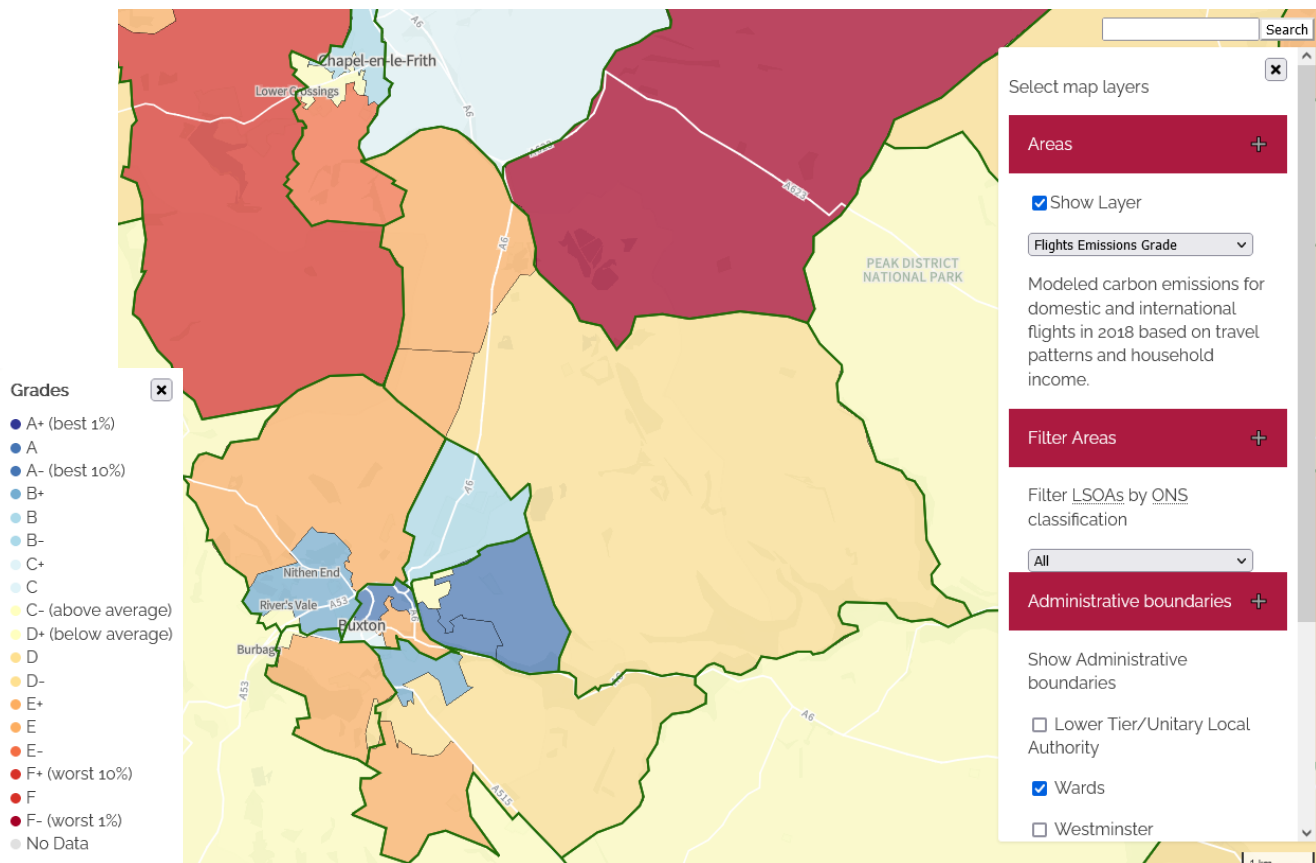

Figure 10 - Emissions from Flights (PBCC)

How does Buxton compare to the UK?

Buxton Central

Fig 11

Buxton Central has a lower total carbon footprint than the average for Great Britain, with slightly below average figures for domestic energy consumption (possibly due to relatively small size of dwellings), food & diet, and travel (many people live and work in the town).

Corbar

Fig 12

Corbar has a very high household Carbon footprint, each household annually emitting over 5T in excess of the national average All sectors score higher emissions, particularly consumption of goods and services. Pockets of fuel poverty exist within a generally prosperous neighbourhood. An estate of Park homes provide an opportunity for significant energy efficiency improvements.

Temple

Fig 13

Temple also has a very high score with domestic energy & consumption of goods driving this.
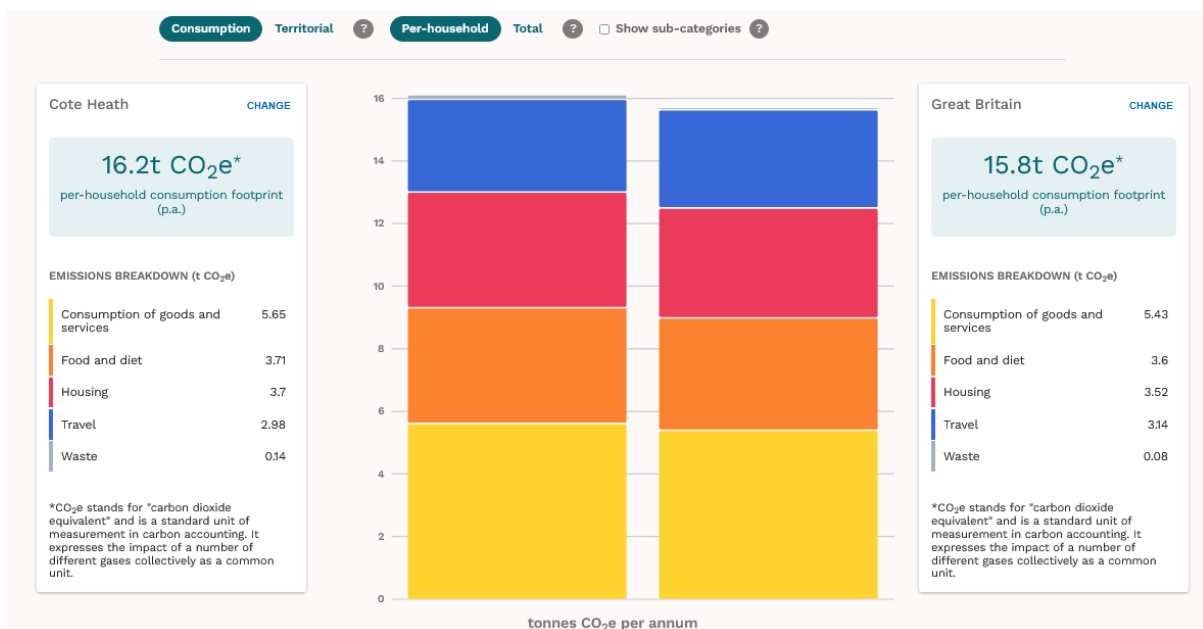
Cote Heath

Fig 14

Cote heath is close to the national average for GB in all sectors, exceeding it by 0.4T CO2 per household.

Burbage

Fig 15

This affluent ward again emits more C02 than the GB average, by 2.2T. Car use and high consumption levels of goods & services are behind some of that difference.
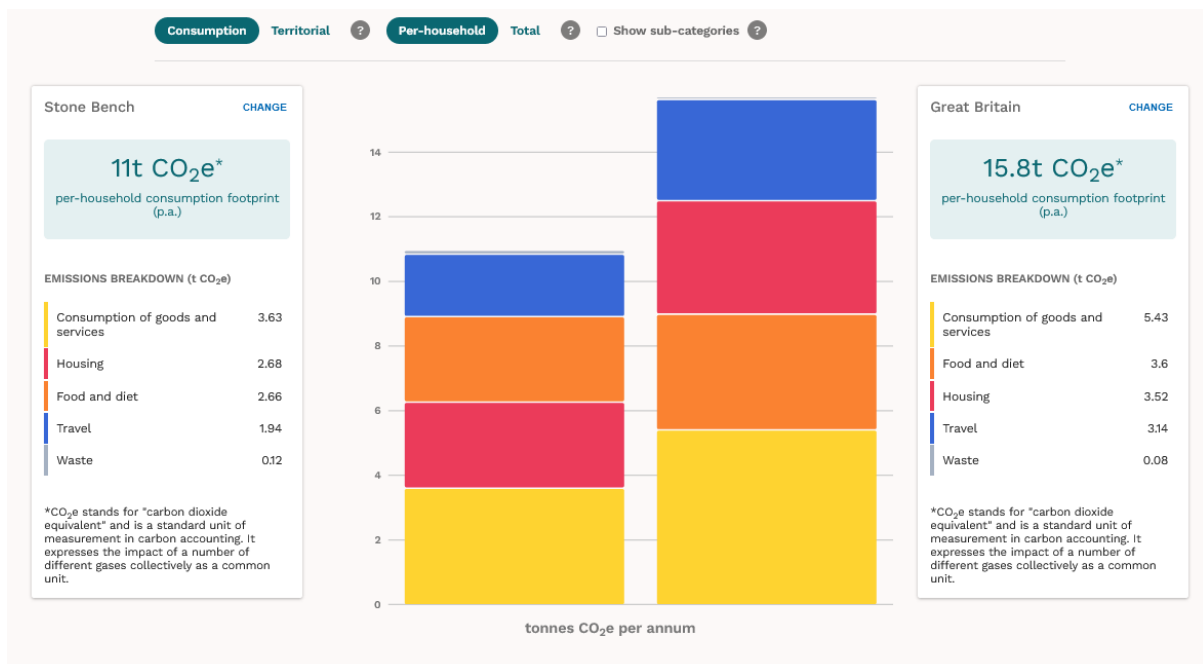
Stone Bench

Fig 16

Stone Bench is the least affluent ward, parts of which falling into the most deprived 10% LSOAs on the [index of multiple deprivation](#) (2019). Lower Consumption levels of goods, and less travel (particularly flying) mean the carbon impact is nearly 5 T lower than the GB average. Campaigns to reduce carbon will need to be mindful of the fact that poverty drives this existing lower carbon impact, and that health concerns due to deprivation, and generally lower aspiration levels need to be addressed at the same time as minimising emissions. Insulation and energy efficiency programmes can actually be a 'win-win'. Community food-growing schemes also can improve wellbeing, reduce food costs, and result in less pollution. However, carbon savings are likely to be more difficult to achieve and be lower here than in other wards for the same amount of effort.
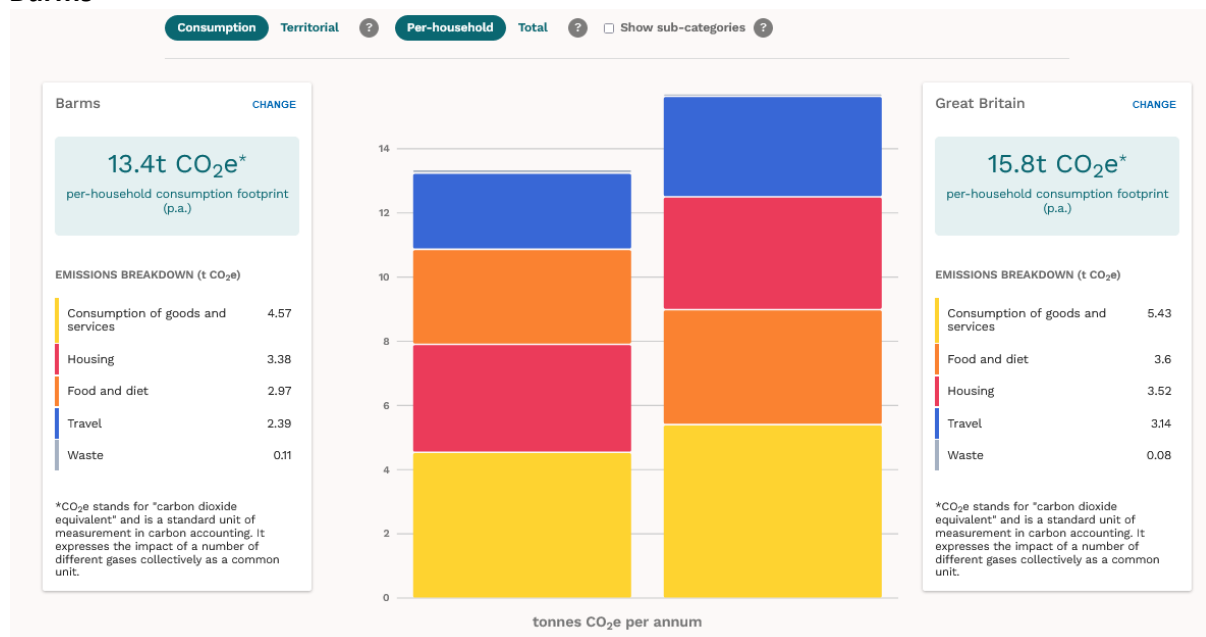
Barms

Fig 17

Barms is also a less well-off neighbourhood, and the carbon emissions data reflects lower consumption and travel than the GB average.

Action

It is hoped that this report will help residents of Buxton, and perhaps further afield, to prioritise vital climate activism - to find where the easier targets are for carbon reductions. It is intended to prompt discussions about what best to focus energy on, rather than be prescriptive.

It's also hoped that it will help communicate the dramatic scale of the decarbonisation we need to make to avoid disastrous tipping points in global climate systems.

Sharing the data – adapting it and presenting it in ways that are easy to comprehend - can be a valuable tool.

The data indicate the four areas to focus community effort on might be
- Finding ways to reduce Consumption of goods and services
- Tackling emissions from housing (especially gas consumption)
- Reducing meat & fish consumption
- Promoting low-carbon Travel (& discouraging flying and car use)

BEA and associated groups may wish to take this information into account when prioritising local actions.

The establishment of Buxton Environment Action under the auspices of the Rotary Club, establishment organisation, may give confidence to many who until now have thought of climate action as a fringe activity. It is not. Every individual can play a part, with local authorities and government providing the means to make low-carbon existence possible for all without driving the most vulnerable into poverty. Activism at every level is therefore critical.

__Appendices__

Impact report – Barms Ward

Impact report – Burbage Ward

Impact report – Buxton Central Ward

Impact report – Corbar Ward

Impact report – Cote Heath Ward

Impact report – Stone Bench Ward

Impact report – Temple Ward

centre for
sustainable
energy

Carbon Footprint Report:

Barms

Ward

06/06/2022

1. Your Footprint Report

Welcome to your carbon footprint report!

This report tells you about your community's carbon[1] footprint – both the scale of emissions and the main activities responsible for the emissions. This information comes from *Impact* – an online region-level carbon emissions estimator: https://impact-tool.org.uk/.

The tool was developed by the Centre for Sustainable Energy and the University of Exeter, initially to make carbon footprinting at parish level possible. Since its inception a number of improvements have been made, including the ability to look at larger geographical areas.

Your report shows both 'consumption based' and 'territorial' emissions, and also shows how your footprint compares with the district average and the national average.

It shows your 'territorial' *and* 'consumption' footprints.

There are two ways of viewing a community's carbon footprint: territorial-based, or consumption-based.

Territorial footprints consider the emissions produced within a geographical boundary – such as from heating buildings, transport, industry, and agriculture – regardless of whether the residents within the community are engaged in or demand those activities. For example, if a factory lies within the boundary of a local authority, then regardless of whether what is produced in the factory is consumed locally or exported to other parts of the country (or world), the factory's emissions would still be counted as part of that local authority's territorial footprint. A territorial footprint is largely created by taking national and local authority datasets and cutting these down to the local geography in as accurate a way as possible.

A consumption footprint captures all the emissions produced as a result of the activities that the area's residents engage in, regardless of where geographically they occur. For example, emissions resulting from the food they eat, the clothes and household items they buy, the leisure activities they engage in, their travel behaviours, and the heating of their homes. The consumption-based footprint is based on household and address-level data, which is then aggregated up to the community level (rather than cutting down from a higher geography as with the territorial approach).

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[1] A 'carbon' footprint, includes carbon dioxide as well as other gases which impact the climate.

Apples and pears.

Showing both territorial and consumption footprints gives you useful information, but it is important to recognise that the two footprints cannot be directly compared as they look at the question of 'where do our emissions come from' in different ways, using different methods, and with different datasets.

Take your footprint as a guide, not as gospel.

The carbon footprints are modelled, drawing on data from more than 30 datasets (some of which are themselves made up of multiple further datasets!). As with all models, decisions have been taken in terms of what data is used, and how the data is 'cut' and analysed. The Impact footprints have been developed with the intention that they are as useful as possible, but remember to take them as a guide, not as gospel.

If you would like more detail about the method and datasets, please read the Impact methodology paper: https://impact-tool.org.uk/static/doc/Impact-methodology-paper-v1.7.pdf.

You can also download the raw data here: https://impact-tool.org.uk/download

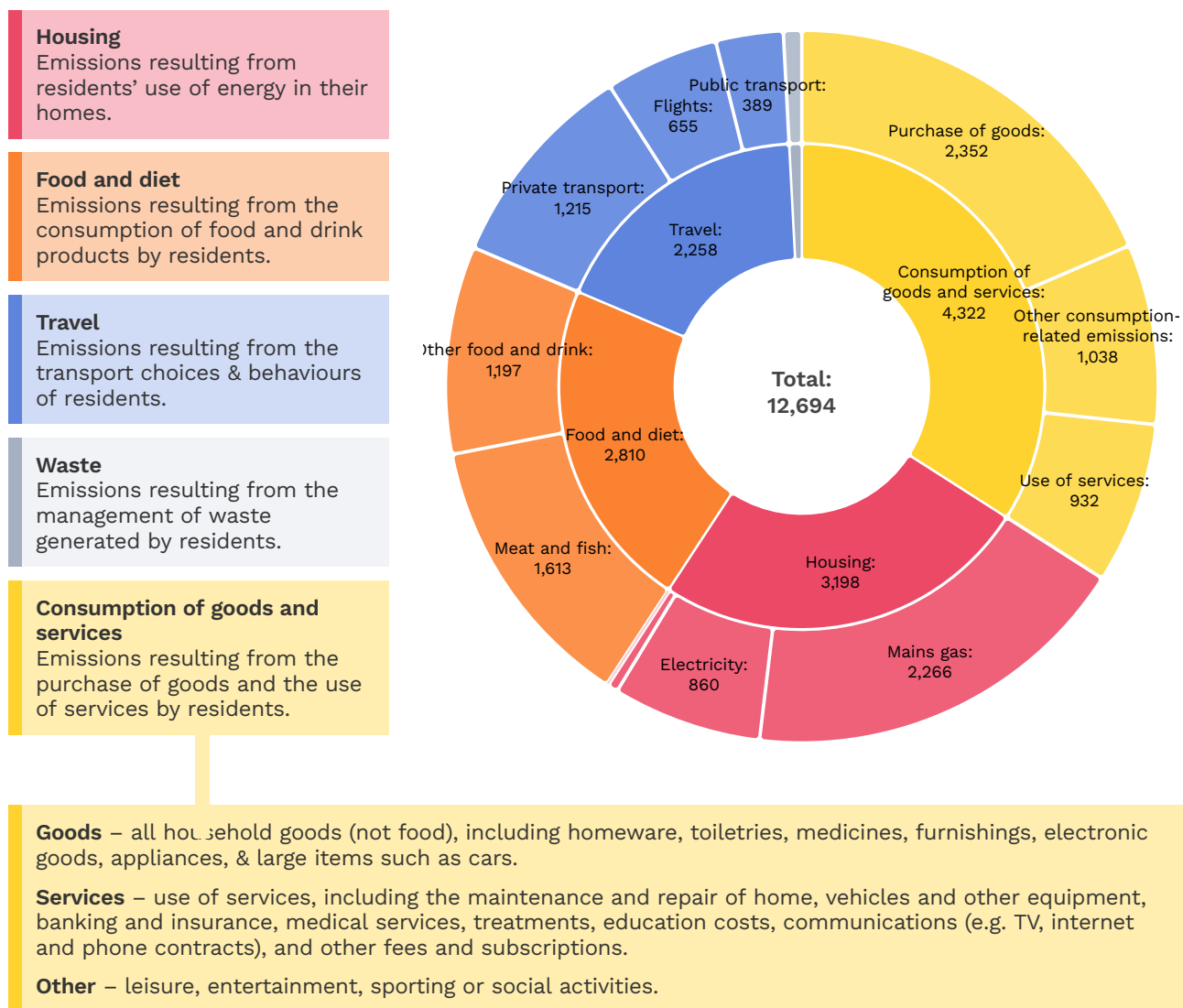## How does knowing our carbon footprint help us tackle climate change?

Footprint information can guide us to where we should target our efforts to reduce emissions and have the greatest impact. To help you think about what to do next with your footprint information, in each section of this report there are change targets for reaching net zero, and some trigger questions to help you think about possible areas for action.

Note that these footprints are intended to raise awareness and improve understanding of the types of activities which contribute to emissions in any given area in order to stimulate individual and collective action. Local Authorities may well have carried out their own analysis and have made climate emergency declarations, drafted action plans, set out policies or be delivering schemes. We hope that the Impact tool can be used to complement this activity.

2. Your Community's Consumption Footprint

Your whole footprint

This figure shows the annual carbon emissions (measured in tonnes CO_2e[2]) emitted as a result of the different activities that residents within your ward's boundary engage in – from heating to eating.

Housing
Emissions resulting from residents' use of energy in their homes.

Food and diet
Emissions resulting from the consumption of food and drink products by residents.

Travel
Emissions resulting from the transport choices & behaviours of residents.

Waste
Emissions resulting from the management of waste generated by residents.

Consumption of goods and services
Emissions resulting from the purchase of goods and the use of services by residents.

Public transport: 389
Flights: 655
Private transport: 1,215
Travel: 2,258
Purchase of goods: 2,352
Consumption of goods and services: 4,322
Other consumption-related emissions: 1,038
Use of services: 932
Other food and drink: 1,197
Food and diet: 2,810
Total: 12,694
Housing: 3,198
Mains gas: 2,266
Meat and fish: 1,613
Electricity: 860

Goods – all household goods (not food), including homeware, toiletries, medicines, furnishings, electronic goods, appliances, & large items such as cars.

Services – use of services, including the maintenance and repair of home, vehicles and other equipment, banking and insurance, medical services, treatments, education costs, communications (e.g. TV, internet and phone contracts), and other fees and subscriptions.

Other – leisure, entertainment, sporting or social activities.
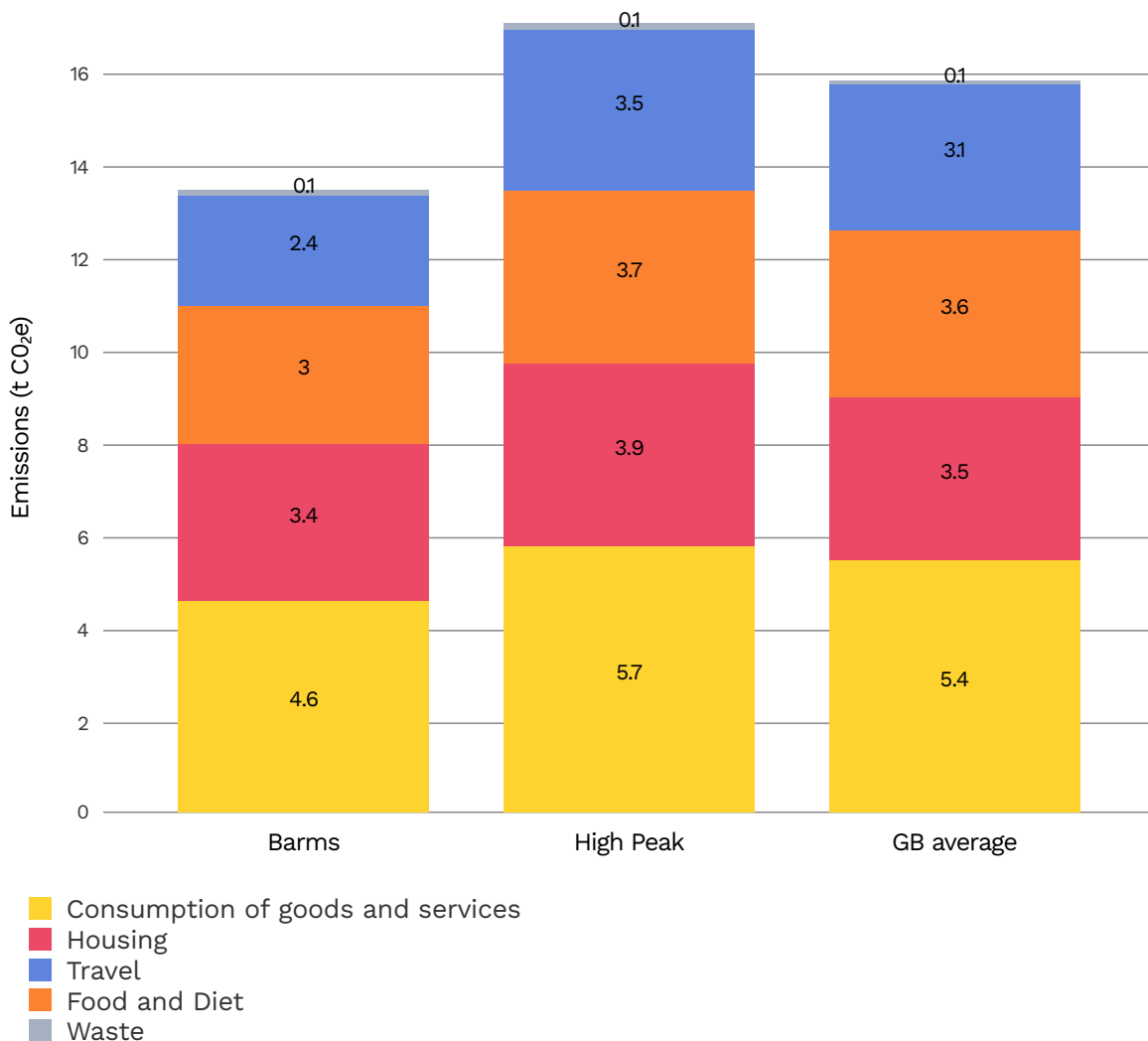
A breakdown of the numbers

The table below shows your area's consumption footprint – total estimated emissions and per-household averages – so that you can see a breakdown of the numbers.

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[2] CO_2e 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.

	Total emissions (t CO$_2$e)	Per-household emissions (t CO$_2$e)	%
Total emissions	**12,694**	**13**	**100**
Consumption of goods and services	4,322	4.6	34
Housing	3,198	3.4	25
Food and diet	2,810	3	22
Travel	2,258	2.4	18
Waste	106	0.1	1

How does your area compare?

Here is what the average consumption footprint for your area looks like per household, and how this compares with the district average and the national average. Note that these per household footprints are averages. Within a larger (e.g. local authority) area you may have neighbourhoods with very different per household consumption footprints and it will be worth looking at more granular data if you are planning area-specific initiatives or messaging.

Housing

Your community's residents' use of energy in their homes results in annual carbon emissions per household of 3.4 t CO_2e. This compares with 3.9 t CO_2e at the district level and 3.5 t CO_2e at the national level. In the average UK home, 64% of energy is used for space heating, 17% for heating water, 16% for lighting and appliances, and 3% for cooking[3]. As such a large proportion of household energy is used for heating, the type of heating system (i.e. is it low carbon?), and how well the home retains heat, are critical factors shaping the scale of a home's emissions. How well a home retains heat depends on anumber of factors, including: when and how it was built; how much insulation has been installed; how draughty the home is; the efficiency of the windows; and the behaviour of the residents.

Carbon footprints covering a large geographical area will encompass a range of smaller communities with different housing types and demographics. This will influence the types of activities which are most likely to be successful and have the greatest impact in terms of reducing emissions from housing.

Below are some trigger questions to help you to start to think about the implications of your community's household footprint information.

- How does your community's household energy use compare with the the district and national averages? What might the reasons be for the differences?

- What type of housing is there in your community? And what is the main heating fuel (oil, gas, electricity, etc.)?

- Is the housing easily retrofitted to improve how well it retains heat and install low carbon heating? Do you know if residents are doing this? Are there already initiatives to increase demand and encourage and support residents to take action?

- What opportunities are there to retrofit community buildings?

- Many homes, public and commercial buildings have an Energy Performance Certificate (EPC) which measures the energy efficiency of the property. You can look at the EPCs of the buildings in your community here: https://epc.opendatacommunities.org

- Could you identify homes and buildings where the residents / owners have already made improvements, and showcase these – for example with an event?

- Have you explored local potential for renewable energy generation schemes, such as a solar farm, rooftop solar, or wind? Could a community owned (or jointly owned) initiative be possible?

- Are there opportunities to shift households, community buildings and businesses in your area onto green energy tariffs, where energy is generated from renewable sources?

Transport

Change targets:

- Reduced private car travel and a comparable increase in active and public transport

- A complete shift to electric vehicles (and an end to petrol & diesel cars & vans)

- Massively reduced air travel, particularly among frequent flyers

Car use: Residents' car use results in annual carbon emissions per household of 1.3 t CO_2e. This compares with 1.8 t CO_2e at the district level and 1.6 t CO_2e at the national level.

Air travel: Residents' air travel results in annual carbon emissions per household of 0.7 t CO_2e. This compares with 1.2 t CO_2e at the district level and 1.1 t CO_2e at the national level.

Public transport: Residents' use of public transport results in annual carbon emissions per household of 0.4 t CO_2e. This compares with 0.5 t CO_2e at the district level and 0.5 t CO_2e at the national level.

Below are some trigger questions to help you to start to think about the implications of your community's transport footprint information.

- How do your community's car use-related emissions compare to public transport emissions? And how do these both compare with the district and national averages? What might the reasons be for the differences?

- Could existing or new community schemes help residents shift their transport behaviours to using public transport (if this is a choice) or more active travel options (e.g. electric bike hire or subsidised purchase schemes)? How could the impact of local initiatives be increased?

- Is there scope more strategically to influence provision of public transport (e.g. routes, frequency, fares, subsidies, low carbon fleets)?

- What is the provision of walking and cycling routes like? How accessible are local service centres and facilities to residents in different neighbourhoods? Is it possible for most households to access what they need without needing to use a car?

- What do you think are the key reasons for air travel in your community? Are there likely to be differences between residents of different neighbourhoods? It is worth noting that about 10% of England's population take more than half of all international flights – so trying to address 'frequent flying' is a good way to target any activities or communications campaign.

Food & diet

Change targets:

- Altered dietary patterns & reduced food waste

- Widely adopted agricultural practices that reduce emissions & increase soil carbon

Meat and fish: Residents' consumption of meat and fish results in annual carbon emissions per household of 1.7 t CO_2e. This compares with 2.1 t CO_2e at the district level and 2 t CO_2e at the national level.

Other food and drink items: Residents' consumption of other food and drink items results in annual carbon emissions per household of 1.3 t CO_2e. This compares with 1.7 t CO_2e at the district level and 1.6 t CO_2e at the national level.

So, where do the emissions from our food actually come from? Without understanding this it can be difficult to know what we can do to change the carbon footprint of what we eat and drink.

Research shows us that changing **what** we eat will have a greater impact on carbon emissions than changing **where** our food has travelled from – although, of course, eating locally-produced food brings multiple other benefits such as supporting local economies, having more control over mandating more ethical and environmentally-beneficial growing practices, and creating opportunities for people to better understand where the food they eat comes from and how it's grown or made.

Whilst the emissions from a food item can really vary depending on how it is grown or reared, it is clear that animal products, and most significantly beef and lamb, account for the largest proportion of food-related emissions. Explore the BBC's Climate Change Food Calculator to better understand how food and drink items compare: https://www.bbc.com/future/bespoke/follow-the-food/calculate-the-environmental-footprint-of-your-food.html[3].

Below are some trigger questions to help you to start to think about the implications of your community's food and diet footprint information.

- How do your community's food and diet-related emissions compare with the district and national averages?

- Could you establish or support a behavioural change campaign to encourage people to reduce the amount of meat and dairy they consume? (It is critical that any community-based activity or communications campaigns around dietary changes is sensitive to concerns about farmers' livelihoods and people's cultural and traditional links to meat-eating).

- The amount of food wasted 'post-farm-gate' in the UK is equivalent to 22% of food purchased. What initiatives could raise awareness about food waste and encourage unwanted food to be redistributed (e.g. through a 'community fridge')?

Goods & services

Change targets:

- Hugely altered consumption patterns, buying less and re-using/repairing more

- Decarbonised power generation

Goods & services: Residents' consumption of goods and use of services results in annual carbon emissions per household of 4.6 t CO_2e. This compares with 5.7 t CO_2e at the district level and 5.4 t CO_2e at the national level.

[4] For further information, you can also read this Our World in Data (Oxford University) study:

https://ourworldindata.org/food-choice-vs-eating-local

All goods that we buy will have had carbon emitted in their making (including the sourcing of raw materials), packaging, shipping and sale. Without clear carbon labelling, it is difficult to know the scale of emissions resulting from each item, but it is clear that with every new product made, more carbon is emitted (and more resources are extracted and sourced – which itself can have huge environmental and social impacts). Reducing how many *new* goods we buy in the first place is the best place to start in terms of reducing goods-related emissions; and then of course re-using and repairing items where goods are needed.

Carbon emissions from the services we use will relate to the energy used by that service provider (e.g. heating in a leisure centre, pub or hospital), as well as the carbon emitted as a result of goods they buy and use (e.g. gym equipment, vehicle repair machinery).

Here are some trigger questions to help you to consider ways to reduce emissions attributable to goods and services:

- How do your community's goods and services-related emissions compare with the district and national average? What might the reasons be for the differences?

- Are there opportunities to: grow the second-hand market; enable residents to upcycle and repair household items; share larger/more expensive/rarely used items, such as power tools?

- Are there opportunities to encourage businesses to switch to green energy tariffs (where energy is generated from renewable sources), or to support local businesses who want to reduce their emissions (e.g. with cargo bike deliveries to replace vans; energy efficiency improvements to buildings to reduce heat demand; low carbon procurement policies; local sourcing and carbon-conscious materials?

Waste

Change targets:

- Greatly increased recycling rates to achieve a circular economy model, taking plastics out of the waste stream

- Widespread, actively managed and planned carbon storage strategies

Waste: The management of residents' waste results in annual carbon emissions per household of 0.11 t CO_2e. (Emissions associated with waste management are distributed out evenly across the population.)

The waste 'wedge' in your carbon footprint may look small, but remember that emissions from the *management* of waste only represent a small fraction of the total emissions associated with every item that ends up in our bins or recycling boxes. So reducing waste in the first place is critical.
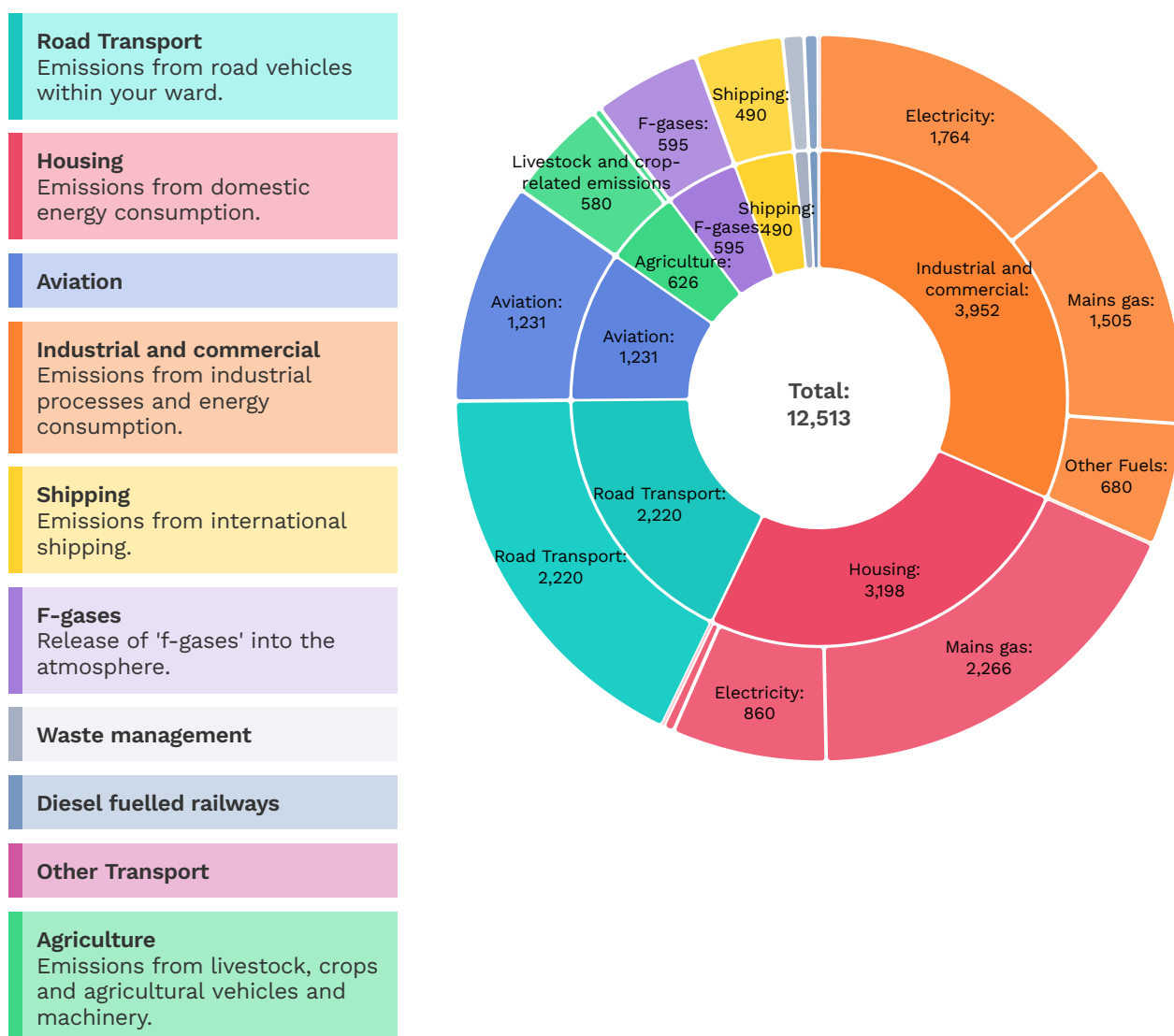
- What sort of messaging could be effective in helping to reduce the amount of waste being generated (e.g. avoiding plastic packaging, water bottle refills, home composting)?

- What initiatives are likely to be popular (e.g. local food boxes, repair cafes, swap shops)?

3. Territorial Footprint

Your whole footprint

This figure shows the annual carbon emissions (measured in tonnes) emitted as a result of activities taking place within your ward's boundary.

While these figures should give you a reasonable indication of the major sources of emissions within your ward's boundary, they should be taken with a small pinch of salt, as some sectors are difficult to apportion territorially. For example, emissions from international shipping are calculated for the whole country and apportioned to each ward based on its population. For more information, see the [Impact methodology paper](#).

Road Transport
Emissions from road vehicles within your ward.

Housing
Emissions from domestic energy consumption.

Aviation

Industrial and commercial
Emissions from industrial processes and energy consumption.

Shipping
Emissions from international shipping.

F-gases
Release of 'f-gases' into the atmosphere.

Waste management

Diesel fuelled railways

Other Transport

Agriculture
Emissions from livestock, crops and agricultural vehicles and machinery.

A breakdown of the numbers

The table below shows your ward's territorial footprint – total and per-household

averages – so that you can see a breakdown of the numbers.

	Total emissions (t CO_2e)	Per-household emissions (t CO_2e)	%
Total emissions	**12,513**	**13**	**100**
Industrial and commercial	3,952	4.2	32
Electricity	1,764	1.9	14
Mains gas	1,505	1.6	12
Other Fuels	680	0.7	5
Large industrial consumers	2	< 0.1	< 1
Housing	3,198	3.4	26
Mains gas	2,266	2.4	18
Electricity	860	0.9	7
Oil	60	0.1	< 1
Biomass	6	< 0.1	< 1
Coal	5	< 0.1	< 1
LPG	0	< 0.1	< 1
Road Transport	2,220	2.3	18
Aviation	1,231	1.3	10
Agriculture	626	0.7	5
Livestock and crop-related emissions	580	0.6	5
Fuel	45	< 0.1	< 1
F-gases	595	0.6	5
Shipping	490	0.5	4
Waste management	119	0.1	1
Diesel fuelled railways	78	0.1	1
Other Transport	6	< 0.1	< 1

Below are some trigger questions to help you to start to think about the implications of your community's territorial footprint information.

- Are there particular sectors which account for a high proportion of the territorial emissions in your community?

- Based on your knowledge, are these sectors surprising or are they what you would expect?

- Who are the key stakeholders you would need to engage with to address the emissions from the highest emitting sectors?

- For example – for agricultural emissions can you engage with local land owners, or the NFU/other farmer groups to understand what is happening in your area to reduce emissions from agriculture? For industrial and commercial emissions, are there ways that businesses could be supported with reducing their emissions? For road transport what changes would be needed to improve public and active travel links?

4. Sources of information

There are lots of sources of support and information on how to reduce carbon footprints – too many to list here! Here is an introductory range of resources that we hope will help you take your next steps now that you know your carbon footprint. Most of these contain many other links relevant to the topic under discussion:

- Developing a climate emergency action plan for your community (.xlsx)

- Communicating climate change (pdf)

- Energy efficient buildings (pdf)

- Funding and grants for community responses to the climate emergency (pdf)

- Making your community EV ready (pdf)

- Planting trees, and better land management (pdf)

- Further resources and useful links compendium (pdf)

- The National Association for Local Councils has also produced a list of case studies of local councils doing work on the climate emergency (link)

- The National Farmers Union has recently published guidance on how local government can engage with the farming community on climate change (link)

Carbon Footprint Report:

Burbage

Ward

06/06/2022

1. Your Footprint Report

Welcome to your carbon footprint report!

This report tells you about your community's carbon[1] footprint – both the scale of emissions and the main activities responsible for the emissions. This information comes from *Impact* – an online region-level carbon emissions estimator: https://impact-tool.org.uk/.

The tool was developed by the Centre for Sustainable Energy and the University of Exeter, initially to make carbon footprinting at parish level possible. Since its inception a number of improvements have been made, including the ability to look at larger geographical areas.

Your report shows both 'consumption based' and 'territorial' emissions, and also shows how your footprint compares with the district average and the national average.

It shows your 'territorial' *and* 'consumption' footprints.

There are two ways of viewing a community's carbon footprint: territorial-based, or consumption-based.

Territorial footprints consider the emissions produced within a geographical boundary – such as from heating buildings, transport, industry, and agriculture – regardless of whether the residents within the community are engaged in or demand those activities. For example, if a factory lies within the boundary of a local authority, then regardless of whether what is produced in the factory is consumed locally or exported to other parts of the country (or world), the factory's emissions would still be counted as part of that local authority's territorial footprint. A territorial footprint is largely created by taking national and local authority datasets and cutting these down to the local geography in as accurate a way as possible.

A consumption footprint captures all the emissions produced as a result of the activities that the area's residents engage in, regardless of where geographically they occur. For example, emissions resulting from the food they eat, the clothes and household items they buy, the leisure activities they engage in, their travel behaviours, and the heating of their homes. The consumption-based footprint is based on household and address-level data, which is then aggregated up to the community level (rather than cutting down from a higher geography as with the territorial approach).

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[1] A 'carbon' footprint, includes carbon dioxide as well as other gases which impact the climate.

Apples and pears.

Showing both territorial and consumption footprints gives you useful information, but it is important to recognise that the two footprints cannot be directly compared as they look at the question of 'where do our emissions come from' in different ways, using different methods, and with different datasets.

Take your footprint as a guide, not as gospel.

The carbon footprints are modelled, drawing on data from more than 30 datasets (some of which are themselves made up of multiple further datasets!). As with all models, decisions have been taken in terms of what data is used, and how the data is 'cut' and analysed. The Impact footprints have been developed with the intention that they are as useful as possible, but remember to take them as a guide, not as gospel.

If you would like more detail about the method and datasets, please read the Impact methodology paper: https://impact-tool.org.uk/static/doc/Impact-methodology-paper-v1.7.pdf.

You can also download the raw data here: https://impact-tool.org.uk/download

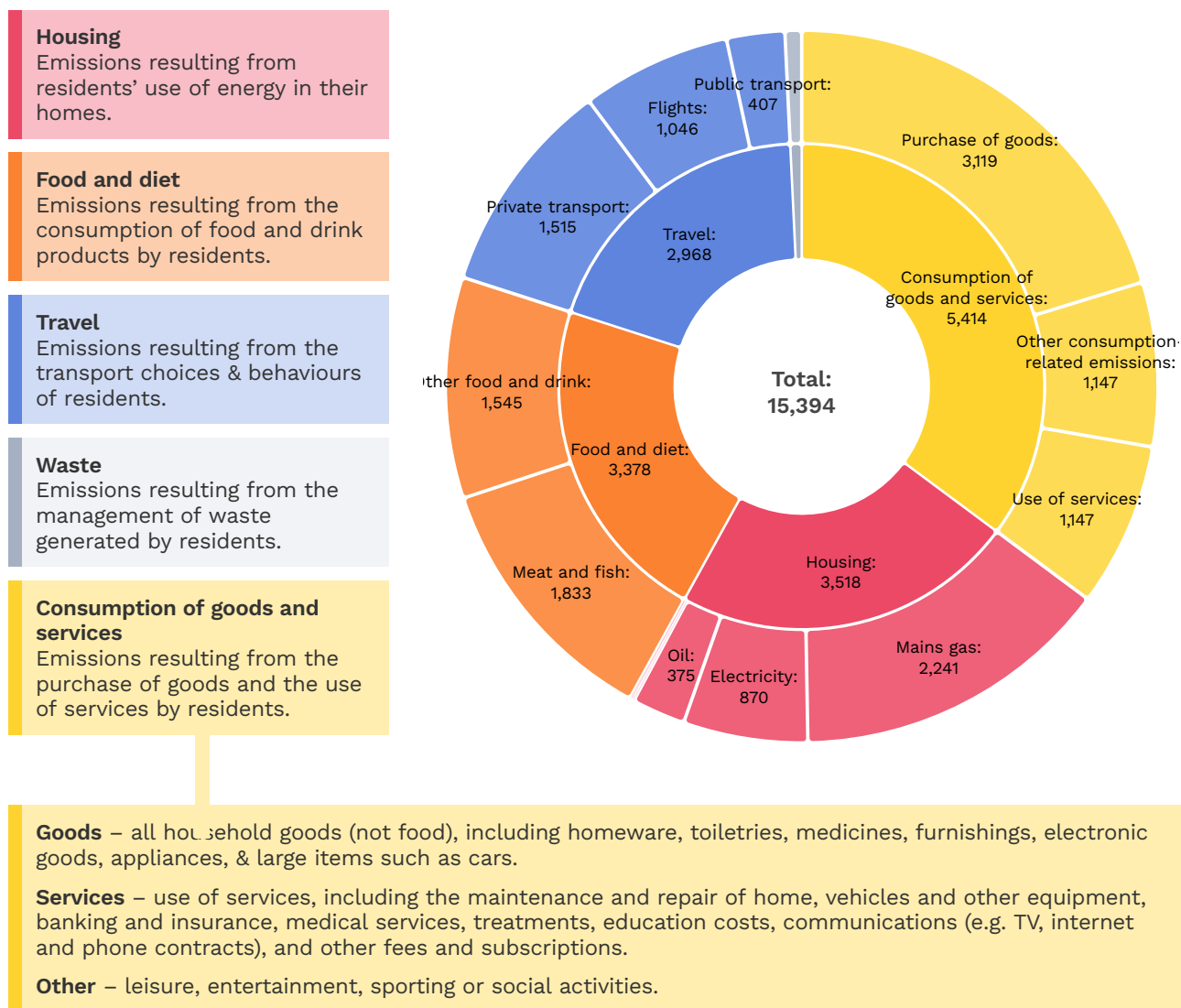## How does knowing our carbon footprint help us tackle climate change?

Footprint information can guide us to where we should target our efforts to reduce emissions and have the greatest impact. To help you think about what to do next with your footprint information, in each section of this report there are change targets for reaching net zero, and some trigger questions to help you think about possible areas for action.

Note that these footprints are intended to raise awareness and improve understanding of the types of activities which contribute to emissions in any given area in order to stimulate individual and collective action. Local Authorities may well have carried out their own analysis and have made climate emergency declarations, drafted action plans, set out policies or be delivering schemes. We hope that the Impact tool can be used to complement this activity.

2. Your Community's Consumption Footprint

Your whole footprint

This figure shows the annual carbon emissions (measured in tonnes CO_2e[2]) emitted as a result of the different activities that residents within your ward's boundary engage in – from heating to eating.

Housing
Emissions resulting from residents' use of energy in their homes.

Food and diet
Emissions resulting from the consumption of food and drink products by residents.

Travel
Emissions resulting from the transport choices & behaviours of residents.

Waste
Emissions resulting from the management of waste generated by residents.

Consumption of goods and services
Emissions resulting from the purchase of goods and the use of services by residents.

Public transport: 407
Flights: 1,046
Private transport: 1,515
Travel: 2,968
Purchase of goods: 3,119
Consumption of goods and services: 5,414
Other consumption-related emissions: 1,147
Other food and drink: 1,545
Food and diet: 3,378
Use of services: 1,147
Meat and fish: 1,833
Housing: 3,518
Oil: 375
Electricity: 870
Mains gas: 2,241
Total: 15,394

Goods – all household goods (not food), including homeware, toiletries, medicines, furnishings, electronic goods, appliances, & large items such as cars.

Services – use of services, including the maintenance and repair of home, vehicles and other equipment, banking and insurance, medical services, treatments, education costs, communications (e.g. TV, internet and phone contracts), and other fees and subscriptions.

Other – leisure, entertainment, sporting or social activities.

A breakdown of the numbers

The table below shows your area's consumption footprint – total estimated emissions and per-household averages – so that you can see a breakdown of the numbers.

[2] CO_2e 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.

	Total emissions (t CO_2e)	Per-household emissions (t CO_2e)	%
Total emissions	**15,394**	**18**	**100**
Consumption of goods and services	5,414	6.3	35
Housing	3,518	4.1	23
Food and diet	3,378	4	22
Travel	2,968	3.5	19
Waste	116	0.1	1

How does your area compare?

Here is what the average consumption footprint for your area looks like per household, and how this compares with the district average and the national average. Note that these per household footprints are averages. Within a larger (e.g. local authority) area you may have neighbourhoods with very different per household consumption footprints and it will be worth looking at more granular data if you are planning area-specific initiatives or messaging.

Legend:
- Consumption of goods and services
- Housing
- Travel
- Food and Diet
- Waste
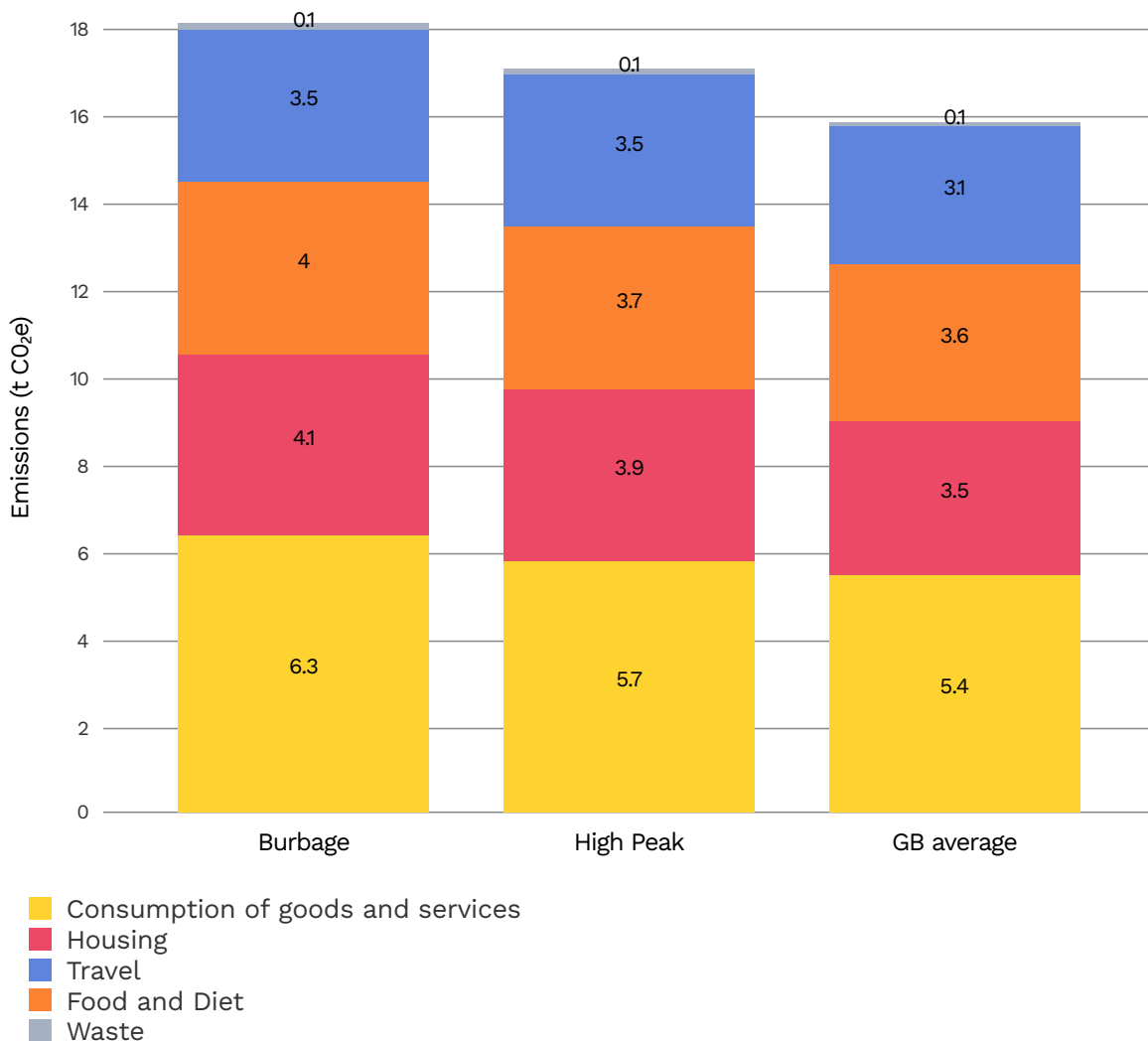
Housing

Change targets:

- Hugely reduced energy demand from buildings, including heritage assets

- Smarter & more flexible management of energy demand, including storage

- Decarbonised heat delivery

- New buildings and developments that achieve net zero emissions, (including associated new transport)

Your community's residents' use of energy in their homes results in annual carbon emissions per household of 4.1 t CO_2e. This compares with 3.9 t CO_2e at the district level and 3.5 t CO_2e at the national level. In the average UK home, 64% of energy is used for space heating, 17% for heating water, 16% for lighting and appliances, and 3% for cooking[3]. As such a large proportion of household energy is used for heating, the type of heating system (i.e. is it low carbon?), and how well the home retains heat, are critical factors shaping the scale of a home's emissions. How well a home retains heat depends on anumber of factors, including: when and how it was built; how much insulation has been installed; how draughty the home is; the efficiency of the windows; and the behaviour of the residents.

Carbon footprints covering a large geographical area will encompass a range of smaller communities with different housing types and demographics. This will influence the types of activities which are most likely to be successful and have the greatest impact in terms of reducing emissions from housing.

Below are some trigger questions to help you to start to think about the implications of your community's household footprint information.

- How does your community's household energy use compare with the the district and national averages? What might the reasons be for the differences?

- What type of housing is there in your community? And what is the main heating fuel (oil, gas, electricity, etc.)?

- Is the housing easily retrofitted to improve how well it retains heat and install low carbon heating? Do you know if residents are doing this? Are there already initiatives to increase demand and encourage and support residents to take action?

- What opportunities are there to retrofit community buildings?

- Many homes, public and commercial buildings have an Energy Performance Certificate (EPC) which measures the energy efficiency of the property. You can look at the EPCs of the buildings in your community here: https://epc.opendatacommunities.org

- Could you identify homes and buildings where the residents / owners have already made improvements, and showcase these – for example with an event?

- Have you explored local potential for renewable energy generation schemes, such as a solar farm, rooftop solar, or wind? Could a community owned (or jointly owned) initiative be possible?

- Are there opportunities to shift households, community buildings and businesses in your area onto green energy tariffs, where energy is generated from renewable sources?

Transport

Change targets:

- Reduced private car travel and a comparable increase in active and public transport

- A complete shift to electric vehicles (and an end to petrol & diesel cars & vans)

- Massively reduced air travel, particularly among frequent flyers

Car use: Residents' car use results in annual carbon emissions per household of 1.8 t CO_2e. This compares with 1.8 t CO_2e at the district level and 1.6 t CO_2e at the national level.

Air travel: Residents' air travel results in annual carbon emissions per household of 1.2 t CO_2e. This compares with 1.2 t CO_2e at the district level and 1.1 t CO_2e at the national level.

Public transport: Residents' use of public transport results in annual carbon emissions per household of 0.5 t CO_2e. This compares with 0.5 t CO_2e at the district level and 0.5 t CO_2e at the national level.

Below are some trigger questions to help you to start to think about the implications of your community's transport footprint information.

- How do your community's car use-related emissions compare to public transport emissions? And how do these both compare with the district and national averages? What might the reasons be for the differences?

- Could existing or new community schemes help residents shift their transport behaviours to using public transport (if this is a choice) or more active travel options (e.g. electric bike hire or subsidised purchase schemes)? How could the impact of local initiatives be increased?

- Is there scope more strategically to influence provision of public transport (e.g. routes, frequency, fares, subsidies, low carbon fleets)?

- What is the provision of walking and cycling routes like? How accessible are local service centres and facilities to residents in different neighbourhoods? Is it possible for most households to access what they need without needing to use a car?

- What do you think are the key reasons for air travel in your community? Are there likely to be differences between residents of different neighbourhoods? It is worth noting that about 10% of England's population take more than half of all international flights – so trying to address 'frequent flying' is a good way to target any activities or communications campaign.

Food & diet

Change targets:

- Altered dietary patterns & reduced food waste

- Widely adopted agricultural practices that reduce emissions & increase soil carbon

Meat and fish: Residents' consumption of meat and fish results in annual carbon emissions per household of 2.1 t CO_2e. This compares with 2.1 t CO_2e at the district level and 2 t CO_2e at the national level.

Other food and drink items: Residents' consumption of other food and drink items results in annual carbon emissions per household of 1.8 t CO_2e. This compares with 1.7 t CO_2e at the district level and 1.6 t CO_2e at the national level.

So, where do the emissions from our food actually come from? Without understanding this it can be difficult to know what we can do to change the carbon footprint of what we eat and drink.

Research shows us that changing **what** we eat will have a greater impact on carbon emissions than changing **where** our food has travelled from – although, of course, eating locally-produced food brings multiple other benefits such as supporting local economies, having more control over mandating more ethical and environmentally-beneficial growing practices, and creating opportunities for people to better understand where the food they eat comes from and how it's grown or made.

Whilst the emissions from a food item can really vary depending on how it is grown or reared, it is clear that animal products, and most significantly beef and lamb, account for the largest proportion of food-related emissions. Explore the BBC's Climate Change Food Calculator to better understand how food and drink items compare: https://www.bbc.com/future/bespoke/follow-the-food/calculate-the-environmental-footprint-of-your-food.html[3].

Below are some trigger questions to help you to start to think about the implications of your community's food and diet footprint information.

- How do your community's food and diet-related emissions compare with the district and national averages?

- Could you establish or support a behavioural change campaign to encourage people to reduce the amount of meat and dairy they consume? (It is critical that any community-based activity or communications campaigns around dietary changes is sensitive to concerns about farmers' livelihoods and people's cultural and traditional links to meat-eating).

- The amount of food wasted 'post-farm-gate' in the UK is equivalent to 22% of food purchased. What initiatives could raise awareness about food waste and encourage unwanted food to be redistributed (e.g. through a 'community fridge')?

Goods & services

Change targets:

- Hugely altered consumption patterns, buying less and re-using/repairing more

- Decarbonised power generation

Goods & services: Residents' consumption of goods and use of services results in annual carbon emissions per household of 6.3 t CO_2e. This compares with 5.7 t CO_2e at the district level and 5.4 t CO_2e at the national level.

[4] For further information, you can also read this Our World in Data (Oxford University) study:

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All goods that we buy will have had carbon emitted in their making (including the sourcing of raw materials), packaging, shipping and sale. Without clear carbon labelling, it is difficult to know the scale of emissions resulting from each item, but it is clear that with every new product made, more carbon is emitted (and more resources are extracted and sourced – which itself can have huge environmental and social impacts). Reducing how many *new* goods we buy in the first place is the best place to start in terms of reducing goods-related emissions; and then of course re-using and repairing items where goods are needed.

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- Are there opportunities to: grow the second-hand market; enable residents to upcycle and repair household items; share larger/more expensive/rarely used items, such as power tools?

- Are there opportunities to encourage businesses to switch to green energy tariffs (where energy is generated from renewable sources), or to support local businesses who want to reduce their emissions (e.g. with cargo bike deliveries to replace vans; energy efficiency improvements to buildings to reduce heat demand; low carbon procurement policies; local sourcing and carbon-conscious materials?

Waste

Change targets:

- Greatly increased recycling rates to achieve a circular economy model, taking plastics out of the waste stream

- Widespread, actively managed and planned carbon storage strategies

Waste: The management of residents' waste results in annual carbon emissions per household of 0.14 t CO_2e. (Emissions associated with waste management are distributed out evenly across the population.)

The waste 'wedge' in your carbon footprint may look small, but remember that emissions from the *management* of waste only represent a small fraction of the total emissions associated with every item that ends up in our bins or recycling boxes. So reducing waste in the first place is critical.
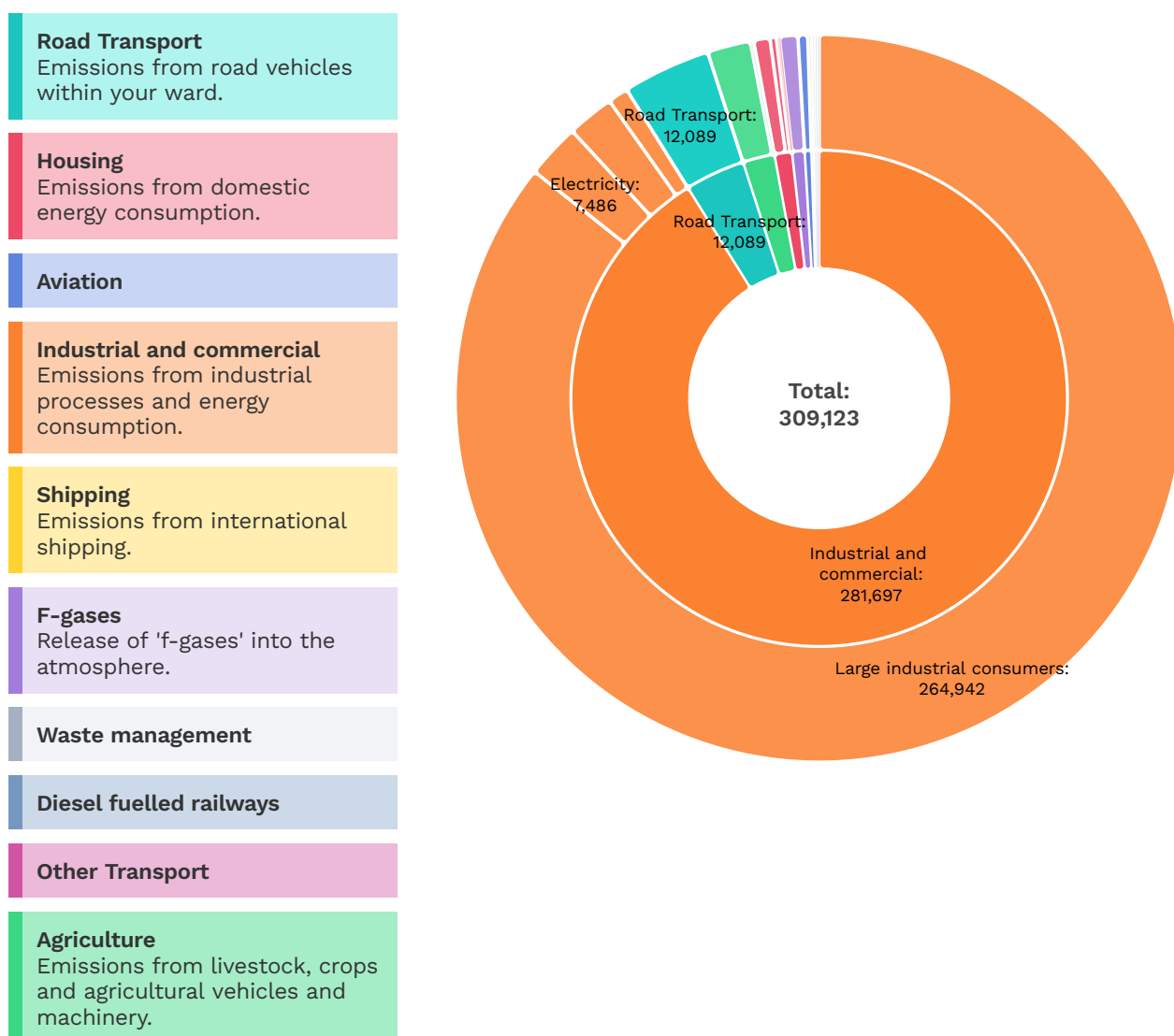
- What sort of messaging could be effective in helping to reduce the amount of waste being generated (e.g. avoiding plastic packaging, water bottle refills, home composting)?

- What initiatives are likely to be popular (e.g. local food boxes, repair cafes, swap shops)?

3. Territorial Footprint

Your whole footprint

This figure shows the annual carbon emissions (measured in tonnes) emitted as a result of activities taking place within your ward's boundary.

While these figures should give you a reasonable indication of the major sources of emissions within your ward's boundary, they should be taken with a small pinch of salt, as some sectors are difficult to apportion territorially. For example, emissions from international shipping are calculated for the whole country and apportioned to each ward based on its population. For more information, see the [Impact methodology paper](#).

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Emissions from road vehicles within your ward.

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Emissions from domestic energy consumption.

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Industrial and commercial
Emissions from industrial processes and energy consumption.

Shipping
Emissions from international shipping.

F-gases
Release of 'f-gases' into the atmosphere.

Waste management

Diesel fuelled railways

Other Transport

Agriculture
Emissions from livestock, crops and agricultural vehicles and machinery.

Road Transport: 12,089

Electricity: 7,486

Road Transport: 12,089

Total: 309,123

Industrial and commercial: 281,697

Large industrial consumers: 264,942

A breakdown of the numbers

The table below shows your ward's territorial footprint – total and per-household

averages – so that you can see a breakdown of the numbers.

	Total emissions (t CO$_2$e)	Per-household emissions (t CO$_2$e)	%
Total emissions	**309,123**	**362**	**100**
Industrial and commercial	281,697	330.2	91
Large industrial consumers	264,942	310.6	86
Electricity	7,486	8.8	2
Mains gas	6,474	7.6	2
Other Fuels	2,795	3.3	1
Road Transport	12,089	14.2	4
Agriculture	6,401	7.5	2
Livestock and crop-related emissions	5,935	7	2
Fuel	465	0.5	< 1
Housing	3,518	4.1	1
Mains gas	2,241	2.6	1
Electricity	870	1	< 1
Oil	375	0.4	< 1
Biomass	15	< 0.1	< 1
Coal	11	< 0.1	< 1
LPG	6	< 0.1	< 1
F-gases	2,523	3	1
Aviation	1,337	1.6	< 1
Shipping	533	0.6	< 1
Waste management	475	0.6	< 1
Diesel fuelled railways	398	0.5	< 1
Other Transport	153	0.2	< 1

Below are some trigger questions to help you to start to think about the implications of your community's territorial footprint information.

- Are there particular sectors which account for a high proportion of the territorial emissions in your community?

- Based on your knowledge, are these sectors surprising or are they what you would expect?

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Carbon Footprint Report:

Buxton Central

Ward

06/06/2022

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There are two ways of viewing a community's carbon footprint: territorial-based, or consumption-based.

Territorial footprints consider the emissions produced within a geographical boundary – such as from heating buildings, transport, industry, and agriculture – regardless of whether the residents within the community are engaged in or demand those activities. For example, if a factory lies within the boundary of a local authority, then regardless of whether what is produced in the factory is consumed locally or exported to other parts of the country (or world), the factory's emissions would still be counted as part of that local authority's territorial footprint. A territorial footprint is largely created by taking national and local authority datasets and cutting these down to the local geography in as accurate a way as possible.

A consumption footprint captures all the emissions produced as a result of the activities that the area's residents engage in, regardless of where geographically they occur. For example, emissions resulting from the food they eat, the clothes and household items they buy, the leisure activities they engage in, their travel behaviours, and the heating of their homes. The consumption-based footprint is based on household and address-level data, which is then aggregated up to the community level (rather than cutting down from a higher geography as with the territorial approach).

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[1] A 'carbon' footprint, includes carbon dioxide as well as other gases which impact the climate.

Apples and pears.

Showing both territorial and consumption footprints gives you useful information, but it is important to recognise that the two footprints cannot be directly compared as they look at the question of 'where do our emissions come from' in different ways, using different methods, and with different datasets.

Take your footprint as a guide, not as gospel.

The carbon footprints are modelled, drawing on data from more than 30 datasets (some of which are themselves made up of multiple further datasets!). As with all models, decisions have been taken in terms of what data is used, and how the data is 'cut' and analysed. The Impact footprints have been developed with the intention that they are as useful as possible, but remember to take them as a guide, not as gospel.

If you would like more detail about the method and datasets, please read the Impact methodology paper: https://impact-tool.org.uk/static/doc/Impact-methodology-paper-v1.7.pdf.

You can also download the raw data here: https://impact-tool.org.uk/download

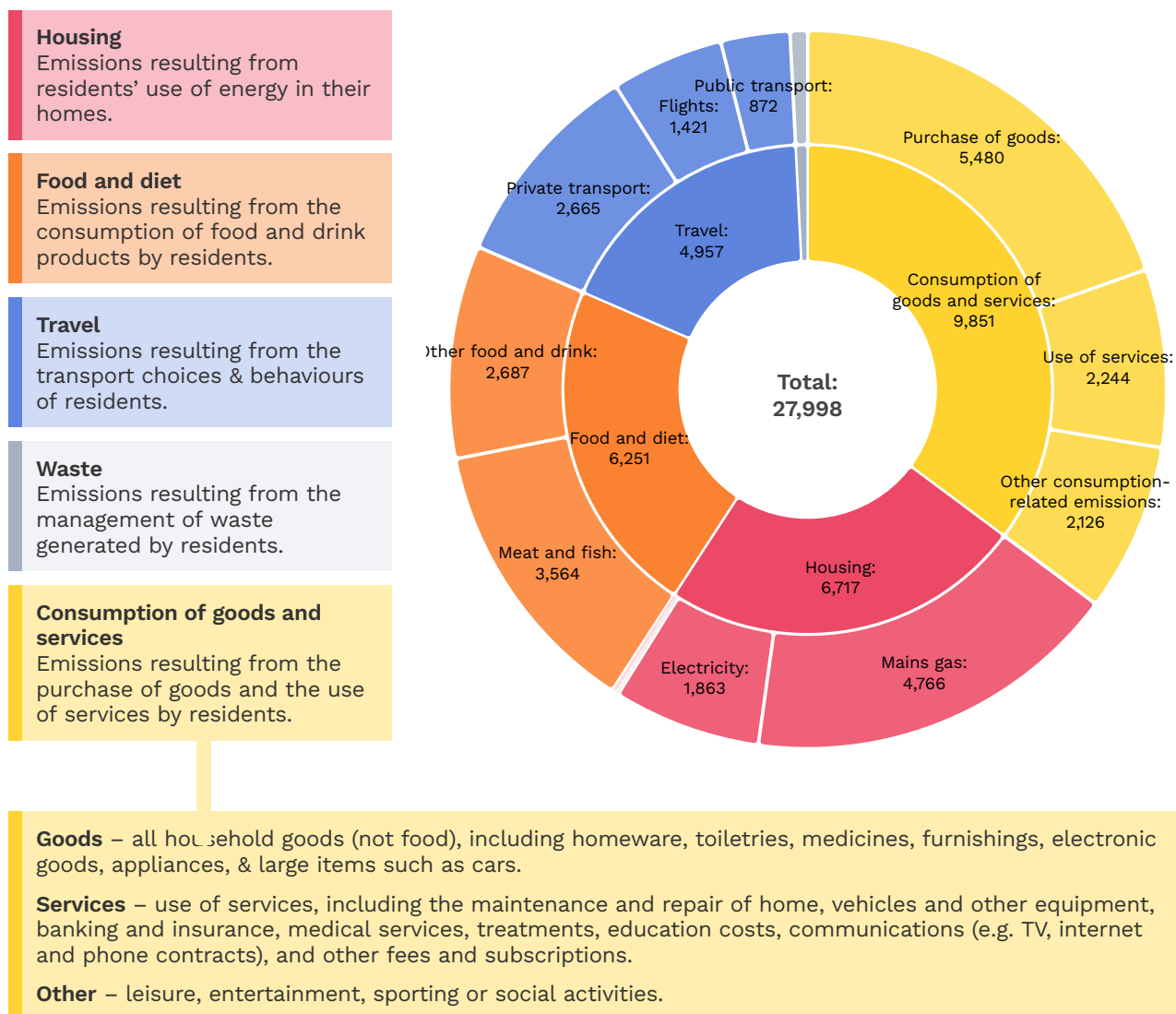## How does knowing our carbon footprint help us tackle climate change?

Footprint information can guide us to where we should target our efforts to reduce emissions and have the greatest impact. To help you think about what to do next with your footprint information, in each section of this report there are change targets for reaching net zero, and some trigger questions to help you think about possible areas for action.

Note that these footprints are intended to raise awareness and improve understanding of the types of activities which contribute to emissions in any given area in order to stimulate individual and collective action. Local Authorities may well have carried out their own analysis and have made climate emergency declarations, drafted action plans, set out policies or be delivering schemes. We hope that the Impact tool can be used to complement this activity.

2. Your Community's Consumption Footprint

Your whole footprint

This figure shows the annual carbon emissions (measured in tonnes CO_2e[2]) emitted as a result of the different activities that residents within your ward's boundary engage in – from heating to eating.

Housing
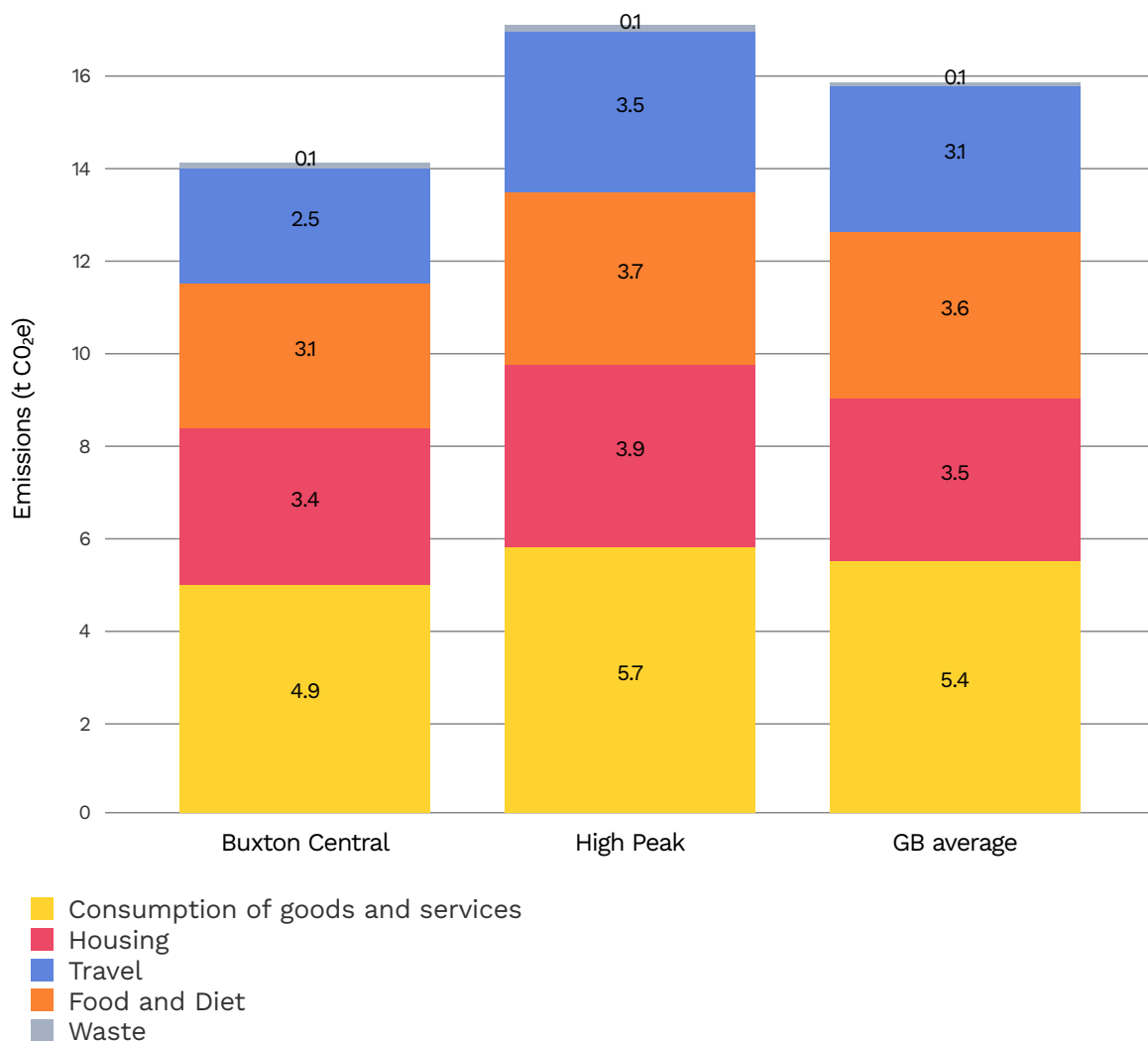Emissions resulting from residents' use of energy in their homes.

Food and diet
Emissions resulting from the consumption of food and drink products by residents.

Travel
Emissions resulting from the transport choices & behaviours of residents.

Waste
Emissions resulting from the management of waste generated by residents.

Consumption of goods and services
Emissions resulting from the purchase of goods and the use of services by residents.

Public transport: 872
Flights: 1,421
Private transport: 2,665
Travel: 4,957
Other food and drink: 2,687
Food and diet: 6,251
Meat and fish: 3,564
Electricity: 1,863
Housing: 6,717
Mains gas: 4,766
Total: 27,998
Purchase of goods: 5,480
Consumption of goods and services: 9,851
Use of services: 2,244
Other consumption-related emissions: 2,126

Goods – all household goods (not food), including homeware, toiletries, medicines, furnishings, electronic goods, appliances, & large items such as cars.

Services – use of services, including the maintenance and repair of home, vehicles and other equipment, banking and insurance, medical services, treatments, education costs, communications (e.g. TV, internet and phone contracts), and other fees and subscriptions.

Other – leisure, entertainment, sporting or social activities.

A breakdown of the numbers

The table below shows your area's consumption footprint – total estimated emissions and per-household averages – so that you can see a breakdown of the numbers.

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[2] CO_2e 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.

	Total emissions (t CO$_2$e)	Per-household emissions (t CO$_2$e)	%
Total emissions	**27,998**	**14**	**100**
Consumption of goods and services	9,851	4.9	35
Housing	6,717	3.4	24
Food and diet	6,251	3.1	22
Travel	4,957	2.5	18
Waste	221	0.1	1

How does your area compare?

Here is what the average consumption footprint for your area looks like per household, and how this compares with the district average and the national average. Note that these per household footprints are averages. Within a larger (e.g. local authority) area you may have neighbourhoods with very different per household consumption footprints and it will be worth looking at more granular data if you are planning area-specific initiatives or messaging.

Housing

Your community's residents' use of energy in their homes results in annual carbon emissions per household of 3.4 t CO_2e. This compares with 3.9 t CO_2e at the district level and 3.5 t CO_2e at the national level. In the average UK home, 64% of energy is used for space heating, 17% for heating water, 16% for lighting and appliances, and 3% for cooking[3]. As such a large proportion of household energy is used for heating, the type of heating system (i.e. is it low carbon?), and how well the home retains heat, are critical factors shaping the scale of a home's emissions. How well a home retains heat depends on anumber of factors, including: when and how it was built; how much insulation has been installed; how draughty the home is; the efficiency of the windows; and the behaviour of the residents.

Carbon footprints covering a large geographical area will encompass a range of smaller communities with different housing types and demographics. This will influence the types of activities which are most likely to be successful and have the greatest impact in terms of reducing emissions from housing.

Below are some trigger questions to help you to start to think about the implications of your community's household footprint information.

- How does your community's household energy use compare with the the district and national averages? What might the reasons be for the differences?

- What type of housing is there in your community? And what is the main heating fuel (oil, gas, electricity, etc.)?

- Is the housing easily retrofitted to improve how well it retains heat and install low carbon heating? Do you know if residents are doing this? Are there already initiatives to increase demand and encourage and support residents to take action?

- What opportunities are there to retrofit community buildings?

- Many homes, public and commercial buildings have an Energy Performance Certificate (EPC) which measures the energy efficiency of the property. You can look at the EPCs of the buildings in your community here: https://epc.opendatacommunities.org

- Could you identify homes and buildings where the residents / owners have already made improvements, and showcase these – for example with an event?

- Have you explored local potential for renewable energy generation schemes, such as a solar farm, rooftop solar, or wind? Could a community owned (or jointly owned) initiative be possible?

- Are there opportunities to shift households, community buildings and businesses in your area onto green energy tariffs, where energy is generated from renewable sources?

Transport

Change targets:

- Reduced private car travel and a comparable increase in active and public transport

- A complete shift to electric vehicles (and an end to petrol & diesel cars & vans)

- Massively reduced air travel, particularly among frequent flyers

Car use: Residents' car use results in annual carbon emissions per household of 1.3 t CO_2e. This compares with 1.8 t CO_2e at the district level and 1.6 t CO_2e at the national level.

Air travel: Residents' air travel results in annual carbon emissions per household of 0.7 t CO_2e. This compares with 1.2 t CO_2e at the district level and 1.1 t CO_2e at the national level.

Public transport: Residents' use of public transport results in annual carbon emissions per household of 0.4 t CO_2e. This compares with 0.5 t CO_2e at the district level and 0.5 t CO_2e at the national level.

Below are some trigger questions to help you to start to think about the implications of your community's transport footprint information.

- How do your community's car use-related emissions compare to public transport emissions? And how do these both compare with the district and national averages? What might the reasons be for the differences?

- Could existing or new community schemes help residents shift their transport behaviours to using public transport (if this is a choice) or more active travel options (e.g. electric bike hire or subsidised purchase schemes)? How could the impact of local initiatives be increased?

- Is there scope more strategically to influence provision of public transport (e.g. routes, frequency, fares, subsidies, low carbon fleets)?

- What is the provision of walking and cycling routes like? How accessible are local service centres and facilities to residents in different neighbourhoods? Is it possible for most households to access what they need without needing to use a car?

- What do you think are the key reasons for air travel in your community? Are there likely to be differences between residents of different neighbourhoods? It is worth noting that about 10% of England's population take more than half of all international flights – so trying to address 'frequent flying' is a good way to target any activities or communications campaign.

Food & diet

Change targets:

- Altered dietary patterns & reduced food waste

- Widely adopted agricultural practices that reduce emissions & increase soil carbon

Meat and fish: Residents' consumption of meat and fish results in annual carbon emissions per household of 1.8 t CO_2e. This compares with 2.1 t CO_2e at the district level and 2 t CO_2e at the national level.

Other food and drink items: Residents' consumption of other food and drink items results in annual carbon emissions per household of 1.3 t CO_2e. This compares with 1.7 t CO_2e at the district level and 1.6 t CO_2e at the national level.

So, where do the emissions from our food actually come from? Without understanding this it can be difficult to know what we can do to change the carbon footprint of what we eat and drink.

Research shows us that changing **what** we eat will have a greater impact on carbon emissions than changing **where** our food has travelled from – although, of course, eating locally-produced food brings multiple other benefits such as supporting local economies, having more control over mandating more ethical and environmentally-beneficial growing practices, and creating opportunities for people to better understand where the food they eat comes from and how it's grown or made.

Whilst the emissions from a food item can really vary depending on how it is grown or reared, it is clear that animal products, and most significantly beef and lamb, account for the largest proportion of food-related emissions. Explore the BBC's Climate Change Food Calculator to better understand how food and drink items compare: https://www.bbc.com/future/bespoke/follow-the-food/calculate-the-environmental-footprint-of-your-food.html[3].

Below are some trigger questions to help you to start to think about the implications of your community's food and diet footprint information.

- How do your community's food and diet-related emissions compare with the district and national averages?

- Could you establish or support a behavioural change campaign to encourage people to reduce the amount of meat and dairy they consume? (It is critical that any community-based activity or communications campaigns around dietary changes is sensitive to concerns about farmers' livelihoods and people's cultural and traditional links to meat-eating).

- The amount of food wasted 'post-farm-gate' in the UK is equivalent to 22% of food purchased. What initiatives could raise awareness about food waste and encourage unwanted food to be redistributed (e.g. through a 'community fridge')?

Goods & services

Change targets:

- Hugely altered consumption patterns, buying less and re-using/repairing more

- Decarbonised power generation

Goods & services: Residents' consumption of goods and use of services results in annual carbon emissions per household of 4.9 t CO_2e. This compares with 5.7 t CO_2e at the district level and 5.4 t CO_2e at the national level.

4 For further information, you can also read this Our World in Data (Oxford University) study:

https://ourworldindata.org/food-choice-vs-eating-local

All goods that we buy will have had carbon emitted in their making (including the sourcing of raw materials), packaging, shipping and sale. Without clear carbon labelling, it is difficult to know the scale of emissions resulting from each item, but it is clear that with every new product made, more carbon is emitted (and more resources are extracted and sourced – which itself can have huge environmental and social impacts). Reducing how many *new* goods we buy in the first place is the best place to start in terms of reducing goods-related emissions; and then of course re-using and repairing items where goods are needed.

Carbon emissions from the services we use will relate to the energy used by that service provider (e.g. heating in a leisure centre, pub or hospital), as well as the carbon emitted as a result of goods they buy and use (e.g. gym equipment, vehicle repair machinery).

Here are some trigger questions to help you to consider ways to reduce emissions attributable to goods and services:

- How do your community's goods and services-related emissions compare with the district and national average? What might the reasons be for the differences?

- Are there opportunities to: grow the second-hand market; enable residents to upcycle and repair household items; share larger/more expensive/rarely used items, such as power tools?

- Are there opportunities to encourage businesses to switch to green energy tariffs (where energy is generated from renewable sources), or to support local businesses who want to reduce their emissions (e.g. with cargo bike deliveries to replace vans; energy efficiency improvements to buildings to reduce heat demand; low carbon procurement policies; local sourcing and carbon-conscious materials?

Waste

Change targets:

- Greatly increased recycling rates to achieve a circular economy model, taking plastics out of the waste stream

- Widespread, actively managed and planned carbon storage strategies

Waste: The management of residents' waste results in annual carbon emissions per household of 0.11 t CO_2e. (Emissions associated with waste management are distributed out evenly across the population.)

The waste 'wedge' in your carbon footprint may look small, but remember that emissions from the *management* of waste only represent a small fraction of the total emissions associated with every item that ends up in our bins or recycling boxes. So reducing waste in the first place is critical.
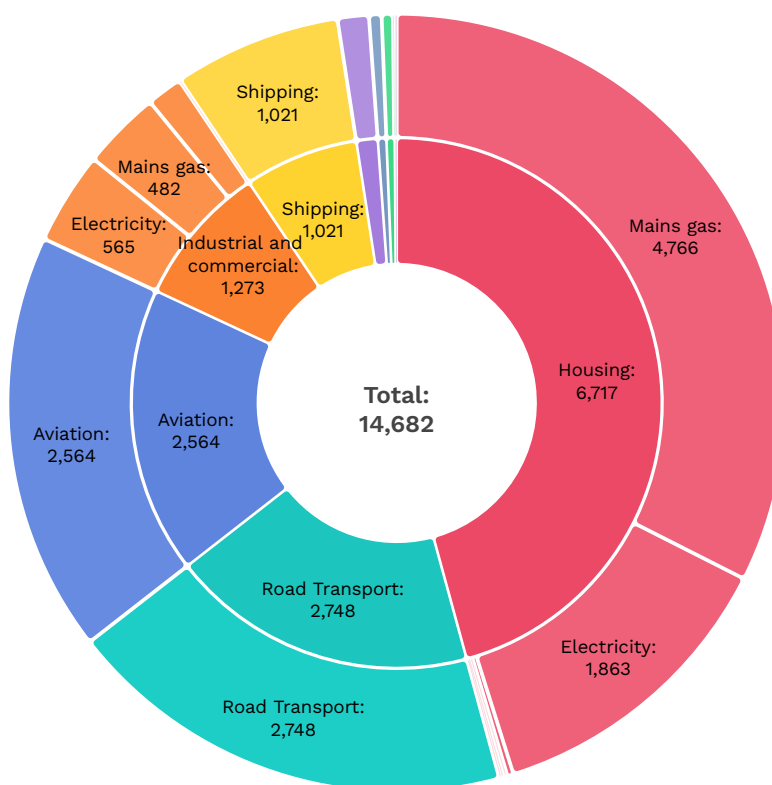
- What sort of messaging could be effective in helping to reduce the amount of waste being generated (e.g. avoiding plastic packaging, water bottle refills, home composting)?

- What initiatives are likely to be popular (e.g. local food boxes, repair cafes, swap shops)?

3. Territorial Footprint

Your whole footprint

This figure shows the annual carbon emissions (measured in tonnes) emitted as a result of activities taking place within your ward's boundary.

While these figures should give you a reasonable indication of the major sources of emissions within your ward's boundary, they should be taken with a small pinch of salt, as some sectors are difficult to apportion territorially. For example, emissions from international shipping are calculated for the whole country and apportioned to each ward based on its population. For more information, see the Impact methodology paper.

Road Transport
Emissions from road vehicles within your ward.

Housing
Emissions from domestic energy consumption.

Aviation

Industrial and commercial
Emissions from industrial processes and energy consumption.

Shipping
Emissions from international shipping.

F-gases
Release of 'f-gases' into the atmosphere.

Waste management

Diesel fuelled railways

Other Transport

Agriculture
Emissions from livestock, crops and agricultural vehicles and machinery.

Shipping: 1,021
Mains gas: 482
Electricity: 565
Industrial and commercial: 1,273
Shipping: 1,021
Mains gas: 4,766
Housing: 6,717
Aviation: 2,564
Aviation: 2,564
Electricity: 1,863
Road Transport: 2,748
Road Transport: 2,748
Total: 14,682

A breakdown of the numbers

The table below shows your ward's territorial footprint – total and per-household

averages – so that you can see a breakdown of the numbers.

	Total emissions (t CO_2e)	Per-household emissions (t CO_2e)	%
Total emissions	**14,682**	**7**	**100**
Housing	6,717	3.4	46
Mains gas	4,766	2.4	32
Electricity	1,863	0.9	13
Coal	38	< 0.1	< 1
Biomass	18	< 0.1	< 1
Oil	17	< 0.1	< 1
LPG	16	< 0.1	< 1
Road Transport	2,748	1.4	19
Aviation	2,564	1.3	17
Industrial and commercial	1,273	0.6	9
Electricity	565	0.3	4
Mains gas	482	0.2	3
Other Fuels	218	0.1	1
Large industrial consumers	7	< 0.1	< 1
Shipping	1,021	0.5	7
F-gases	191	0.1	1
Diesel fuelled railways	77	< 0.1	1
Agriculture	74	< 0.1	1
Livestock and crop-related emissions	68	< 0.1	< 1
Fuel	5	< 0.1	< 1
Waste management	15	< 0.1	< 1
Other Transport	2	< 0.1	< 1

Below are some trigger questions to help you to start to think about the implications of your community's territorial footprint information.

- Are there particular sectors which account for a high proportion of the territorial emissions in your community?

- Based on your knowledge, are these sectors surprising or are they what you would expect?

- Who are the key stakeholders you would need to engage with to address the emissions from the highest emitting sectors?

- For example – for agricultural emissions can you engage with local land owners, or the NFU/other farmer groups to understand what is happening in your area to reduce emissions from agriculture? For industrial and commercial emissions, are there ways that businesses could be supported with reducing their emissions? For road transport what changes would be needed to improve public and active travel links?

4. Sources of information

There are lots of sources of support and information on how to reduce carbon footprints – too many to list here! Here is an introductory range of resources that we hope will help you take your next steps now that you know your carbon footprint. Most of these contain many other links relevant to the topic under discussion:

- Developing a climate emergency action plan for your community (.xlsx)

- Communicating climate change (pdf)

- Energy efficient buildings (pdf)

- Funding and grants for community responses to the climate emergency (pdf)

- Making your community EV ready (pdf)

- Planting trees, and better land management (pdf)

- Further resources and useful links compendium (pdf)

- The National Association for Local Councils has also produced a list of case studies of local councils doing work on the climate emergency (link)

- The National Farmers Union has recently published guidance on how local government can engage with the farming community on climate change (link)

Carbon Footprint Report:

Corbar

Ward

06/06/2022

1. Your Footprint Report

Welcome to your carbon footprint report!

This report tells you about your community's carbon[1] footprint – both the scale of emissions and the main activities responsible for the emissions. This information comes from *Impact* – an online region-level carbon emissions estimator: https://impact-tool.org.uk/.

The tool was developed by the Centre for Sustainable Energy and the University of Exeter, initially to make carbon footprinting at parish level possible. Since its inception a number of improvements have been made, including the ability to look at larger geographical areas.

Your report shows both 'consumption based' and 'territorial' emissions, and also shows how your footprint compares with the district average and the national average.

It shows your 'territorial' *and* 'consumption' footprints.

There are two ways of viewing a community's carbon footprint: territorial-based, or consumption-based.

Territorial footprints consider the emissions produced within a geographical boundary – such as from heating buildings, transport, industry, and agriculture – regardless of whether the residents within the community are engaged in or demand those activities. For example, if a factory lies within the boundary of a local authority, then regardless of whether what is produced in the factory is consumed locally or exported to other parts of the country (or world), the factory's emissions would still be counted as part of that local authority's territorial footprint. A territorial footprint is largely created by taking national and local authority datasets and cutting these down to the local geography in as accurate a way as possible.

A consumption footprint captures all the emissions produced as a result of the activities that the area's residents engage in, regardless of where geographically they occur. For example, emissions resulting from the food they eat, the clothes and household items they buy, the leisure activities they engage in, their travel behaviours, and the heating of their homes. The consumption-based footprint is based on household and address-level data, which is then aggregated up to the community level (rather than cutting down from a higher geography as with the territorial approach).

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[1] A 'carbon' footprint, includes carbon dioxide as well as other gases which impact the climate.

Apples and pears.

Showing both territorial and consumption footprints gives you useful information, but it is important to recognise that the two footprints cannot be directly compared as they look at the question of 'where do our emissions come from' in different ways, using different methods, and with different datasets.

Take your footprint as a guide, not as gospel.

The carbon footprints are modelled, drawing on data from more than 30 datasets (some of which are themselves made up of multiple further datasets!). As with all models, decisions have been taken in terms of what data is used, and how the data is 'cut' and analysed. The Impact footprints have been developed with the intention that they are as useful as possible, but remember to take them as a guide, not as gospel.

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You can also download the raw data here: https://impact-tool.org.uk/download

How does knowing our carbon footprint help us tackle climate change?

Footprint information can guide us to where we should target our efforts to reduce emissions and have the greatest impact. To help you think about what to do next with your footprint information, in each section of this report there are change targets for reaching net zero, and some trigger questions to help you think about possible areas for action.

Note that these footprints are intended to raise awareness and improve understanding of the types of activities which contribute to emissions in any given area in order to stimulate individual and collective action. Local Authorities may well have carried out their own analysis and have made climate emergency declarations, drafted action plans, set out policies or be delivering schemes. We hope that the Impact tool can be used to complement this activity.

2. Your Community's Consumption Footprint

Your whole footprint

This figure shows the annual carbon emissions (measured in tonnes CO_2e[2]) emitted as a result of the different activities that residents within your ward's boundary engage in – from heating to eating.

Housing
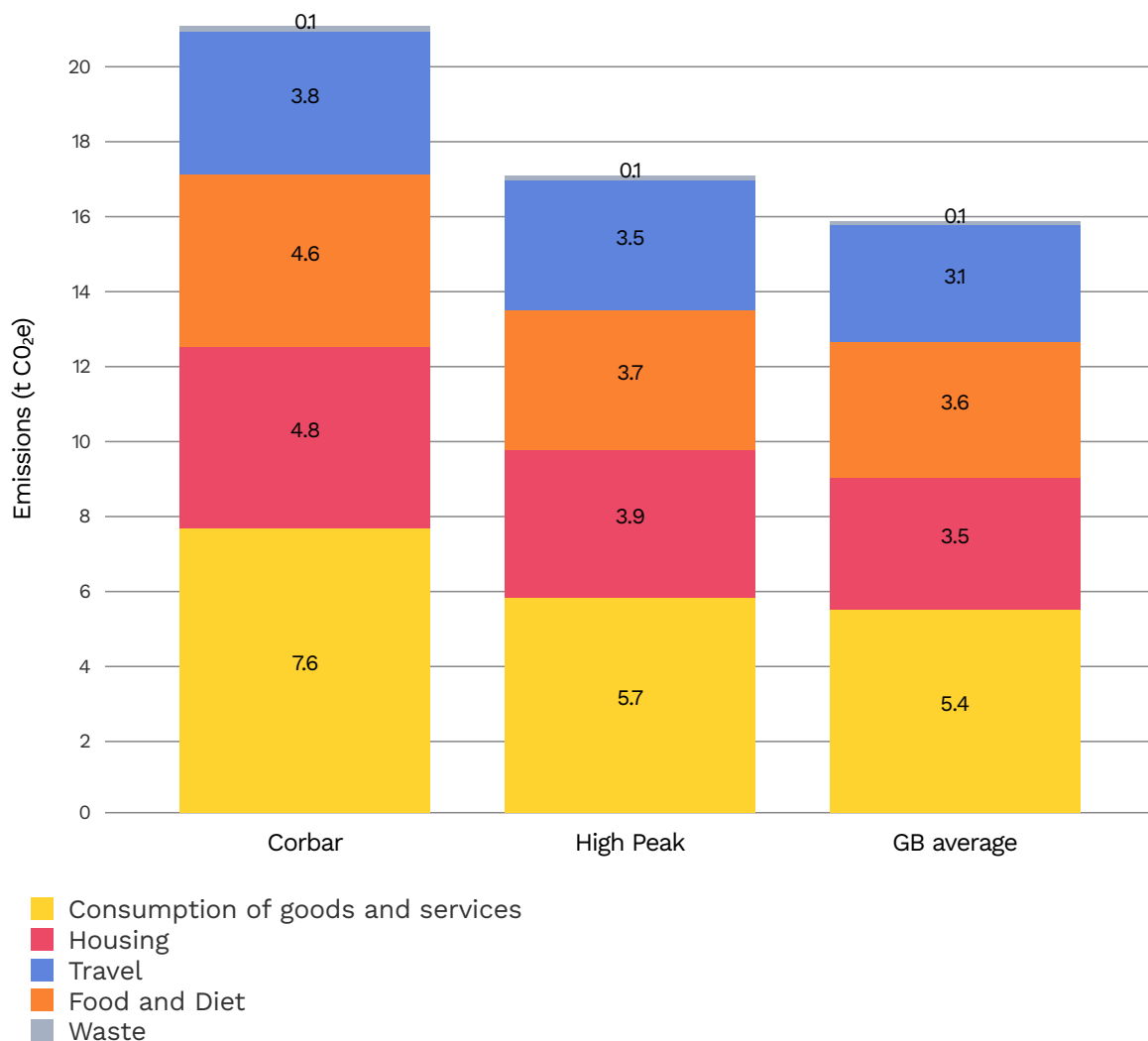Emissions resulting from residents' use of energy in their homes.

Food and diet
Emissions resulting from the consumption of food and drink products by residents.

Travel
Emissions resulting from the transport choices & behaviours of residents.

Waste
Emissions resulting from the management of waste generated by residents.

Consumption of goods and services
Emissions resulting from the purchase of goods and the use of services by residents.

Goods – all household goods (not food), including homeware, toiletries, medicines, furnishings, electronic goods, appliances, & large items such as cars.

Services – use of services, including the maintenance and repair of home, vehicles and other equipment, banking and insurance, medical services, treatments, education costs, communications (e.g. TV, internet and phone contracts), and other fees and subscriptions.

Other – leisure, entertainment, sporting or social activities.

A breakdown of the numbers

The table below shows your area's consumption footprint – total estimated emissions and per-household averages – so that you can see a breakdown of the numbers.

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[2] CO_2e 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.

	Total emissions (t CO$_2$e)	Per-household emissions (t CO$_2$e)	%
Total emissions	**31,330**	**21**	**100**
Consumption of goods and services	11,324	7.6	36
Housing	7,234	4.8	23
Food and diet	6,857	4.6	22
Travel	5,692	3.8	18
Waste	223	0.1	1

How does your area compare?

Here is what the average consumption footprint for your area looks like per household, and how this compares with the district average and the national average. Note that these per household footprints are averages. Within a larger (e.g. local authority) area you may have neighbourhoods with very different per household consumption footprints and it will be worth looking at more granular data if you are planning area-specific initiatives or messaging.

Housing

Your community's residents' use of energy in their homes results in annual carbon emissions per household of 4.8 t CO_2e. This compares with 3.9 t CO_2e at the district level and 3.5 t CO_2e at the national level. In the average UK home, 64% of energy is used for space heating, 17% for heating water, 16% for lighting and appliances, and 3% for cooking[3]. As such a large proportion of household energy is used for heating, the type of heating system (i.e. is it low carbon?), and how well the home retains heat, are critical factors shaping the scale of a home's emissions. How well a home retains heat depends on anumber of factors, including: when and how it was built; how much insulation has been installed; how draughty the home is; the efficiency of the windows; and the behaviour of the residents.

Carbon footprints covering a large geographical area will encompass a range of smaller communities with different housing types and demographics. This will influence the types of activities which are most likely to be successful and have the greatest impact in terms of reducing emissions from housing.

Below are some trigger questions to help you to start to think about the implications of your community's household footprint information.

- How does your community's household energy use compare with the the district and national averages? What might the reasons be for the differences?

- What type of housing is there in your community? And what is the main heating fuel (oil, gas, electricity, etc.)?

- Is the housing easily retrofitted to improve how well it retains heat and install low carbon heating? Do you know if residents are doing this? Are there already initiatives to increase demand and encourage and support residents to take action?

Transport

Change targets:

- Reduced private car travel and a comparable increase in active and public transport

- A complete shift to electric vehicles (and an end to petrol & diesel cars & vans)

- Massively reduced air travel, particularly among frequent flyers

Car use: Residents' car use results in annual carbon emissions per household of 1.8 t CO_2e. This compares with 1.8 t CO_2e at the district level and 1.6 t CO_2e at the national level.

Air travel: Residents' air travel results in annual carbon emissions per household of 1.4 t CO_2e. This compares with 1.2 t CO_2e at the district level and 1.1 t CO_2e at the national level.

Public transport: Residents' use of public transport results in annual carbon emissions per household of 0.6 t CO_2e. This compares with 0.5 t CO_2e at the district level and 0.5 t CO_2e at the national level.

Below are some trigger questions to help you to start to think about the implications of your community's transport footprint information.

- How do your community's car use-related emissions compare to public transport emissions? And how do these both compare with the district and national averages? What might the reasons be for the differences?

- Could existing or new community schemes help residents shift their transport behaviours to using public transport (if this is a choice) or more active travel options (e.g. electric bike hire or subsidised purchase schemes)? How could the impact of local initiatives be increased?

- Is there scope more strategically to influence provision of public transport (e.g. routes, frequency, fares, subsidies, low carbon fleets)?

- What is the provision of walking and cycling routes like? How accessible are local service centres and facilities to residents in different neighbourhoods? Is it possible for most households to access what they need without needing to use a car?

- What do you think are the key reasons for air travel in your community? Are there likely to be differences between residents of different neighbourhoods? It is worth noting that about 10% of England's population take more than half of all international flights – so trying to address 'frequent flying' is a good way to target any activities or communications campaign.

Food & diet

Change targets:

- Altered dietary patterns & reduced food waste

- Widely adopted agricultural practices that reduce emissions & increase soil carbon

Meat and fish: Residents' consumption of meat and fish results in annual carbon emissions per household of 2.5 t CO_2e. This compares with 2.1 t CO_2e at the district level and 2 t CO_2e at the national level.

Other food and drink items: Residents' consumption of other food and drink items results in annual carbon emissions per household of 2.1 t CO_2e. This compares with 1.7 t CO_2e at the district level and 1.6 t CO_2e at the national level.

So, where do the emissions from our food actually come from? Without understanding this it can be difficult to know what we can do to change the carbon footprint of what we eat and drink.

Research shows us that changing **what** we eat will have a greater impact on carbon emissions than changing **where** our food has travelled from – although, of course, eating locally-produced food brings multiple other benefits such as supporting local economies, having more control over mandating more ethical and environmentally-beneficial growing practices, and creating opportunities for people to better understand where the food they eat comes from and how it's grown or made.

Whilst the emissions from a food item can really vary depending on how it is grown or reared, it is clear that animal products, and most significantly beef and lamb, account for the largest proportion of food-related emissions. Explore the BBC's Climate Change Food Calculator to better understand how food and drink items compare: https://www.bbc.com/future/bespoke/follow-the-food/calculate-the-environmental-footprint-of-your-food.html[3].

Below are some trigger questions to help you to start to think about the implications of your community's food and diet footprint information.

- How do your community's food and diet-related emissions compare with the district and national averages?

- Could you establish or support a behavioural change campaign to encourage people to reduce the amount of meat and dairy they consume? (It is critical that any community-based activity or communications campaigns around dietary changes is sensitive to concerns about farmers' livelihoods and people's cultural and traditional links to meat-eating).

- The amount of food wasted 'post-farm-gate' in the UK is equivalent to 22% of food purchased. What initiatives could raise awareness about food waste and encourage unwanted food to be redistributed (e.g. through a 'community fridge')?

Goods & services

Change targets:

- Hugely altered consumption patterns, buying less and re-using/repairing more

- Decarbonised power generation

Goods & services: Residents' consumption of goods and use of services results in annual carbon emissions per household of 7.6 t CO_2e. This compares with 5.7 t CO_2e at the district level and 5.4 t CO_2e at the national level.

[4] For further information, you can also read this Our World in Data (Oxford University) study:

https://ourworldindata.org/food-choice-vs-eating-local

All goods that we buy will have had carbon emitted in their making (including the sourcing of raw materials), packaging, shipping and sale. Without clear carbon labelling, it is difficult to know the scale of emissions resulting from each item, but it is clear that with every new product made, more carbon is emitted (and more resources are extracted and sourced – which itself can have huge environmental and social impacts). Reducing how many *new* goods we buy in the first place is the best place to start in terms of reducing goods-related emissions; and then of course re-using and repairing items where goods are needed.

Carbon emissions from the services we use will relate to the energy used by that service provider (e.g. heating in a leisure centre, pub or hospital), as well as the carbon emitted as a result of goods they buy and use (e.g. gym equipment, vehicle repair machinery).

Here are some trigger questions to help you to consider ways to reduce emissions attributable to goods and services:

- How do your community's goods and services-related emissions compare with the district and national average? What might the reasons be for the differences?

- Are there opportunities to: grow the second-hand market; enable residents to upcycle and repair household items; share larger/more expensive/rarely used items, such as power tools?

- Are there opportunities to encourage businesses to switch to green energy tariffs (where energy is generated from renewable sources), or to support local businesses who want to reduce their emissions (e.g. with cargo bike deliveries to replace vans; energy efficiency improvements to buildings to reduce heat demand; low carbon procurement policies; local sourcing and carbon-conscious materials?

Waste

Change targets:

- Greatly increased recycling rates to achieve a circular economy model, taking plastics out of the waste stream

- Widespread, actively managed and planned carbon storage strategies

Waste: The management of residents' waste results in annual carbon emissions per household of 0.15 t CO_2e. (Emissions associated with waste management are distributed out evenly across the population.)

The waste 'wedge' in your carbon footprint may look small, but remember that emissions from the *management* of waste only represent a small fraction of the total emissions associated with every item that ends up in our bins or recycling boxes. So reducing waste in the first place is critical.
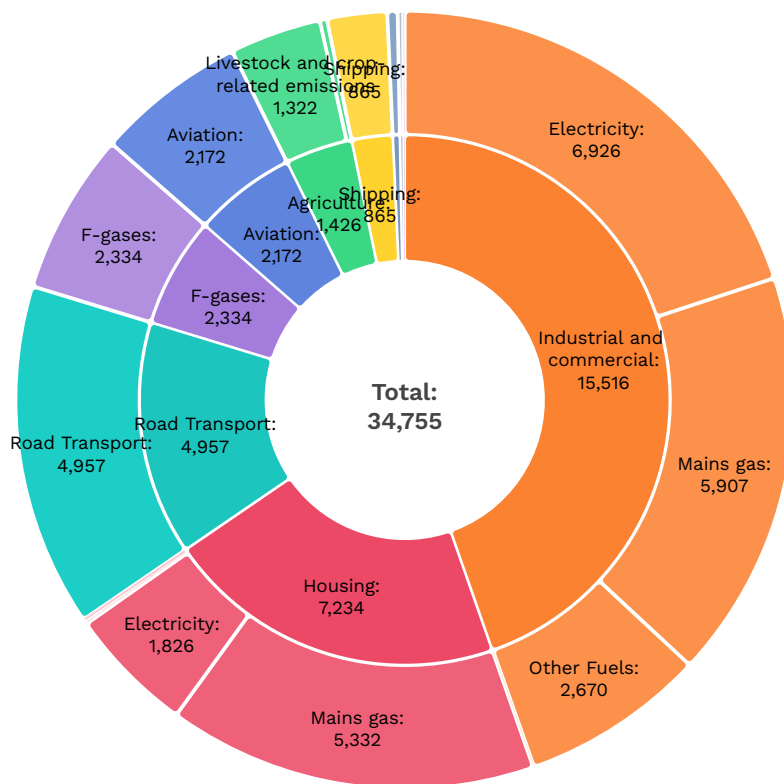
- What sort of messaging could be effective in helping to reduce the amount of waste being generated (e.g. avoiding plastic packaging, water bottle refills, home composting)?

- What initiatives are likely to be popular (e.g. local food boxes, repair cafes, swap shops)?

3. Territorial Footprint

Your whole footprint

This figure shows the annual carbon emissions (measured in tonnes) emitted as a result of activities taking place within your ward's boundary.

While these figures should give you a reasonable indication of the major sources of emissions within your ward's boundary, they should be taken with a small pinch of salt, as some sectors are difficult to apportion territorially. For example, emissions from international shipping are calculated for the whole country and apportioned to each ward based on its population. For more information, see the Impact methodology paper.

Road Transport
Emissions from road vehicles within your ward.

Housing
Emissions from domestic energy consumption.

Aviation

Industrial and commercial
Emissions from industrial processes and energy consumption.

Shipping
Emissions from international shipping.

F-gases
Release of 'f-gases' into the atmosphere.

Waste management

Diesel fuelled railways

Other Transport

Agriculture
Emissions from livestock, crops and agricultural vehicles and machinery.

A breakdown of the numbers

The table below shows your ward's territorial footprint – total and per-household

averages – so that you can see a breakdown of the numbers.

	Total emissions (t CO_2e)	Per-household emissions (t CO_2e)	%
Total emissions	**34,755**	**23**	**100**
Industrial and commercial	15,516	10.4	45
Electricity	6,926	4.6	20
Mains gas	5,907	4	17
Other Fuels	2,670	1.8	8
Large industrial consumers	12	< 0.1	< 1
Housing	7,234	4.8	21
Mains gas	5,332	3.6	15
Electricity	1,826	1.2	5
Oil	46	< 0.1	< 1
Biomass	16	< 0.1	< 1
Coal	11	< 0.1	< 1
LPG	3	< 0.1	< 1
Road Transport	4,957	3.3	14
F-gases	2,334	1.6	7
Aviation	2,172	1.5	6
Agriculture	1,426	1	4
Livestock and crop-related emissions	1,322	0.9	4
Fuel	104	0.1	< 1
Shipping	865	0.6	2
Diesel fuelled railways	149	0.1	< 1
Waste management	79	0.1	< 1
Other Transport	23	< 0.1	< 1

Below are some trigger questions to help you to start to think about the implications of your community's territorial footprint information.

- Are there particular sectors which account for a high proportion of the territorial emissions in your community?

- Based on your knowledge, are these sectors surprising or are they what you would expect?

- Who are the key stakeholders you would need to engage with to address the emissions from the highest emitting sectors?

- For example – for agricultural emissions can you engage with local land owners, or the NFU/other farmer groups to understand what is happening in your area to reduce emissions from agriculture? For industrial and commercial emissions, are there ways that businesses could be supported with reducing their emissions? For road transport what changes would be needed to improve public and active travel links?

4. Sources of information

There are lots of sources of support and information on how to reduce carbon footprints – too many to list here! Here is an introductory range of resources that we hope will help you take your next steps now that you know your carbon footprint. Most of these contain many other links relevant to the topic under discussion:

- Developing a climate emergency action plan for your community (.xlsx)

- Communicating climate change (pdf)

- Energy efficient buildings (pdf)

- Funding and grants for community responses to the climate emergency (pdf)

- Making your community EV ready (pdf)

- Planting trees, and better land management (pdf)

- Further resources and useful links compendium (pdf)

- The National Association for Local Councils has also produced a list of case studies of local councils doing work on the climate emergency (link)

- The National Farmers Union has recently published guidance on how local government can engage with the farming community on climate change (link)

Carbon Footprint Report:

Cote Heath

Ward

06/06/2022

1. Your Footprint Report

Welcome to your carbon footprint report!

This report tells you about your community's carbon[1] footprint – both the scale of emissions and the main activities responsible for the emissions. This information comes from *Impact* – an online region-level carbon emissions estimator: https://impact-tool.org.uk/.

The tool was developed by the Centre for Sustainable Energy and the University of Exeter, initially to make carbon footprinting at parish level possible. Since its inception a number of improvements have been made, including the ability to look at larger geographical areas.

Your report shows both 'consumption based' and 'territorial' emissions, and also shows how your footprint compares with the district average and the national average.

It shows your 'territorial' *and* 'consumption' footprints.

There are two ways of viewing a community's carbon footprint: territorial-based, or consumption-based.

Territorial footprints consider the emissions produced within a geographical boundary – such as from heating buildings, transport, industry, and agriculture – regardless of whether the residents within the community are engaged in or demand those activities. For example, if a factory lies within the boundary of a local authority, then regardless of whether what is produced in the factory is consumed locally or exported to other parts of the country (or world), the factory's emissions would still be counted as part of that local authority's territorial footprint. A territorial footprint is largely created by taking national and local authority datasets and cutting these down to the local geography in as accurate a way as possible.

A consumption footprint captures all the emissions produced as a result of the activities that the area's residents engage in, regardless of where geographically they occur. For example, emissions resulting from the food they eat, the clothes and household items they buy, the leisure activities they engage in, their travel behaviours, and the heating of their homes. The consumption-based footprint is based on household and address-level data, which is then aggregated up to the community level (rather than cutting down from a higher geography as with the territorial approach).

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[1] A 'carbon' footprint, includes carbon dioxide as well as other gases which impact the climate.

Apples and pears.

Showing both territorial and consumption footprints gives you useful information, but it is important to recognise that the two footprints cannot be directly compared as they look at the question of 'where do our emissions come from' in different ways, using different methods, and with different datasets.

Take your footprint as a guide, not as gospel.

The carbon footprints are modelled, drawing on data from more than 30 datasets (some of which are themselves made up of multiple further datasets!). As with all models, decisions have been taken in terms of what data is used, and how the data is 'cut' and analysed. The Impact footprints have been developed with the intention that they are as useful as possible, but remember to take them as a guide, not as gospel.

If you would like more detail about the method and datasets, please read the Impact methodology paper: https://impact-tool.org.uk/static/doc/Impact-methodology-paper-v1.7.pdf.

You can also download the raw data here: https://impact-tool.org.uk/download

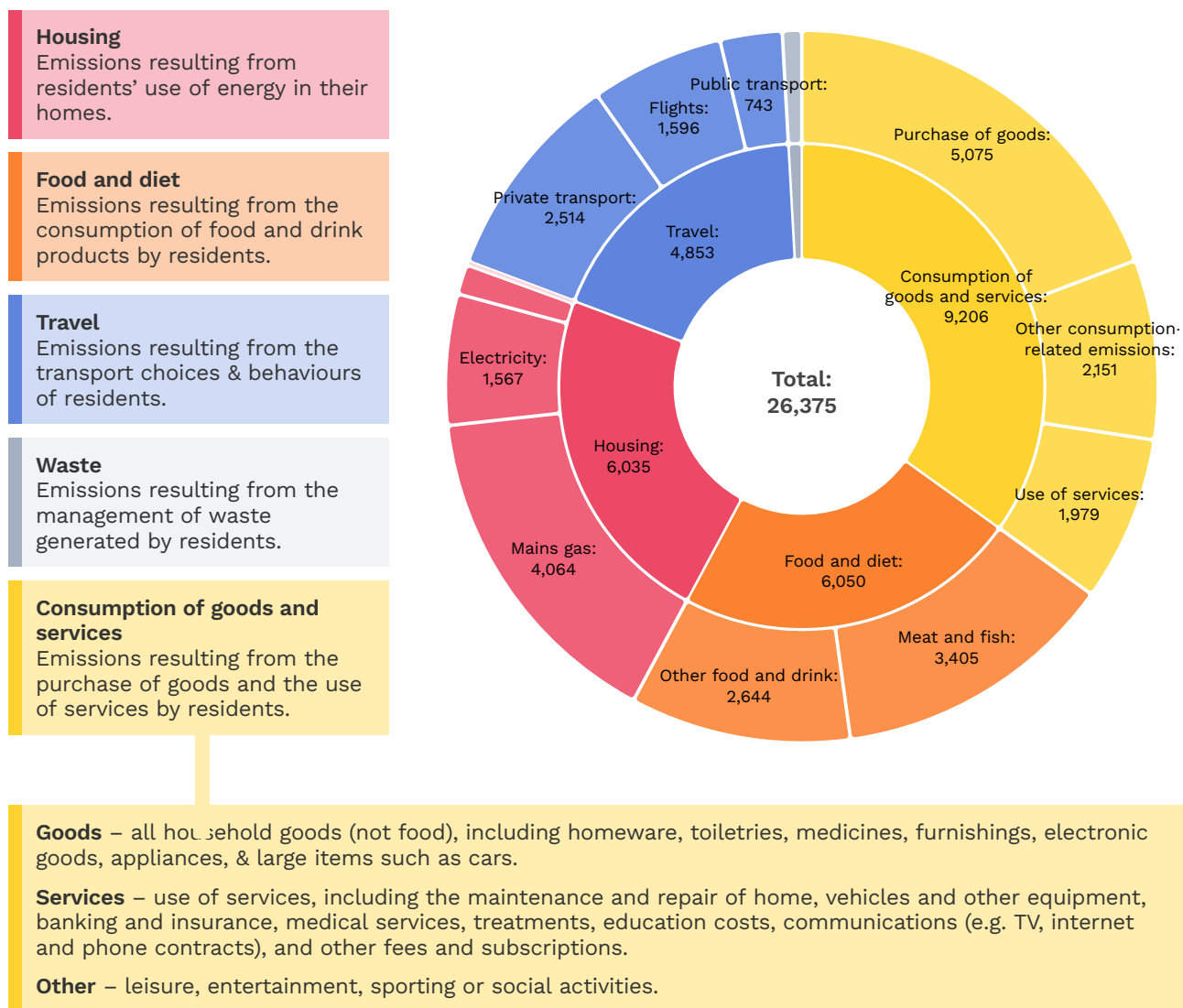## How does knowing our carbon footprint help us tackle climate change?

Footprint information can guide us to where we should target our efforts to reduce emissions and have the greatest impact. To help you think about what to do next with your footprint information, in each section of this report there are change targets for reaching net zero, and some trigger questions to help you think about possible areas for action.

Note that these footprints are intended to raise awareness and improve understanding of the types of activities which contribute to emissions in any given area in order to stimulate individual and collective action. Local Authorities may well have carried out their own analysis and have made climate emergency declarations, drafted action plans, set out policies or be delivering schemes. We hope that the Impact tool can be used to complement this activity.

2. Your Community's Consumption Footprint

Your whole footprint

This figure shows the annual carbon emissions (measured in tonnes CO_2e^2) emitted as a result of the different activities that residents within your ward's boundary engage in – from heating to eating.

Housing
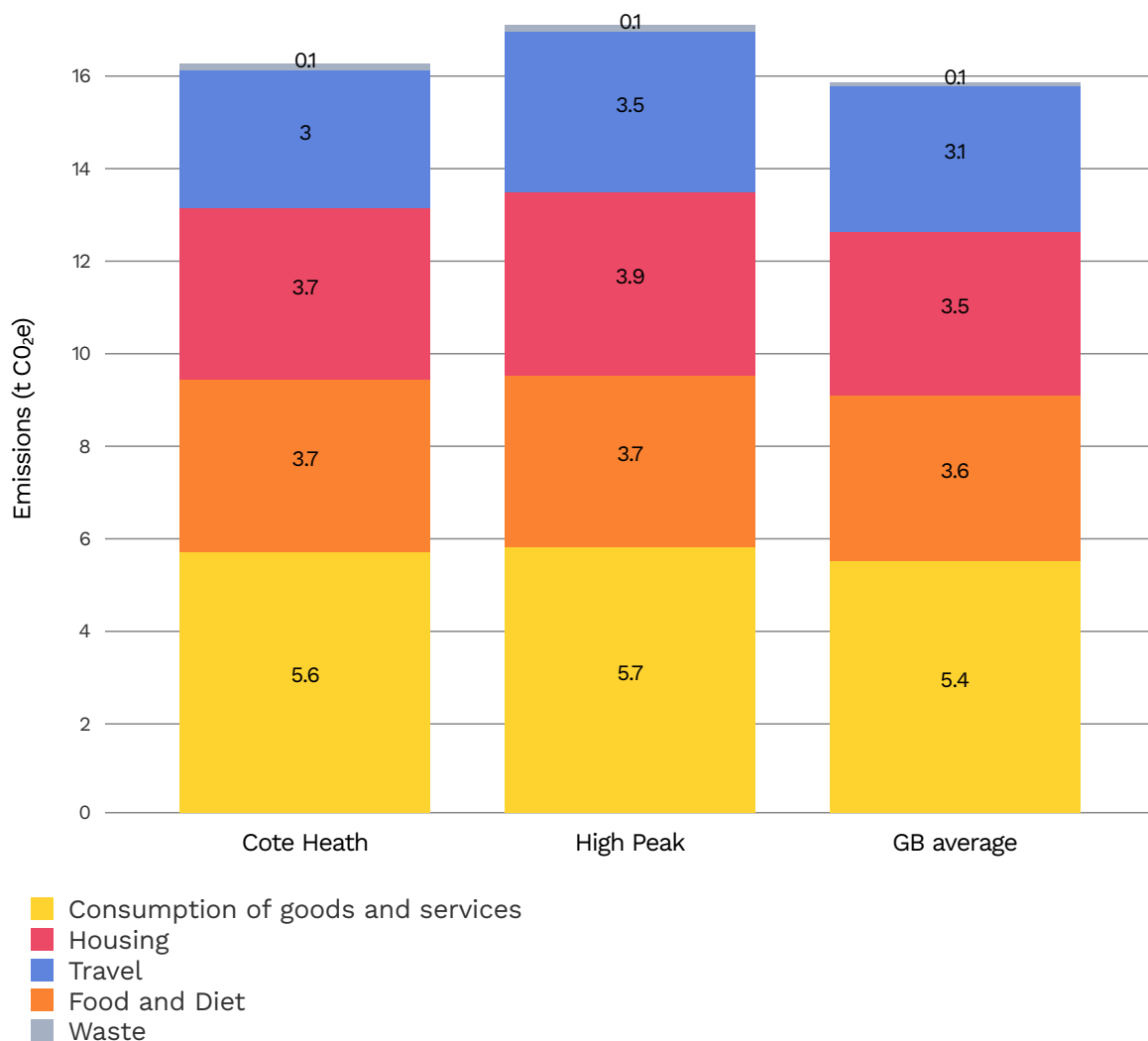Emissions resulting from residents' use of energy in their homes.

Food and diet
Emissions resulting from the consumption of food and drink products by residents.

Travel
Emissions resulting from the transport choices & behaviours of residents.

Waste
Emissions resulting from the management of waste generated by residents.

Consumption of goods and services
Emissions resulting from the purchase of goods and the use of services by residents.

Public transport: 743
Flights: 1,596
Private transport: 2,514
Travel: 4,853
Electricity: 1,567
Housing: 6,035
Mains gas: 4,064
Other food and drink: 2,644
Food and diet: 6,050
Meat and fish: 3,405
Total: 26,375
Purchase of goods: 5,075
Consumption of goods and services: 9,206
Other consumption-related emissions: 2,151
Use of services: 1,979

Goods – all household goods (not food), including homeware, toiletries, medicines, furnishings, electronic goods, appliances, & large items such as cars.

Services – use of services, including the maintenance and repair of home, vehicles and other equipment, banking and insurance, medical services, treatments, education costs, communications (e.g. TV, internet and phone contracts), and other fees and subscriptions.

Other – leisure, entertainment, sporting or social activities.

A breakdown of the numbers

The table below shows your area's consumption footprint – total estimated emissions and per-household averages – so that you can see a breakdown of the numbers.

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[2] CO_2e 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.

	Total emissions (t CO_2e)	Per-household emissions (t CO_2e)	%
Total emissions	**26,375**	16	100
Consumption of goods and services	9,206	5.6	35
Food and diet	6,050	3.7	23
Housing	6,035	3.7	23
Travel	4,853	3	18
Waste	232	0.1	1

How does your area compare?

Here is what the average consumption footprint for your area looks like per household, and how this compares with the district average and the national average. Note that these per household footprints are averages. Within a larger (e.g. local authority) area you may have neighbourhoods with very different per household consumption footprints and it will be worth looking at more granular data if you are planning area-specific initiatives or messaging.

Housing

Your community's residents' use of energy in their homes results in annual carbon emissions per household of 3.7 t CO_2e. This compares with 3.9 t CO_2e at the district level and 3.5 t CO_2e at the national level. In the average UK home, 64% of energy is used for space heating, 17% for heating water, 16% for lighting and appliances, and 3% for cooking[3]. As such a large proportion of household energy is used for heating, the type of heating system (i.e. is it low carbon?), and how well the home retains heat, are critical factors shaping the scale of a home's emissions. How well a home retains heat depends on anumber of factors, including: when and how it was built; how much insulation has been installed; how draughty the home is; the efficiency of the windows; and the behaviour of the residents.

Carbon footprints covering a large geographical area will encompass a range of smaller communities with different housing types and demographics. This will influence the types of activities which are most likely to be successful and have the greatest impact in terms of reducing emissions from housing.

Below are some trigger questions to help you to start to think about the implications of your community's household footprint information.

- How does your community's household energy use compare with the the district and national averages? What might the reasons be for the differences?

- What type of housing is there in your community? And what is the main heating fuel (oil, gas, electricity, etc.)?

- Is the housing easily retrofitted to improve how well it retains heat and install low carbon heating? Do you know if residents are doing this? Are there already initiatives to increase demand and encourage and support residents to take action?

Transport

Change targets:

- Reduced private car travel and a comparable increase in active and public transport

- A complete shift to electric vehicles (and an end to petrol & diesel cars & vans)

- Massively reduced air travel, particularly among frequent flyers

Car use: Residents' car use results in annual carbon emissions per household of 1.5 t CO_2e. This compares with 1.8 t CO_2e at the district level and 1.6 t CO_2e at the national level.

Air travel: Residents' air travel results in annual carbon emissions per household of 1 t CO_2e. This compares with 1.2 t CO_2e at the district level and 1.1 t CO_2e at the national level.

Public transport: Residents' use of public transport results in annual carbon emissions per household of 0.5 t CO_2e. This compares with 0.5 t CO_2e at the district level and 0.5 t CO_2e at the national level.

Below are some trigger questions to help you to start to think about the implications of your community's transport footprint information.

- How do your community's car use-related emissions compare to public transport emissions? And how do these both compare with the district and national averages? What might the reasons be for the differences?

- Could existing or new community schemes help residents shift their transport behaviours to using public transport (if this is a choice) or more active travel options (e.g. electric bike hire or subsidised purchase schemes)? How could the impact of local initiatives be increased?

- Is there scope more strategically to influence provision of public transport (e.g. routes, frequency, fares, subsidies, low carbon fleets)?

- What is the provision of walking and cycling routes like? How accessible are local service centres and facilities to residents in different neighbourhoods? Is it possible for most households to access what they need without needing to use a car?

- What do you think are the key reasons for air travel in your community? Are there likely to be differences between residents of different neighbourhoods? It is worth noting that about 10% of England's population take more than half of all international flights – so trying to address 'frequent flying' is a good way to target any activities or communications campaign.

Food & diet

Change targets:

- Altered dietary patterns & reduced food waste

- Widely adopted agricultural practices that reduce emissions & increase soil carbon

Meat and fish: Residents' consumption of meat and fish results in annual carbon emissions per household of 2.1 t CO_2e. This compares with 2.1 t CO_2e at the district level and 2 t CO_2e at the national level.

Other food and drink items: Residents' consumption of other food and drink items results in annual carbon emissions per household of 1.6 t CO_2e. This compares with 1.7 t CO_2e at the district level and 1.6 t CO_2e at the national level.

So, where do the emissions from our food actually come from? Without understanding this it can be difficult to know what we can do to change the carbon footprint of what we eat and drink.

Research shows us that changing **what** we eat will have a greater impact on carbon emissions than changing **where** our food has travelled from – although, of course, eating locally-produced food brings multiple other benefits such as supporting local economies, having more control over mandating more ethical and environmentally-beneficial growing practices, and creating opportunities for people to better understand where the food they eat comes from and how it's grown or made.

Whilst the emissions from a food item can really vary depending on how it is grown or reared, it is clear that animal products, and most significantly beef and lamb, account for the largest proportion of food-related emissions. Explore the BBC's Climate Change Food Calculator to better understand how food and drink items compare: https://www.bbc.com/future/bespoke/follow-the-food/calculate-the-environmental-footprint-of-your-food.html[3].

Below are some trigger questions to help you to start to think about the implications of your community's food and diet footprint information.

- How do your community's food and diet-related emissions compare with the district and national averages?

- Could you establish or support a behavioural change campaign to encourage people to reduce the amount of meat and dairy they consume? (It is critical that any community-based activity or communications campaigns around dietary changes is sensitive to concerns about farmers' livelihoods and people's cultural and traditional links to meat-eating).

- The amount of food wasted 'post-farm-gate' in the UK is equivalent to 22% of food purchased. What initiatives could raise awareness about food waste and encourage unwanted food to be redistributed (e.g. through a 'community fridge')?

Goods & services

Change targets:

- Hugely altered consumption patterns, buying less and re-using/repairing more

- Decarbonised power generation

Goods & services: Residents' consumption of goods and use of services results in annual carbon emissions per household of 5.6 t CO_2e. This compares with 5.7 t CO_2e at the district level and 5.4 t CO_2e at the national level.

[4] For further information, you can also read this Our World in Data (Oxford University) study:

https://ourworldindata.org/food-choice-vs-eating-local

All goods that we buy will have had carbon emitted in their making (including the sourcing of raw materials), packaging, shipping and sale. Without clear carbon labelling, it is difficult to know the scale of emissions resulting from each item, but it is clear that with every new product made, more carbon is emitted (and more resources are extracted and sourced – which itself can have huge environmental and social impacts). Reducing how many *new* goods we buy in the first place is the best place to start in terms of reducing goods-related emissions; and then of course re-using and repairing items where goods are needed.

Carbon emissions from the services we use will relate to the energy used by that service provider (e.g. heating in a leisure centre, pub or hospital), as well as the carbon emitted as a result of goods they buy and use (e.g. gym equipment, vehicle repair machinery).

Here are some trigger questions to help you to consider ways to reduce emissions attributable to goods and services:

- How do your community's goods and services-related emissions compare with the district and national average? What might the reasons be for the differences?

- Are there opportunities to: grow the second-hand market; enable residents to upcycle and repair household items; share larger/more expensive/rarely used items, such as power tools?

- Are there opportunities to encourage businesses to switch to green energy tariffs (where energy is generated from renewable sources), or to support local businesses who want to reduce their emissions (e.g. with cargo bike deliveries to replace vans; energy efficiency improvements to buildings to reduce heat demand; low carbon procurement policies; local sourcing and carbon-conscious materials?

Waste

Change targets:

- Greatly increased recycling rates to achieve a circular economy model, taking plastics out of the waste stream

- Widespread, actively managed and planned carbon storage strategies

Waste: The management of residents' waste results in annual carbon emissions per household of 0.14 t CO_2e. (Emissions associated with waste management are distributed out evenly across the population.)

The waste 'wedge' in your carbon footprint may look small, but remember that emissions from the *management* of waste only represent a small fraction of the total emissions associated with every item that ends up in our bins or recycling boxes. So reducing waste in the first place is critical.
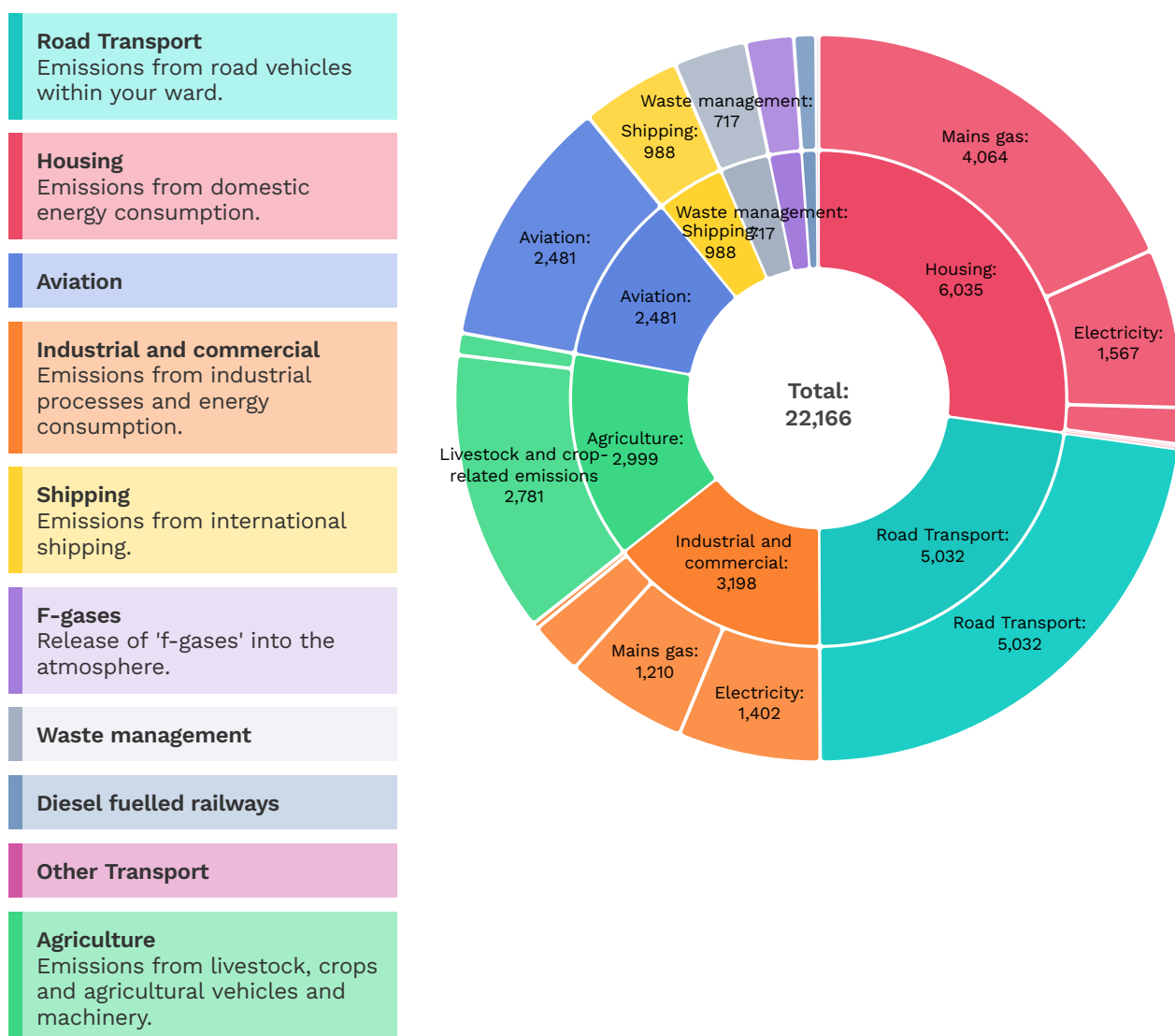
- What sort of messaging could be effective in helping to reduce the amount of waste being generated (e.g. avoiding plastic packaging, water bottle refills, home composting)?

- What initiatives are likely to be popular (e.g. local food boxes, repair cafes, swap shops)?

3. Territorial Footprint

Your whole footprint

This figure shows the annual carbon emissions (measured in tonnes) emitted as a result of activities taking place within your ward's boundary.

While these figures should give you a reasonable indication of the major sources of emissions within your ward's boundary, they should be taken with a small pinch of salt, as some sectors are difficult to apportion territorially. For example, emissions from international shipping are calculated for the whole country and apportioned to each ward based on its population. For more information, see the Impact methodology paper.

Road Transport
Emissions from road vehicles within your ward.

Housing
Emissions from domestic energy consumption.

Aviation

Industrial and commercial
Emissions from industrial processes and energy consumption.

Shipping
Emissions from international shipping.

F-gases
Release of 'f-gases' into the atmosphere.

Waste management

Diesel fuelled railways

Other Transport

Agriculture
Emissions from livestock, crops and agricultural vehicles and machinery.

A breakdown of the numbers

The table below shows your ward's territorial footprint – total and per-household

averages – so that you can see a breakdown of the numbers.

	Total emissions (t CO_2e)	Per-household emissions (t CO_2e)	%
Total emissions	**22,166**	**14**	**100**
Housing	6,035	3.7	27
Mains gas	4,064	2.5	18
Electricity	1,567	1	7
Oil	358	0.2	2
LPG	27	< 0.1	< 1
Biomass	12	< 0.1	< 1
Coal	6	< 0.1	< 1
Road Transport	5,032	3.1	23
Industrial and commercial	3,198	2	14
Electricity	1,402	0.9	6
Mains gas	1,210	0.7	5
Other Fuels	526	0.3	2
Large industrial consumers	59	< 0.1	< 1
Agriculture	2,999	1.8	14
Livestock and crop-related emissions	2,781	1.7	13
Fuel	218	0.1	1
Aviation	2,481	1.5	11
Shipping	988	0.6	4
Waste management	717	0.4	3
F-gases	473	0.3	2
Diesel fuelled railways	219	0.1	1
Other Transport	25	< 0.1	< 1

Below are some trigger questions to help you to start to think about the implications of your community's territorial footprint information.

- Are there particular sectors which account for a high proportion of the territorial emissions in your community?

- Based on your knowledge, are these sectors surprising or are they what you would expect?

- Who are the key stakeholders you would need to engage with to address the emissions from the highest emitting sectors?

- For example – for agricultural emissions can you engage with local land owners, or the NFU/other farmer groups to understand what is happening in your area to reduce emissions from agriculture? For industrial and commercial emissions, are there ways that businesses could be supported with reducing their emissions? For road transport what changes would be needed to improve public and active travel links?

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There are lots of sources of support and information on how to reduce carbon footprints – too many to list here! Here is an introductory range of resources that we hope will help you take your next steps now that you know your carbon footprint. Most of these contain many other links relevant to the topic under discussion:

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Carbon Footprint Report:

Stone Bench

Ward

06/06/2022

1. Your Footprint Report

Welcome to your carbon footprint report!

This report tells you about your community's carbon[1] footprint – both the scale of emissions and the main activities responsible for the emissions. This information comes from *Impact* – an online region-level carbon emissions estimator: https://impact-tool.org.uk/.

The tool was developed by the Centre for Sustainable Energy and the University of Exeter, initially to make carbon footprinting at parish level possible. Since its inception a number of improvements have been made, including the ability to look at larger geographical areas.

Your report shows both 'consumption based' and 'territorial' emissions, and also shows how your footprint compares with the district average and the national average.

It shows your 'territorial' *and* 'consumption' footprints.

There are two ways of viewing a community's carbon footprint: territorial-based, or consumption-based.

Territorial footprints consider the emissions produced within a geographical boundary – such as from heating buildings, transport, industry, and agriculture – regardless of whether the residents within the community are engaged in or demand those activities. For example, if a factory lies within the boundary of a local authority, then regardless of whether what is produced in the factory is consumed locally or exported to other parts of the country (or world), the factory's emissions would still be counted as part of that local authority's territorial footprint. A territorial footprint is largely created by taking national and local authority datasets and cutting these down to the local geography in as accurate a way as possible.

A consumption footprint captures all the emissions produced as a result of the activities that the area's residents engage in, regardless of where geographically they occur. For example, emissions resulting from the food they eat, the clothes and household items they buy, the leisure activities they engage in, their travel behaviours, and the heating of their homes. The consumption-based footprint is based on household and address-level data, which is then aggregated up to the community level (rather than cutting down from a higher geography as with the territorial approach).

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[1] A 'carbon' footprint, includes carbon dioxide as well as other gases which impact the climate.

Apples and pears.

Showing both territorial and consumption footprints gives you useful information, but it is important to recognise that the two footprints cannot be directly compared as they look at the question of 'where do our emissions come from' in different ways, using different methods, and with different datasets.

Take your footprint as a guide, not as gospel.

The carbon footprints are modelled, drawing on data from more than 30 datasets (some of which are themselves made up of multiple further datasets!). As with all models, decisions have been taken in terms of what data is used, and how the data is 'cut' and analysed. The Impact footprints have been developed with the intention that they are as useful as possible, but remember to take them as a guide, not as gospel.

If you would like more detail about the method and datasets, please read the Impact methodology paper: https://impact-tool.org.uk/static/doc/Impact-methodology-paper-v1.7.pdf.

You can also download the raw data here: https://impact-tool.org.uk/download

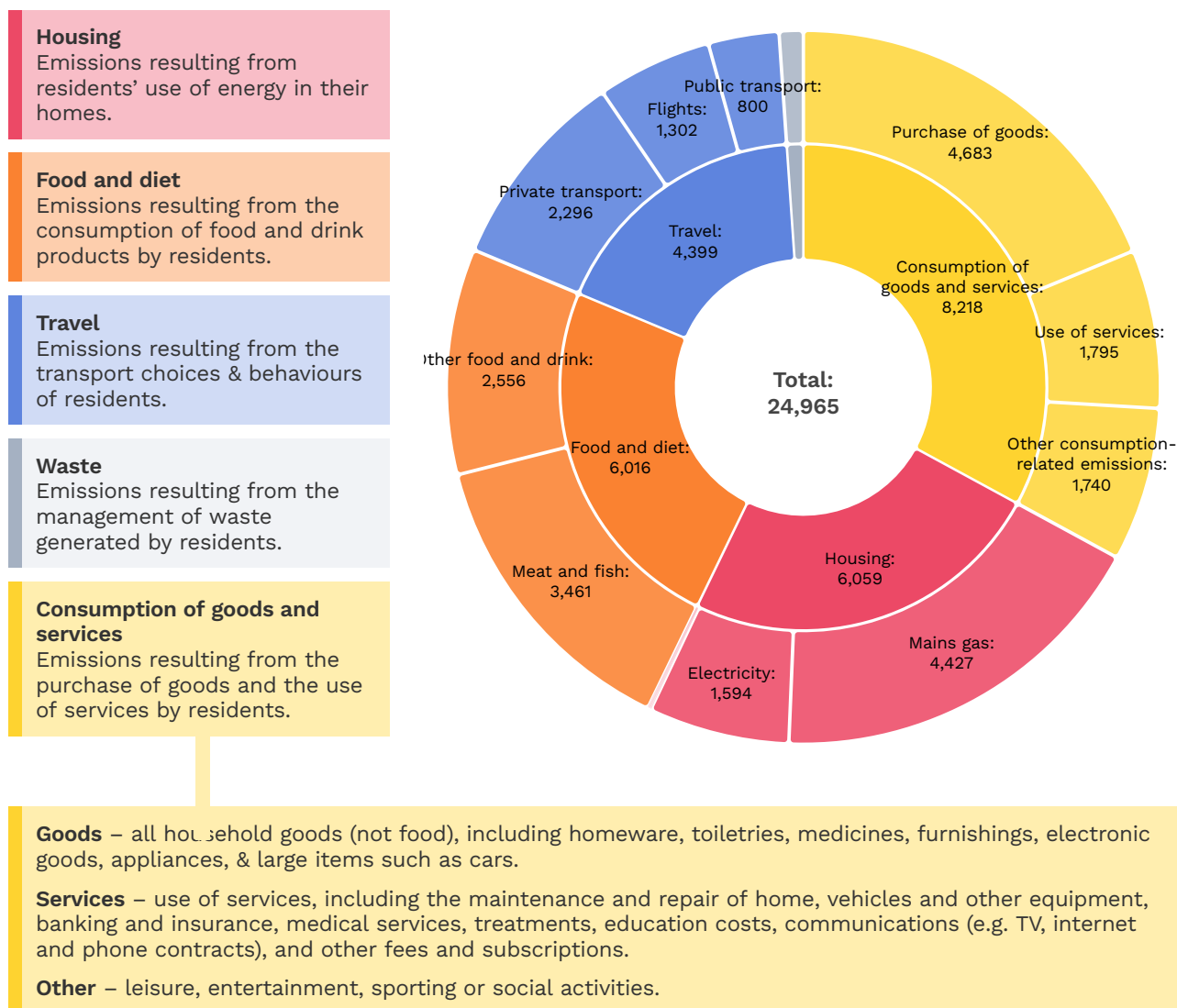## How does knowing our carbon footprint help us tackle climate change?

Footprint information can guide us to where we should target our efforts to reduce emissions and have the greatest impact. To help you think about what to do next with your footprint information, in each section of this report there are change targets for reaching net zero, and some trigger questions to help you think about possible areas for action.

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2. Your Community's Consumption Footprint

Your whole footprint

This figure shows the annual carbon emissions (measured in tonnes CO_2e[2]) emitted as a result of the different activities that residents within your ward's boundary engage in – from heating to eating.

Housing
Emissions resulting from residents' use of energy in their homes.

Food and diet
Emissions resulting from the consumption of food and drink products by residents.

Travel
Emissions resulting from the transport choices & behaviours of residents.

Waste
Emissions resulting from the management of waste generated by residents.

Consumption of goods and services
Emissions resulting from the purchase of goods and the use of services by residents.

Public transport: 800
Flights: 1,302
Private transport: 2,296
Travel: 4,399
Purchase of goods: 4,683
Consumption of goods and services: 8,218
Use of services: 1,795
Other consumption-related emissions: 1,740
Other food and drink: 2,556
Food and diet: 6,016
Total: 24,965
Meat and fish: 3,461
Housing: 6,059
Electricity: 1,594
Mains gas: 4,427

Goods – all household goods (not food), including homeware, toiletries, medicines, furnishings, electronic goods, appliances, & large items such as cars.

Services – use of services, including the maintenance and repair of home, vehicles and other equipment, banking and insurance, medical services, treatments, education costs, communications (e.g. TV, internet and phone contracts), and other fees and subscriptions.

Other – leisure, entertainment, sporting or social activities.
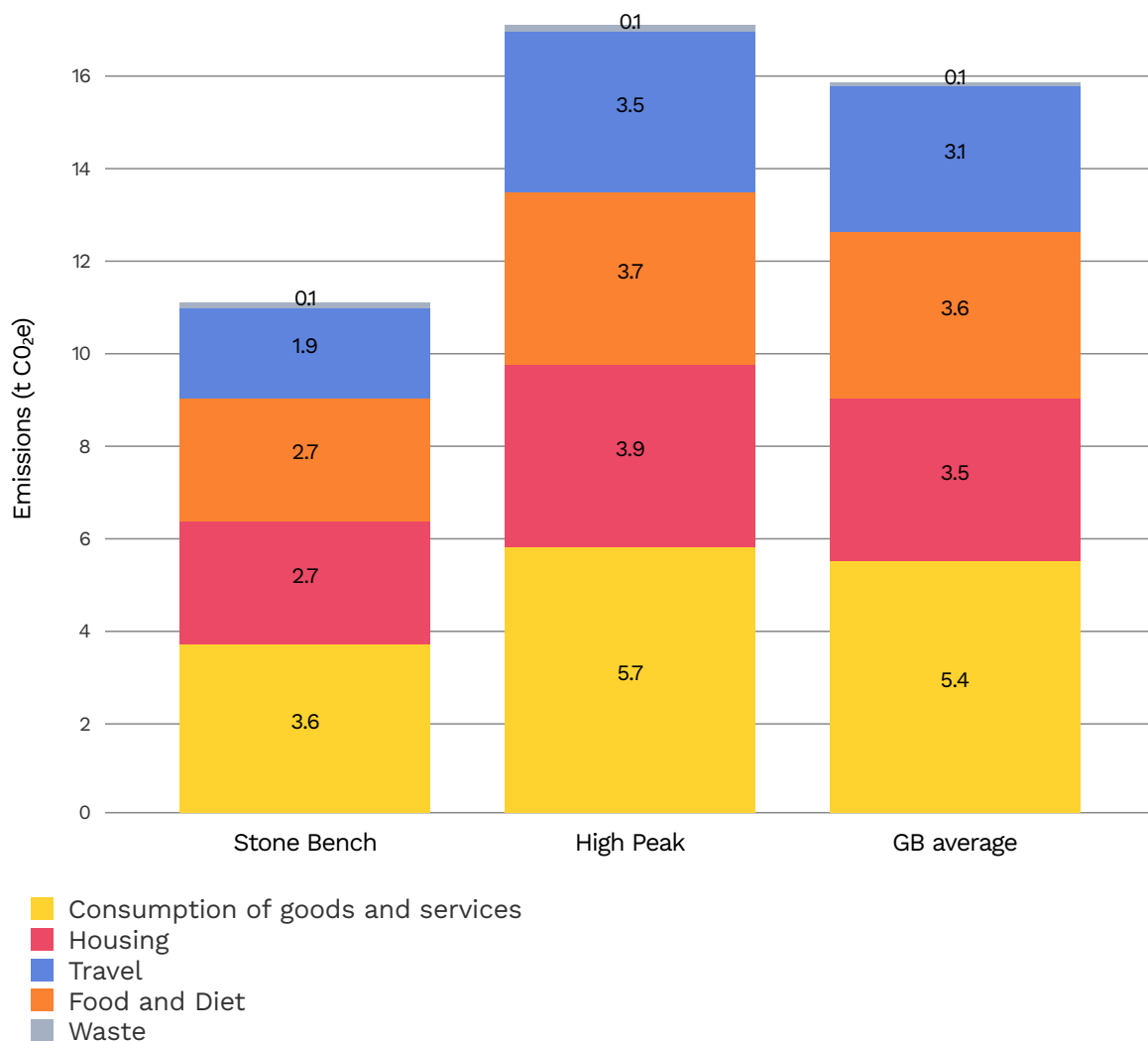
A breakdown of the numbers

The table below shows your area's consumption footprint – total estimated emissions and per-household averages – so that you can see a breakdown of the numbers.

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[2] CO_2e 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.

	Total emissions (t CO_2e)	Per-household emissions (t CO_2e)	%
Total emissions	**24,965**	**11**	**100**
Consumption of goods and services	8,218	3.6	33
Housing	6,059	2.7	24
Food and diet	6,016	2.7	24
Travel	4,399	1.9	18
Waste	273	0.1	1

How does your area compare?

Here is what the average consumption footprint for your area looks like per household, and how this compares with the district average and the national average. Note that these per household footprints are averages. Within a larger (e.g. local authority) area you may have neighbourhoods with very different per household consumption footprints and it will be worth looking at more granular data if you are planning area-specific initiatives or messaging.

Housing

Your community's residents' use of energy in their homes results in annual carbon emissions per household of 2.7 t CO_2e. This compares with 3.9 t CO_2e at the district level and 3.5 t CO_2e at the national level. In the average UK home, 64% of energy is used for space heating, 17% for heating water, 16% for lighting and appliances, and 3% for cooking[3]. As such a large proportion of household energy is used for heating, the type of heating system (i.e. is it low carbon?), and how well the home retains heat, are critical factors shaping the scale of a home's emissions. How well a home retains heat depends on a number of factors, including: when and how it was built; how much insulation has been installed; how draughty the home is; the efficiency of the windows; and the behaviour of the residents.

Carbon footprints covering a large geographical area will encompass a range of smaller communities with different housing types and demographics. This will influence the types of activities which are most likely to be successful and have the greatest impact in terms of reducing emissions from housing.

Below are some trigger questions to help you to start to think about the implications of your community's household footprint information.

- How does your community's household energy use compare with the the district and national averages? What might the reasons be for the differences?

- What type of housing is there in your community? And what is the main heating fuel (oil, gas, electricity, etc.)?

- Is the housing easily retrofitted to improve how well it retains heat and install low carbon heating? Do you know if residents are doing this? Are there already initiatives to increase demand and encourage and support residents to take action?

Transport

Change targets:

- Reduced private car travel and a comparable increase in active and public transport

- A complete shift to electric vehicles (and an end to petrol & diesel cars & vans)

- Massively reduced air travel, particularly among frequent flyers

Car use: Residents' car use results in annual carbon emissions per household of 1 t CO_2e. This compares with 1.8 t CO_2e at the district level and 1.6 t CO_2e at the national level.

Air travel: Residents' air travel results in annual carbon emissions per household of 0.6 t CO_2e. This compares with 1.2 t CO_2e at the district level and 1.1 t CO_2e at the national level.

Public transport: Residents' use of public transport results in annual carbon emissions per household of 0.4 t CO_2e. This compares with 0.5 t CO_2e at the district level and 0.5 t CO_2e at the national level.

Below are some trigger questions to help you to start to think about the implications of your community's transport footprint information.

- How do your community's car use-related emissions compare to public transport emissions? And how do these both compare with the district and national averages? What might the reasons be for the differences?

- Could existing or new community schemes help residents shift their transport behaviours to using public transport (if this is a choice) or more active travel options (e.g. electric bike hire or subsidised purchase schemes)? How could the impact of local initiatives be increased?

- Is there scope more strategically to influence provision of public transport (e.g. routes, frequency, fares, subsidies, low carbon fleets)?

- What is the provision of walking and cycling routes like? How accessible are local service centres and facilities to residents in different neighbourhoods? Is it possible for most households to access what they need without needing to use a car?

- What do you think are the key reasons for air travel in your community? Are there likely to be differences between residents of different neighbourhoods? It is worth noting that about 10% of England's population take more than half of all international flights – so trying to address 'frequent flying' is a good way to target any activities or communications campaign.

Food & diet

Change targets:

- Altered dietary patterns & reduced food waste

- Widely adopted agricultural practices that reduce emissions & increase soil carbon

Meat and fish: Residents' consumption of meat and fish results in annual carbon emissions per household of 1.5 t CO_2e. This compares with 2.1 t CO_2e at the district level and 2 t CO_2e at the national level.

Other food and drink items: Residents' consumption of other food and drink items results in annual carbon emissions per household of 1.1 t CO_2e. This compares with 1.7 t CO_2e at the district level and 1.6 t CO_2e at the national level.

So, where do the emissions from our food actually come from? Without understanding this it can be difficult to know what we can do to change the carbon footprint of what we eat and drink.

Research shows us that changing **what** we eat will have a greater impact on carbon emissions than changing **where** our food has travelled from – although, of course, eating locally-produced food brings multiple other benefits such as supporting local economies, having more control over mandating more ethical and environmentally-beneficial growing practices, and creating opportunities for people to better understand where the food they eat comes from and how it's grown or made.

Whilst the emissions from a food item can really vary depending on how it is grown or reared, it is clear that animal products, and most significantly beef and lamb, account for the largest proportion of food-related emissions. Explore the BBC's Climate Change Food Calculator to better understand how food and drink items compare: https://www.bbc.com/future/bespoke/follow-the-food/calculate-the-environmental-footprint-of-your-food.html[3].

Below are some trigger questions to help you to start to think about the implications of your community's food and diet footprint information.

- How do your community's food and diet-related emissions compare with the district and national averages?

- Could you establish or support a behavioural change campaign to encourage people to reduce the amount of meat and dairy they consume? (It is critical that any community-based activity or communications campaigns around dietary changes is sensitive to concerns about farmers' livelihoods and people's cultural and traditional links to meat-eating).

- The amount of food wasted 'post-farm-gate' in the UK is equivalent to 22% of food purchased. What initiatives could raise awareness about food waste and encourage unwanted food to be redistributed (e.g. through a 'community fridge')?

Goods & services

Change targets:

- Hugely altered consumption patterns, buying less and re-using/repairing more

- Decarbonised power generation

Goods & services: Residents' consumption of goods and use of services results in annual carbon emissions per household of 3.6 t CO_2e. This compares with 5.7 t CO_2e at the district level and 5.4 t CO_2e at the national level.

[4] For further information, you can also read this Our World in Data (Oxford University) study:

https://ourworldindata.org/food-choice-vs-eating-local

All goods that we buy will have had carbon emitted in their making (including the sourcing of raw materials), packaging, shipping and sale. Without clear carbon labelling, it is difficult to know the scale of emissions resulting from each item, but it is clear that with every new product made, more carbon is emitted (and more resources are extracted and sourced – which itself can have huge environmental and social impacts). Reducing how many *new* goods we buy in the first place is the best place to start in terms of reducing goods-related emissions; and then of course re-using and repairing items where goods are needed.

Carbon emissions from the services we use will relate to the energy used by that service provider (e.g. heating in a leisure centre, pub or hospital), as well as the carbon emitted as a result of goods they buy and use (e.g. gym equipment, vehicle repair machinery).

Here are some trigger questions to help you to consider ways to reduce emissions attributable to goods and services:

- How do your community's goods and services-related emissions compare with the district and national average? What might the reasons be for the differences?

- Are there opportunities to: grow the second-hand market; enable residents to upcycle and repair household items; share larger/more expensive/rarely used items, such as power tools?

- Are there opportunities to encourage businesses to switch to green energy tariffs (where energy is generated from renewable sources), or to support local businesses who want to reduce their emissions (e.g. with cargo bike deliveries to replace vans; energy efficiency improvements to buildings to reduce heat demand; low carbon procurement policies; local sourcing and carbon-conscious materials?

Waste

Change targets:

- Greatly increased recycling rates to achieve a circular economy model, taking plastics out of the waste stream

- Widespread, actively managed and planned carbon storage strategies

Waste: The management of residents' waste results in annual carbon emissions per household of 0.12 t CO_2e. (Emissions associated with waste management are distributed out evenly across the population.)

The waste 'wedge' in your carbon footprint may look small, but remember that emissions from the *management* of waste only represent a small fraction of the total emissions associated with every item that ends up in our bins or recycling boxes. So reducing waste in the first place is critical.
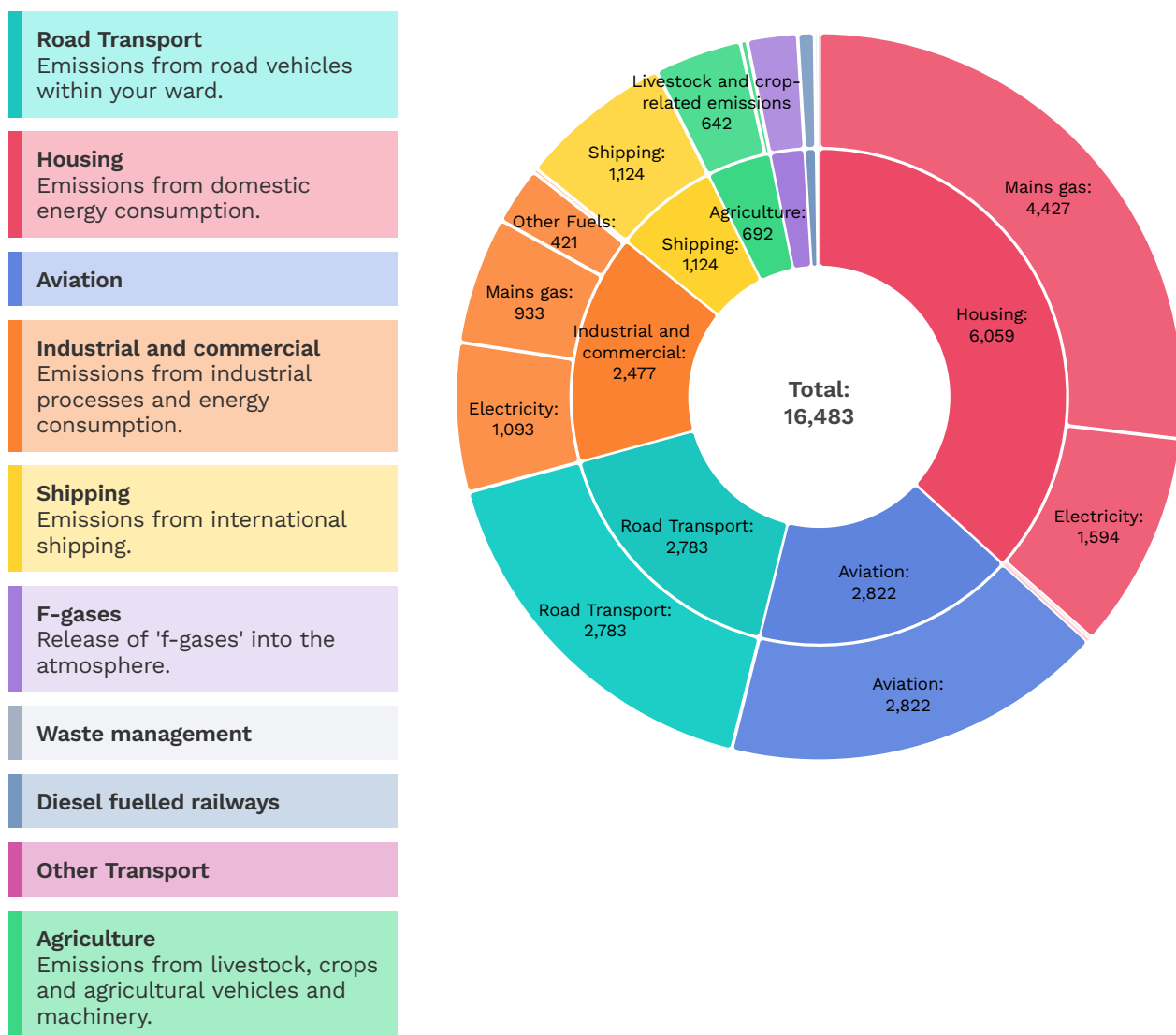
- What sort of messaging could be effective in helping to reduce the amount of waste being generated (e.g. avoiding plastic packaging, water bottle refills, home composting)?

- What initiatives are likely to be popular (e.g. local food boxes, repair cafes, swap shops)?

3. Territorial Footprint

Your whole footprint

This figure shows the annual carbon emissions (measured in tonnes) emitted as a result of activities taking place within your ward's boundary.

While these figures should give you a reasonable indication of the major sources of emissions within your ward's boundary, they should be taken with a small pinch of salt, as some sectors are difficult to apportion territorially. For example, emissions from international shipping are calculated for the whole country and apportioned to each ward based on its population. For more information, see the Impact methodology paper.

Road Transport
Emissions from road vehicles within your ward.

Housing
Emissions from domestic energy consumption.

Aviation

Industrial and commercial
Emissions from industrial processes and energy consumption.

Shipping
Emissions from international shipping.

F-gases
Release of 'f-gases' into the atmosphere.

Waste management

Diesel fuelled railways

Other Transport

Agriculture
Emissions from livestock, crops and agricultural vehicles and machinery.

A breakdown of the numbers

The table below shows your ward's territorial footprint – total and per-household

averages – so that you can see a breakdown of the numbers.

	Total emissions (t CO$_2$e)	Per-household emissions (t CO$_2$e)	%
Total emissions	**16,483**	**7**	**100**
Housing	6,059	2.7	37
Mains gas	4,427	2	27
Electricity	1,594	0.7	10
Oil	17	< 0.1	< 1
Coal	11	< 0.1	< 1
LPG	6	< 0.1	< 1
Biomass	5	< 0.1	< 1
Aviation	2,822	1.2	17
Road Transport	2,783	1.2	17
Industrial and commercial	2,477	1.1	15
Electricity	1,093	0.5	7
Mains gas	933	0.4	6
Other Fuels	421	0.2	3
Large industrial consumers	30	< 0.1	< 1
Shipping	1,124	0.5	7
Agriculture	692	0.3	4
Livestock and crop-related emissions	642	0.3	4
Fuel	50	< 0.1	< 1
F-gases	368	0.2	2
Diesel fuelled railways	123	0.1	1
Waste management	27	< 0.1	< 1
Other Transport	8	< 0.1	< 1

Below are some trigger questions to help you to start to think about the implications of your community's territorial footprint information.

- Are there particular sectors which account for a high proportion of the territorial emissions in your community?

- Based on your knowledge, are these sectors surprising or are they what you would expect?

- Who are the key stakeholders you would need to engage with to address the emissions from the highest emitting sectors?

- For example – for agricultural emissions can you engage with local land owners, or the NFU/other farmer groups to understand what is happening in your area to reduce emissions from agriculture? For industrial and commercial emissions, are there ways that businesses could be supported with reducing their emissions? For road transport what changes would be needed to improve public and active travel links?

4. Sources of information

There are lots of sources of support and information on how to reduce carbon footprints – too many to list here! Here is an introductory range of resources that we hope will help you take your next steps now that you know your carbon footprint. Most of these contain many other links relevant to the topic under discussion:

- Developing a climate emergency action plan for your community (.xlsx)

- Communicating climate change (pdf)

- Energy efficient buildings (pdf)

- Funding and grants for community responses to the climate emergency (pdf)

- Making your community EV ready (pdf)

- Planting trees, and better land management (pdf)

- Further resources and useful links compendium (pdf)

- The National Association for Local Councils has also produced a list of case studies of local councils doing work on the climate emergency (link)

- The National Farmers Union has recently published guidance on how local government can engage with the farming community on climate change (link)

Carbon Footprint Report:

Temple

Ward

06/06/2022

1. Your Footprint Report

Welcome to your carbon footprint report!

This report tells you about your community's carbon[1] footprint – both the scale of emissions and the main activities responsible for the emissions. This information comes from *Impact* – an online region-level carbon emissions estimator: https://impact-tool.org.uk/.

The tool was developed by the Centre for Sustainable Energy and the University of Exeter, initially to make carbon footprinting at parish level possible. Since its inception a number of improvements have been made, including the ability to look at larger geographical areas.

Your report shows both 'consumption based' and 'territorial' emissions, and also shows how your footprint compares with the district average and the national average.

It shows your 'territorial' *and* 'consumption' footprints.

There are two ways of viewing a community's carbon footprint: territorial-based, or consumption-based.

Territorial footprints consider the emissions produced within a geographical boundary – such as from heating buildings, transport, industry, and agriculture – regardless of whether the residents within the community are engaged in or demand those activities. For example, if a factory lies within the boundary of a local authority, then regardless of whether what is produced in the factory is consumed locally or exported to other parts of the country (or world), the factory's emissions would still be counted as part of that local authority's territorial footprint. A territorial footprint is largely created by taking national and local authority datasets and cutting these down to the local geography in as accurate a way as possible.

A consumption footprint captures all the emissions produced as a result of the activities that the area's residents engage in, regardless of where geographically they occur. For example, emissions resulting from the food they eat, the clothes and household items they buy, the leisure activities they engage in, their travel behaviours, and the heating of their homes. The consumption-based footprint is based on household and address-level data, which is then aggregated up to the community level (rather than cutting down from a higher geography as with the territorial approach).

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[1] A 'carbon' footprint, includes carbon dioxide as well as other gases which impact the climate.

Apples and pears.

Showing both territorial and consumption footprints gives you useful information, but it is important to recognise that the two footprints cannot be directly compared as they look at the question of 'where do our emissions come from' in different ways, using different methods, and with different datasets.

Take your footprint as a guide, not as gospel.

The carbon footprints are modelled, drawing on data from more than 30 datasets (some of which are themselves made up of multiple further datasets!). As with all models, decisions have been taken in terms of what data is used, and how the data is 'cut' and analysed. The Impact footprints have been developed with the intention that they are as useful as possible, but remember to take them as a guide, not as gospel.

If you would like more detail about the method and datasets, please read the Impact methodology paper: https://impact-tool.org.uk/static/doc/Impact-methodology-paper-v1.7.pdf.

You can also download the raw data here: https://impact-tool.org.uk/download

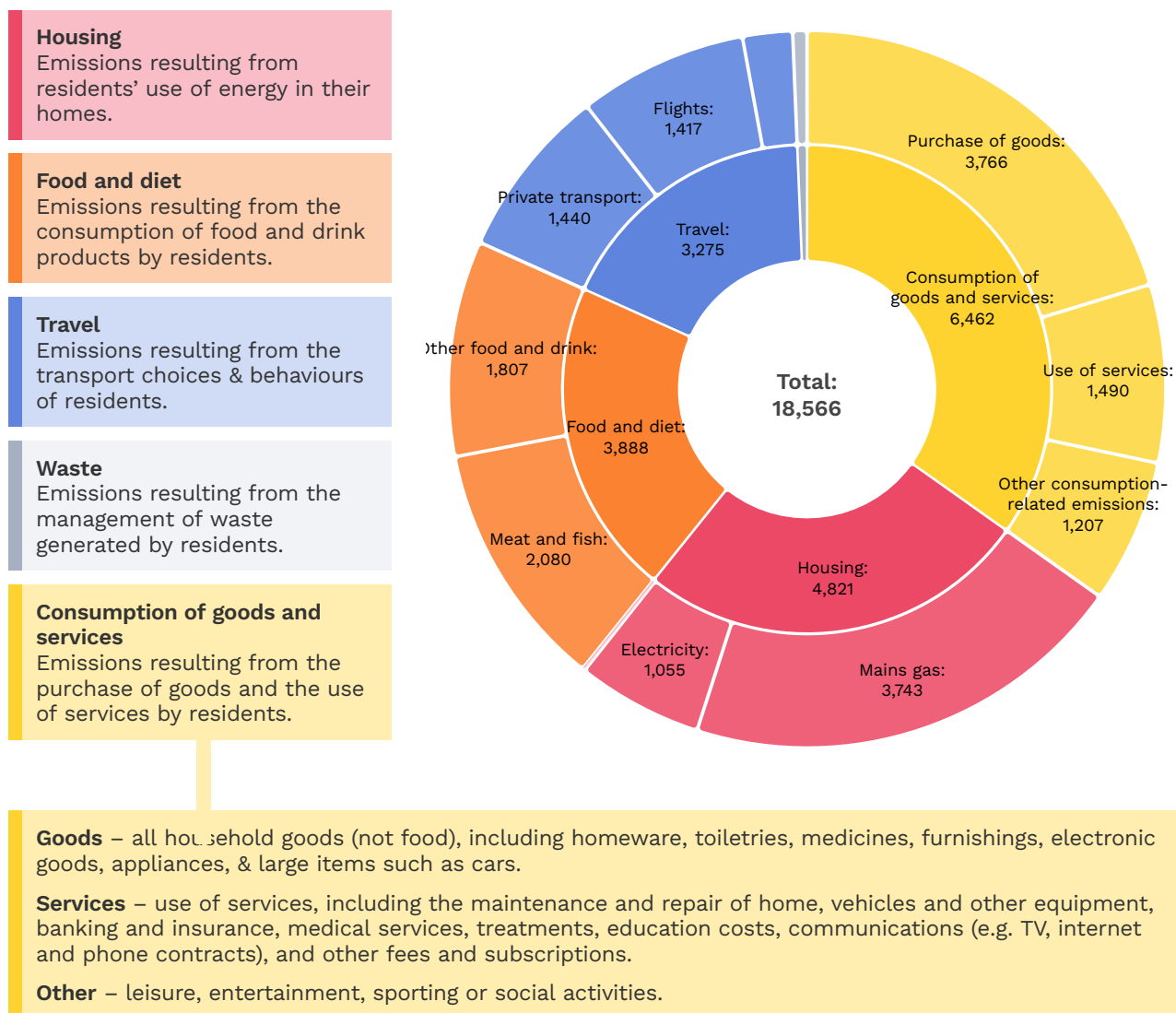## How does knowing our carbon footprint help us tackle climate change?

Footprint information can guide us to where we should target our efforts to reduce emissions and have the greatest impact. To help you think about what to do next with your footprint information, in each section of this report there are change targets for reaching net zero, and some trigger questions to help you think about possible areas for action.

Note that these footprints are intended to raise awareness and improve understanding of the types of activities which contribute to emissions in any given area in order to stimulate individual and collective action. Local Authorities may well have carried out their own analysis and have made climate emergency declarations, drafted action plans, set out policies or be delivering schemes. We hope that the Impact tool can be used to complement this activity.

2. Your Community's Consumption Footprint

Your whole footprint

This figure shows the annual carbon emissions (measured in tonnes CO_2e[2]) emitted as a result of the different activities that residents within your ward's boundary engage in – from heating to eating.

Housing
Emissions resulting from residents' use of energy in their homes.

Food and diet
Emissions resulting from the consumption of food and drink products by residents.

Travel
Emissions resulting from the transport choices & behaviours of residents.

Waste
Emissions resulting from the management of waste generated by residents.

Consumption of goods and services
Emissions resulting from the purchase of goods and the use of services by residents.

Flights: 1,417

Private transport: 1,440

Travel: 3,275

Purchase of goods: 3,766

Consumption of goods and services: 6,462

Use of services: 1,490

Other consumption-related emissions: 1,207

Other food and drink: 1,807

Food and diet: 3,888

Meat and fish: 2,080

Total: 18,566

Housing: 4,821

Electricity: 1,055

Mains gas: 3,743

Goods – all household goods (not food), including homeware, toiletries, medicines, furnishings, electronic goods, appliances, & large items such as cars.

Services – use of services, including the maintenance and repair of home, vehicles and other equipment, banking and insurance, medical services, treatments, education costs, communications (e.g. TV, internet and phone contracts), and other fees and subscriptions.

Other – leisure, entertainment, sporting or social activities.

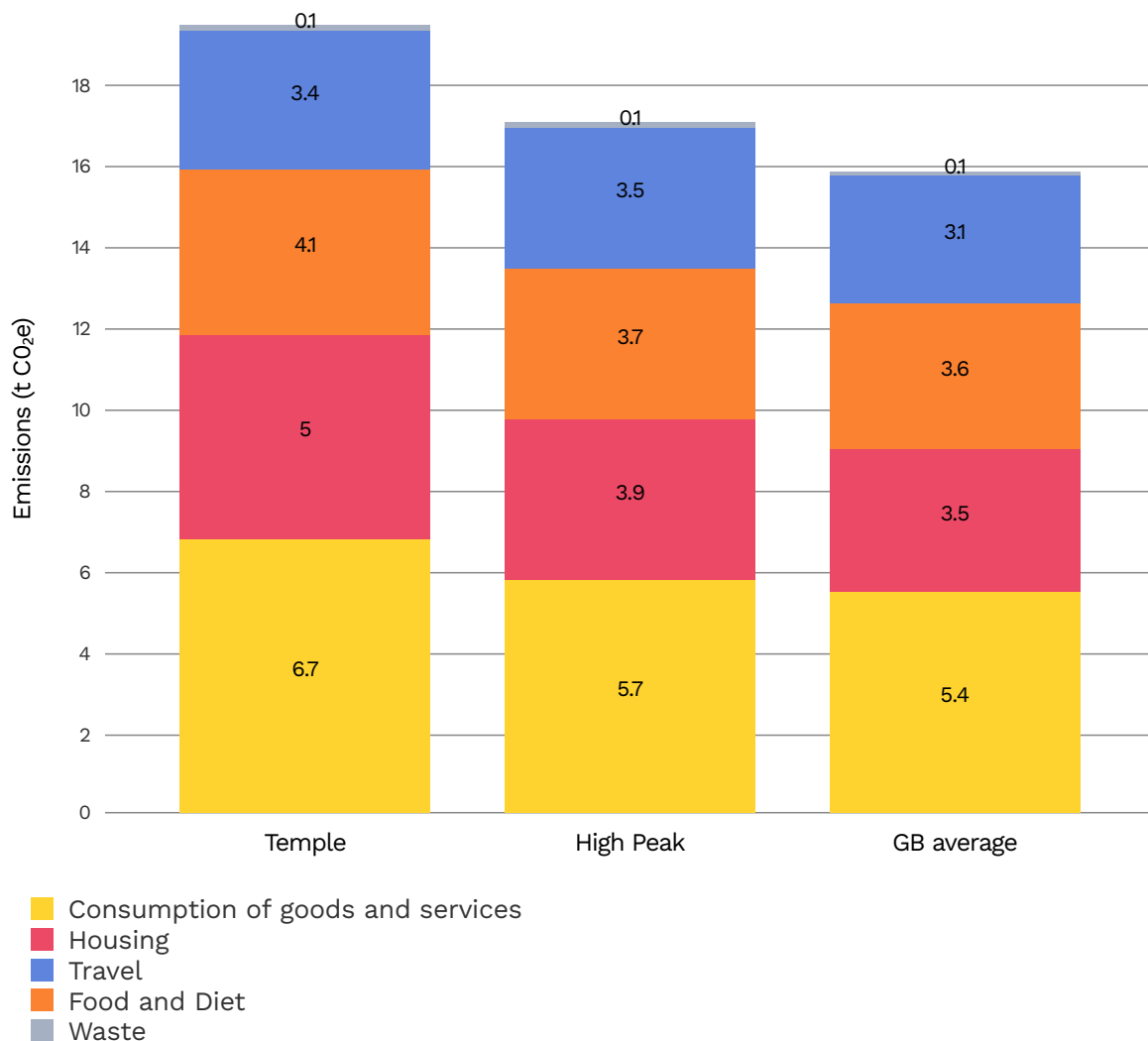## A breakdown of the numbers

The table below shows your area's consumption footprint – total estimated emissions and per-household averages – so that you can see a breakdown of the numbers.

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[2] CO_2e 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.

	Total emissions (t CO_2e)	Per-household emissions (t CO_2e)	%
Total emissions	**18,566**	19	100
Consumption of goods and services	6,462	6.7	35
Housing	4,821	5	26
Food and diet	3,888	4.1	21
Travel	3,275	3.4	18
Waste	120	0.1	1

How does your area compare?

Here is what the average consumption footprint for your area looks like per household, and how this compares with the district average and the national average. Note that these per household footprints are averages. Within a larger (e.g. local authority) area you may have neighbourhoods with very different per household consumption footprints and it will be worth looking at more granular data if you are planning area-specific initiatives or messaging.

Housing

Your community's residents' use of energy in their homes results in annual carbon emissions per household of 5 t CO_2e. This compares with 3.9 t CO_2e at the district level and 3.5 t CO_2e at the national level. In the average UK home, 64% of energy is used for space heating, 17% for heating water, 16% for lighting and appliances, and 3% for cooking[3]. As such a large proportion of household energy is used for heating, the type of heating system (i.e. is it low carbon?), and how well the home retains heat, are critical factors shaping the scale of a home's emissions. How well a home retains heat depends on anumber of factors, including: when and how it was built; how much insulation has been installed; how draughty the home is; the efficiency of the windows; and the behaviour of the residents.

Carbon footprints covering a large geographical area will encompass a range of smaller communities with different housing types and demographics. This will influence the types of activities which are most likely to be successful and have the greatest impact in terms of reducing emissions from housing.

Below are some trigger questions to help you to start to think about the implications of your community's household footprint information.

- How does your community's household energy use compare with the the district and national averages? What might the reasons be for the differences?

- What type of housing is there in your community? And what is the main heating fuel (oil, gas, electricity, etc.)?

- Is the housing easily retrofitted to improve how well it retains heat and install low carbon heating? Do you know if residents are doing this? Are there already initiatives to increase demand and encourage and support residents to take action?

³ Energy facts from: Energy consumption in the UK, BEIS (January 2021)

Transport

Change targets:

- Reduced private car travel and a comparable increase in active and public transport

- A complete shift to electric vehicles (and an end to petrol & diesel cars & vans)

- Massively reduced air travel, particularly among frequent flyers

Car use: Residents' car use results in annual carbon emissions per household of 1.5 t CO_2e. This compares with 1.8 t CO_2e at the district level and 1.6 t CO_2e at the national level.

Air travel: Residents' air travel results in annual carbon emissions per household of 1.5 t CO_2e. This compares with 1.2 t CO_2e at the district level and 1.1 t CO_2e at the national level.

Public transport: Residents' use of public transport results in annual carbon emissions per household of 0.4 t CO_2e. This compares with 0.5 t CO_2e at the district level and 0.5 t CO_2e at the national level.

Below are some trigger questions to help you to start to think about the implications of your community's transport footprint information.

- How do your community's car use-related emissions compare to public transport emissions? And how do these both compare with the district and national averages? What might the reasons be for the differences?

- Could existing or new community schemes help residents shift their transport behaviours to using public transport (if this is a choice) or more active travel options (e.g. electric bike hire or subsidised purchase schemes)? How could the impact of local initiatives be increased?

- Is there scope more strategically to influence provision of public transport (e.g. routes, frequency, fares, subsidies, low carbon fleets)?

- What is the provision of walking and cycling routes like? How accessible are local service centres and facilities to residents in different neighbourhoods? Is it possible for most households to access what they need without needing to use a car?

- What do you think are the key reasons for air travel in your community? Are there likely to be differences between residents of different neighbourhoods? It is worth noting that about 10% of England's population take more than half of all international flights – so trying to address 'frequent flying' is a good way to target any activities or communications campaign.

Food & diet

Change targets:

- Altered dietary patterns & reduced food waste

- Widely adopted agricultural practices that reduce emissions & increase soil carbon

Meat and fish: Residents' consumption of meat and fish results in annual carbon emissions per household of 2.2 t CO_2e. This compares with 2.1 t CO_2e at the district level and 2 t CO_2e at the national level.

Other food and drink items: Residents' consumption of other food and drink items results in annual carbon emissions per household of 1.9 t CO_2e. This compares with 1.7 t CO_2e at the district level and 1.6 t CO_2e at the national level.

So, where do the emissions from our food actually come from? Without understanding this it can be difficult to know what we can do to change the carbon footprint of what we eat and drink.

Research shows us that changing **what** we eat will have a greater impact on carbon emissions than changing **where** our food has travelled from – although, of course, eating locally-produced food brings multiple other benefits such as supporting local economies, having more control over mandating more ethical and environmentally-beneficial growing practices, and creating opportunities for people to better understand where the food they eat comes from and how it's grown or made.

Whilst the emissions from a food item can really vary depending on how it is grown or reared, it is clear that animal products, and most significantly beef and lamb, account for the largest proportion of food-related emissions. Explore the BBC's Climate Change Food Calculator to better understand how food and drink items compare: https://www.bbc.com/future/bespoke/follow-the-food/calculate-the-environmental-footprint-of-your-food.html[3].

Below are some trigger questions to help you to start to think about the implications of your community's food and diet footprint information.

- How do your community's food and diet-related emissions compare with the district and national averages?

- Could you establish or support a behavioural change campaign to encourage people to reduce the amount of meat and dairy they consume? (It is critical that any community-based activity or communications campaigns around dietary changes is sensitive to concerns about farmers' livelihoods and people's cultural and traditional links to meat-eating).

- The amount of food wasted 'post-farm-gate' in the UK is equivalent to 22% of food purchased. What initiatives could raise awareness about food waste and encourage unwanted food to be redistributed (e.g. through a 'community fridge')?

Goods & services

Change targets:

- Hugely altered consumption patterns, buying less and re-using/repairing more

- Decarbonised power generation

Goods & services: Residents' consumption of goods and use of services results in annual carbon emissions per household of 6.7 t CO_2e. This compares with 5.7 t CO_2e at the district level and 5.4 t CO_2e at the national level.

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Here are some trigger questions to help you to consider ways to reduce emissions attributable to goods and services:

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- Are there opportunities to: grow the second-hand market; enable residents to upcycle and repair household items; share larger/more expensive/rarely used items, such as power tools?

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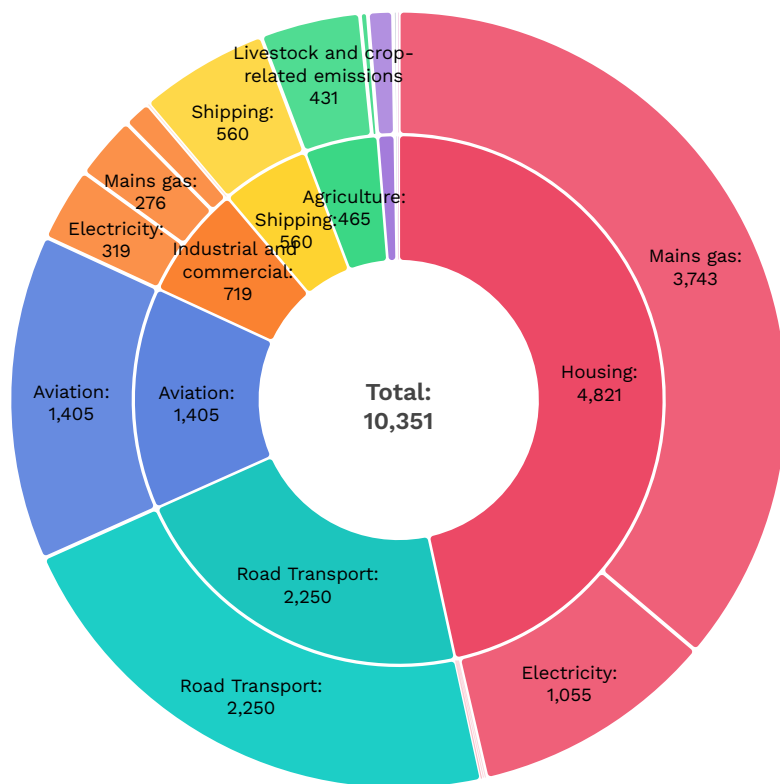
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Housing
Emissions from domestic energy consumption.

Aviation

Industrial and commercial
Emissions from industrial processes and energy consumption.

Shipping
Emissions from international shipping.

F-gases
Release of 'f-gases' into the atmosphere.

Waste management

Diesel fuelled railways

Other Transport

Agriculture
Emissions from livestock, crops and agricultural vehicles and machinery.

A breakdown of the numbers

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averages – so that you can see a breakdown of the numbers.

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Electricity	1,055	1.1	10
Biomass	10	< 0.1	< 1
Oil	8	< 0.1	< 1
Coal	4	< 0.1	< 1
LPG	0	< 0.1	< 1
Road Transport	2,250	2.3	22
Aviation	1,405	1.5	14
Industrial and commercial	719	0.8	7
Electricity	319	0.3	3
Mains gas	276	0.3	3
Other Fuels	120	0.1	1
Large industrial consumers	4	< 0.1	< 1
Shipping	560	0.6	5
Agriculture	465	0.5	4
Livestock and crop-related emissions	431	0.4	4
Fuel	34	< 0.1	< 1
F-gases	108	0.1	1
Waste management	19	< 0.1	< 1
Other Transport	6	< 0.1	< 1
Diesel fuelled railways	0	< 0.1	< 1

Below are some trigger questions to help you to start to think about the implications of your community's territorial footprint information.

- Are there particular sectors which account for a high proportion of the territorial emissions in your community?

- Based on your knowledge, are these sectors surprising or are they what you would expect?

- Who are the key stakeholders you would need to engage with to address the emissions from the highest emitting sectors?

- For example – for agricultural emissions can you engage with local land owners, or the NFU/other farmer groups to understand what is happening in your area to reduce emissions from agriculture? For industrial and commercial emissions, are there ways that businesses could be supported with reducing their emissions? For road transport what changes would be needed to improve public and active travel links?

4. Sources of information

There are lots of sources of support and information on how to reduce carbon footprints – too many to list here! Here is an introductory range of resources that we hope will help you take your next steps now that you know your carbon footprint. Most of these contain many other links relevant to the topic under discussion:

- Developing a climate emergency action plan for your community (.xlsx)

- Communicating climate change (pdf)

- Energy efficient buildings (pdf)

- Funding and grants for community responses to the climate emergency (pdf)

- Making your community EV ready (pdf)

- Planting trees, and better land management (pdf)

- Further resources and useful links compendium (pdf)

- The National Association for Local Councils has also produced a list of case studies of local councils doing work on the climate emergency (link)

- The National Farmers Union has recently published guidance on how local government can engage with the farming community on climate change (link)