centre for sustainable energy

Carbon footprint report

Easton & Lawrence Hill

Centre for Sustainable Energy, May 2021

Community Climate Action

COMMUNITY FUND

Contents

1. Your footprint report

Welcome to your community's carbon footprint report!

This report tells you about the scale of carbon emissions[1] resulting from your community's residents, and how different activities residents engage in are responsible for these emissions to varying degrees. There is an accompanying method report which tells you how the footprint was calculated and what the key data sources were.

It's a consumption-based footprint.

Because the footprint is based on residents' consumption activities, we call it a 'consumption-based' footprint rather than a 'territorial' footprint. A territorial footprint captures all the emissions that are generated within a particular area, including from industry, agriculture and transport. Comparatively, a consumption-based footprint captures all emissions caused by residents of an area, regardless of where geographically they occur.

It's organised by theme.

The report is organised around the following key consumption 'activities':

- Housing
- Transport
- Food & diet
- Goods & services
- Waste management

So, what next?

Having a picture of what your community carbon footprint looks like is a great starting point as it helps us understand the activities which result in carbon emissions. From here we can begin to think about the breadth of activities needed to reduce emissions, where to focus our attention, and explore which activities are possible at the community-level, and which require Bristol-wide, national, or even global commitment and action.

Collective action is necessary.

Whilst many of us can make changes to our daily living to reduce our carbon footprints – in small and big ways – working together at the community and even city-wide scale is where bigger change is possible. Our collective voice is also stronger when asking local and national government for the policy and

[1] Whilst the report details your community's *carbon* footprint, it is actually a footprint of carbon *and* other gases which impact the climate.

regulatory changes needed to enable us to reduce our emissions and improve our communities and quality of life.

The Bristol context.

It is clear that in order to halt catastrophic climate change, we need to cut our emissions to zero; reducing them isn't sufficient. Recognising and stepping up to this challenge, Bristol has committed to reducing its carbon emissions to 'net zero', and becoming climate resilient, by 2030. Net zero emissions (also referred to as carbon neutral) means that any carbon dioxide that is emitted needs to be balanced by the same amount of carbon dioxide being absorbed from the atmosphere (e.g. by trees). Bristol's One City Climate Strategy outlines how this 2030 goal can be achieved, and is a 'call to action' to all the stakeholders across the city needed to make this a reality.

In each section of your carbon footprint report we've outlined the relevant headline objectives from the One City Climate Strategy, which outlines where the city needs to be by 2030 if it is to be the carbon neutral and climate resilient city that it has committed to be. In each section we have included examples of community initiatives that could help reduce your community's emissions and make a critical contribution towards the city's 2030 vision.

The importance of nature.

Nature is critical to our mental and physical well-being; but it also plays a critical role in Bristol reducing its emissions and becoming a climate resilient city. Your carbon footprint report finishes with a section exploring this.

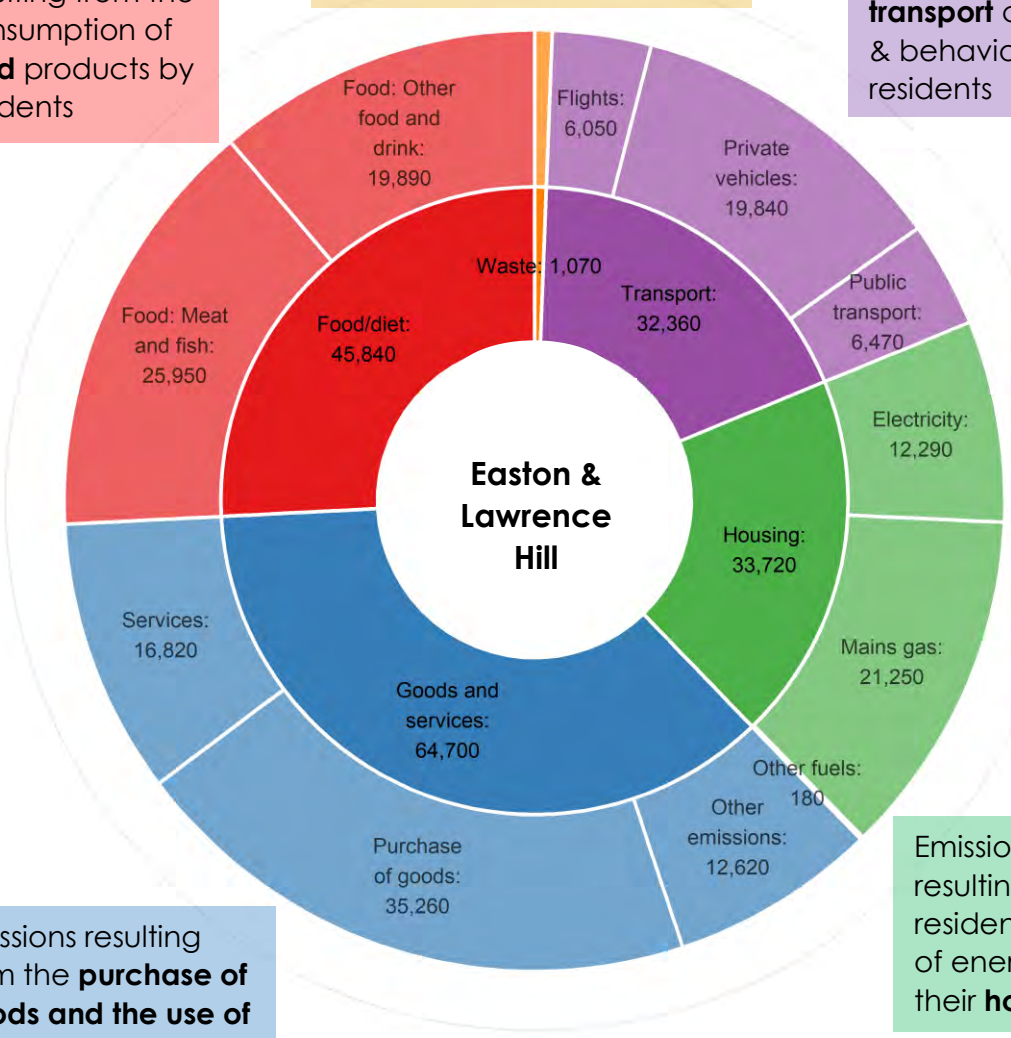
2. Overview: your community's carbon footprint

This figure shows the annual carbon emissions (measured in tonnes (1000kg)) resulting from the different activities that all of Easton and Lawrence Hill's residents engage in – from heating to eating.

Emissions resulting from the consumption of **food** products by residents

Emissions resulting from the management of **waste** generated by residents

Emissions resulting from the **transport** choices & behaviours of residents



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

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

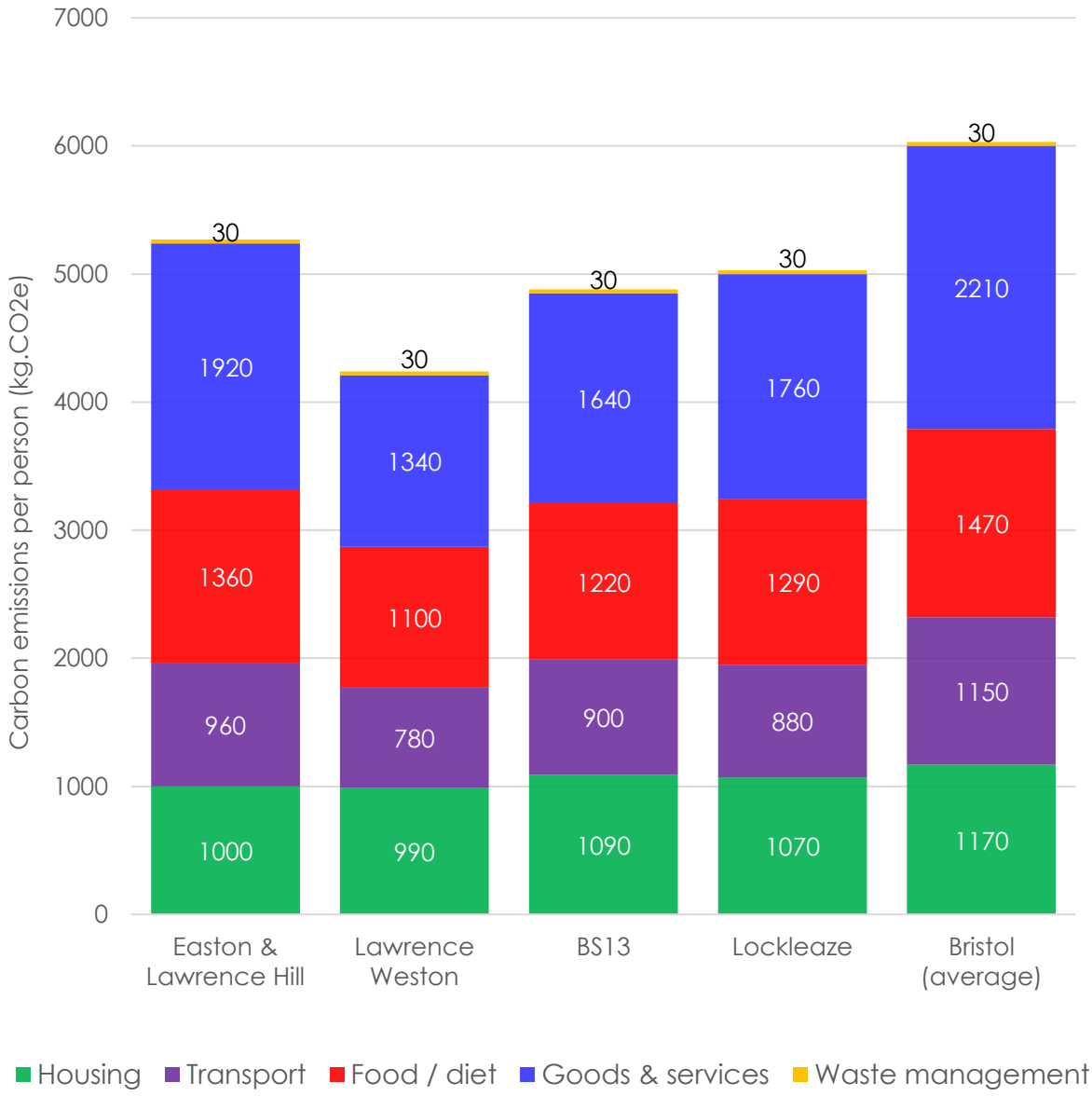
Goods – all household goods (not food), including homeware, toiletries, medicines, furnishings, electronic goods, appliances, & large items such as cars.

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.

Your community's carbon footprint per person

Here is what your community's footprint looks like per person ('per capita'), and how this compares with the other Community Climate Action communities and the Bristol average.



3. Housing

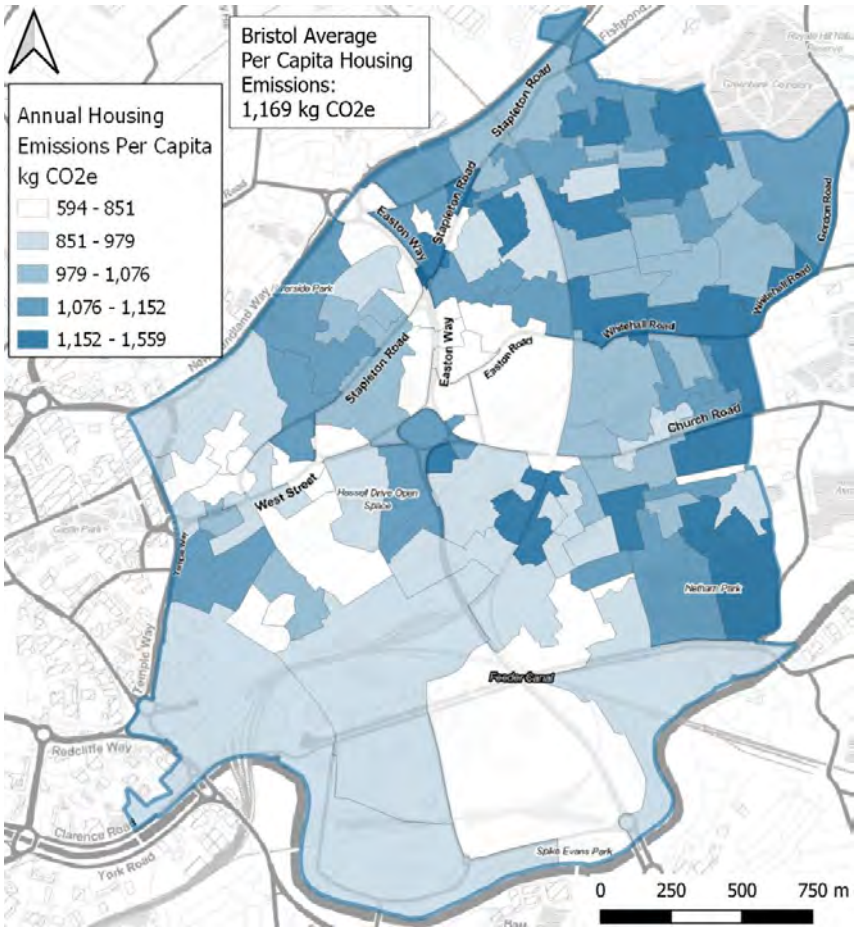
Easton and Lawrence Hill's whole carbon footprint shows us that **23% of residents' carbon emissions are from the use of energy in their homes**.

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[2]. As such a large proportion of energy is used for heating, the type of heating system (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: when and how it was built; how much insulation has been installed; how draughty the home is; and the efficiency of the windows.

This section explores how housing emissions and housing efficiency vary by neighbourhood and tenure across Easton and Lawrence Hill.

a. Housing emissions by neighbourhood

This map shows you how annual housing emissions per person vary by neighbourhood across Easton and Lawrence Hill.

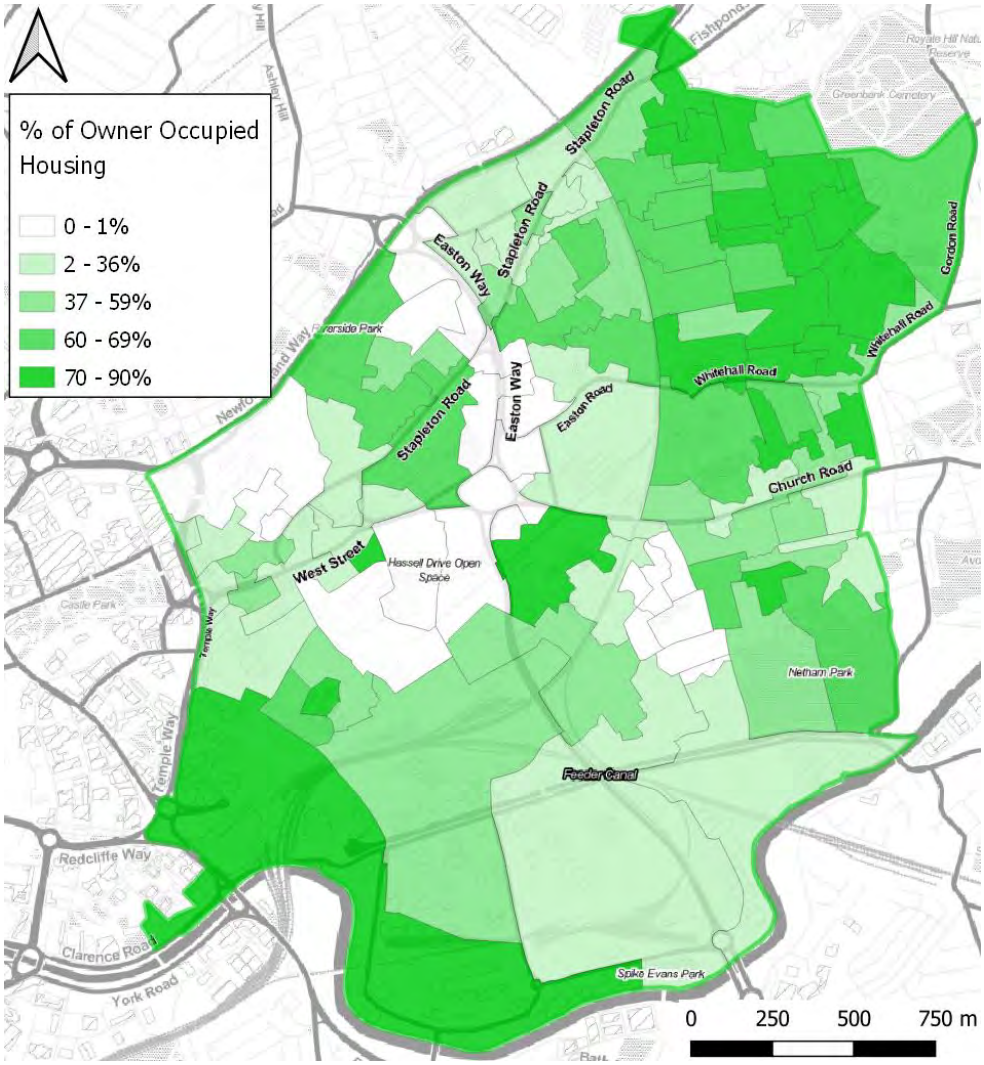


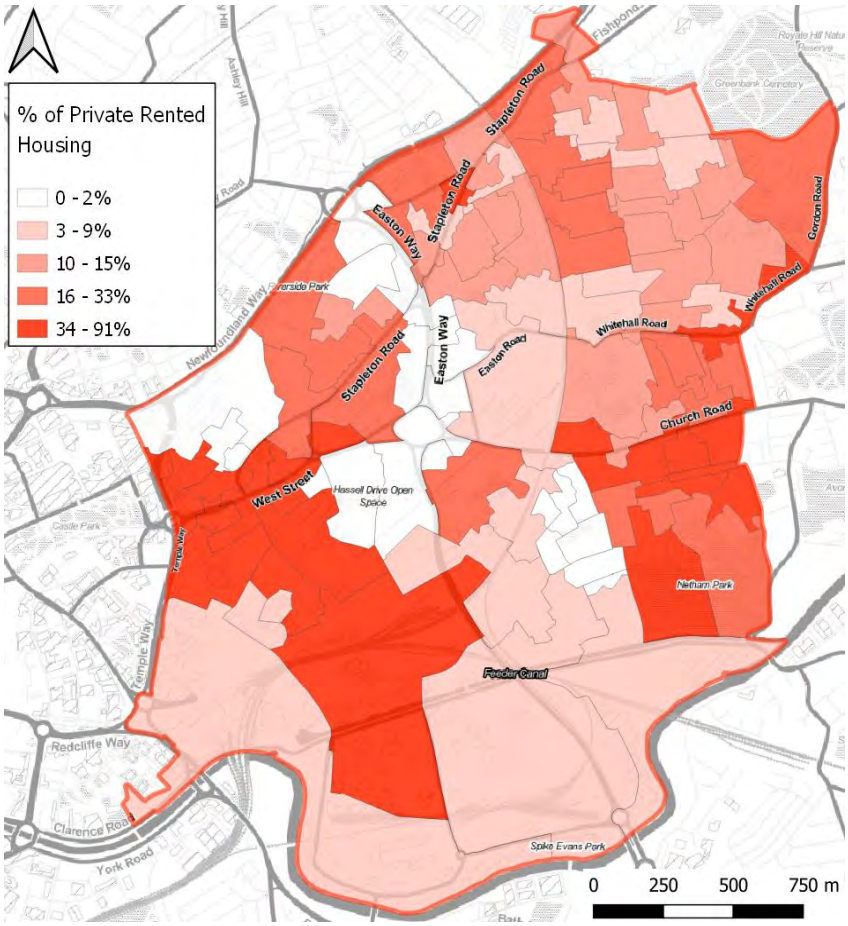
[2] Energy facts from: Energy consumption in the UK, BEIS (January 2021)

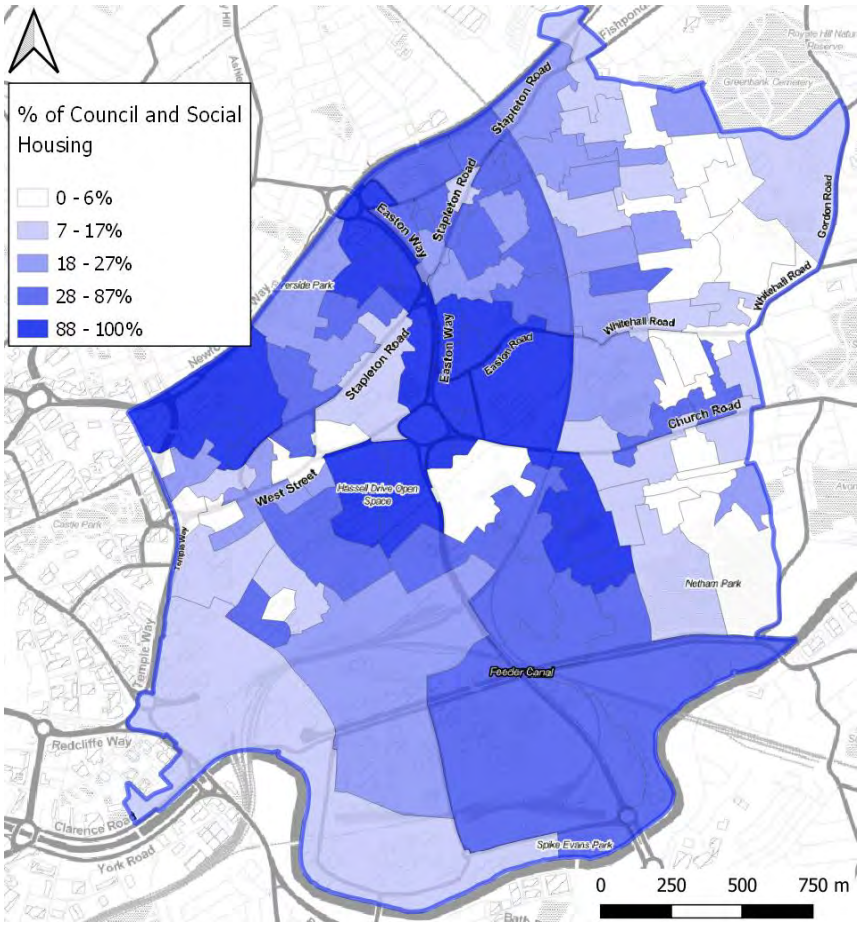
b. Housing emissions & tenure

This section explores how annual housing emissions vary depending on the tenure of the home. To provide context, the following table tells you how many homes of different tenure there are in Easton and Lawrence Hill, with the following maps then showing you the distribution of these tenures – 1) owner occupied homes, 2) private rented homes, and 3) council / social housing – by neighbourhood.

	No. of homes	No. of people
Owner occupied	6,084	14,108
Private rented	2,995	6,693
Social housing	5,447	12,932
Total	14,526	33,733




% of Private Rented Housing
0 - 2%
3 - 9%
10 - 15%
16 - 33%
34 - 91%
Stapleton Road
Easton Way
Gordon Road
Whitehall Road
Church Road
West Street
Hassell Drive Open Space
Netham Park
Feeder Canal
Spike Evans Park
Redcliffe Way
Clarence Road
York Road
Temple Way
0 250 500 750 m


% of Council and Social Housing
0 - 6%
7 - 17%
18 - 27%
28 - 87%
88 - 100%
Stapleton Road
Easton Way
Gordon Road
Whitehall Road
Church Road
West Street
Hassell Drive Open Space
Netham Park
Feeder Canal
Spike Evans Park
Redcliffe Way
Clarence Road
York Road
Temple Way
0 250 500 750 m

This table shows us how average annual housing emissions in Easton and Lawrence Hill vary depending on the tenure of the home.

	Average annual emissions ($kg.CO_{2e}$)	
	Per household	**Per person**
Owner occupied	2,595	1,119
Private rented	2,039	913
Social housing	2,171	914
Easton & Lawrence Hill average		1,000
Bristol average		1,169

c. Housing emissions & fuel type

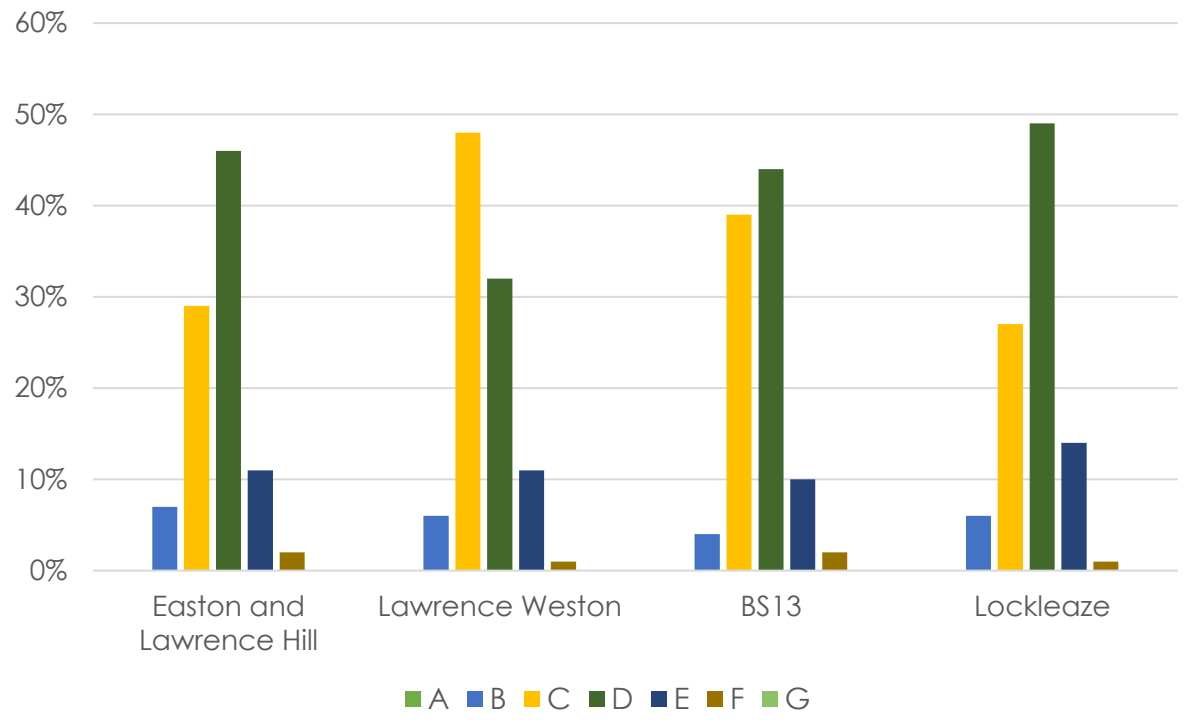
This table shows us the different fuels used in Easton and Lawrence Hill's homes (split by tenure), and what proportion of annual housing emissions are attributable to each fuel.

	Total emissions (1000 $kg.CO_{2e}$)						
	Mains gas	**Electricity**	**Oil**	**LPG**	**Biomass**	**Coal**	**Total**
Owner occupied	10,863	4,797	14.9	19.8	29.9	63.6	**15,789**
Private rented	3,385	2,709	0	1.3	5.4	7.3	**6,108**
Social housing	7,004	4,786	0	20.1	3.9	10.2	**11,824**
Total	21,252	12,293	14.9	41.3	39.2	81	**33,722**
% of emissions attributable to this fuel	*63%*	*36%*	*0%*	*0%*	*0%*	*0%*	

d. Housing efficiency – by tenure & neighbourhood

Many homes have an Energy Performance Certificate (EPC) which measures the energy efficiency of the property on a scale of A-G, with G being the least efficient and A the most efficient. When an EPC assessment is undertaken, it looks at the age and construction method of the property, how big it is, the heating system, and types and levels of insulation.

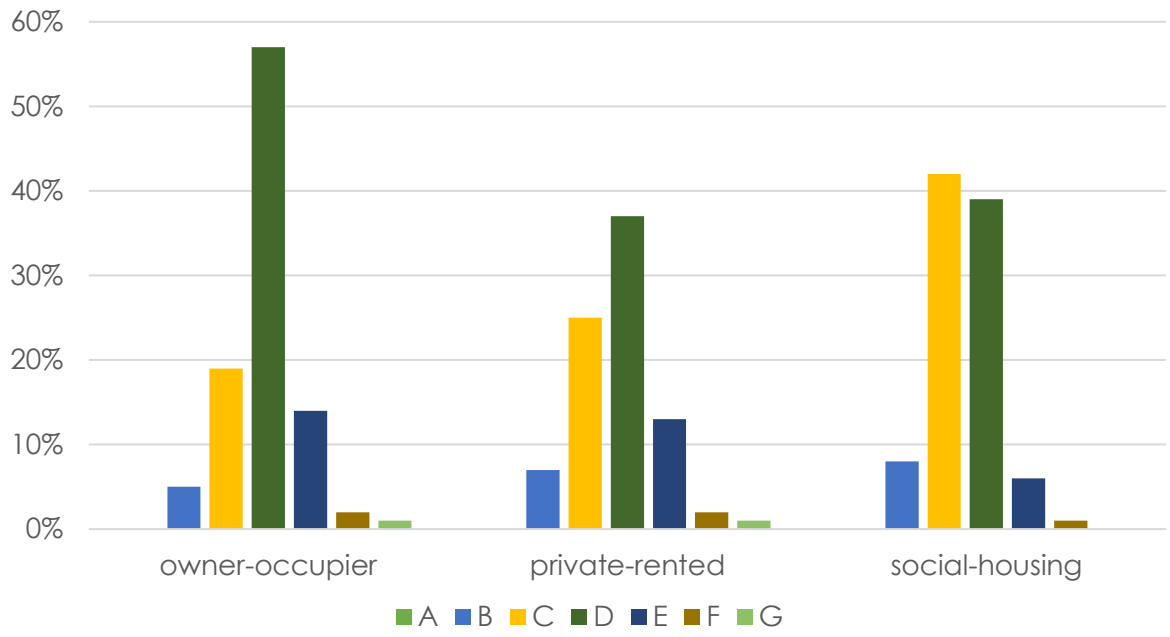
This graph compares the proportion of homes of each EPC rating across 4 of the Community Climate Action communities.



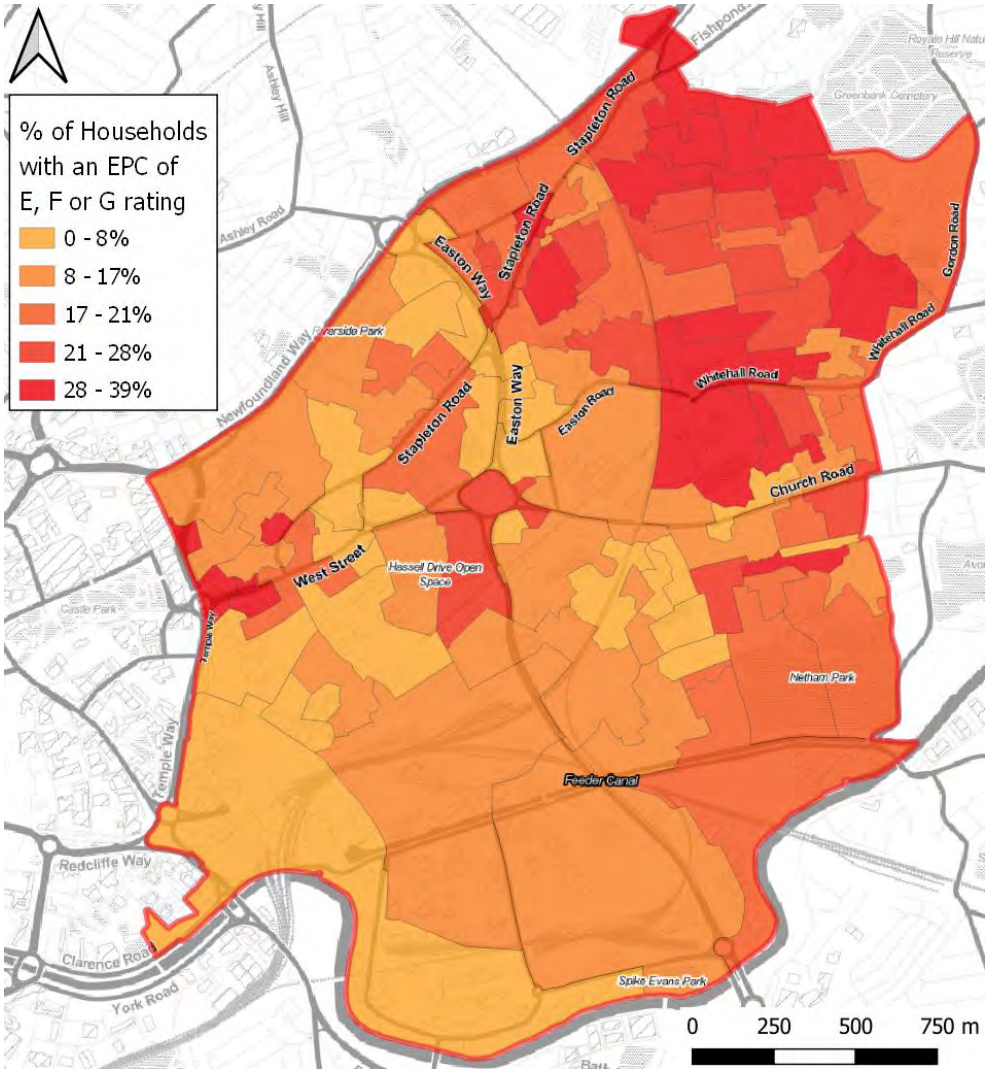
This table shows us in more detail how the efficiency of homes in Easton and Lawrence Hill varies by tenure.

EPC band	Owner occupied		Private rented		Social housing		Totals	
	%	No.	%	No.	%	No.	%	No.
A	0%	1	0%	1	0%	0	**0%**	**2**
B	5%	310	7%	212	8%	450	**7%**	**972**
C	19%	1,154	25%	747	42%	2,296	**29%**	**4,197**
D	57%	3,487	37%	1,105	39%	2,143	**46%**	**6,735**
E	14%	859	13%	397	6%	340	**11%**	**1,596**
F	2%	122	2%	51	1%	75	**2%**	**248**
G	1%	32	1%	22	0%	7	**0%**	**61**
Unknown	2%	119	15%	460	2%	136	**5%**	**715**

The following graph takes the percentages in the table above and shows us visually how the efficiency of homes (the EPC rating) in Easton and Lawrence Hill varies across the different tenures.



The following figure shows the distribution of housing with an Energy Performance Certificate (EPC) rating of E, F or G – i.e. the most inefficient.



e. Reducing housing emissions

Outlined below are the headline objectives from Bristol's One City Climate Strategy which are relevant to homes. They outline changes that are needed to the city's buildings by 2030 if Bristol is to be the carbon neutral and climate resilient city that it has committed to be.

Bristol's One City Climate Strategy: Objectives for buildings

1. New buildings are carbon neutral and climate resilient.
2. The energy performance of existing buildings is improved to minimise heat demand, whilst also preventing overheating.
3. Individual electric heat pumps are installed in ~95,000 buildings (which have been well insulated), and 65,000 buildings connected to heat networks, as part of the phase out of gas heating across Bristol.
4. Existing building stock is prepared and adapted for future climate hazards.
5. Renewable energy generation within the city will be maximised, including approximately 350MW of solar, and 'smart electricity' solutions will be widely adopted.
6. All new developments maximise tree and plant cover.

Below are some examples of community and Bristol-wide initiatives that could contribute to achieving these objectives, whilst simultaneously realising multiple co-benefits.

- Improve the energy efficiency of homes, community buildings & businesses (focussing on the least efficient), with low-cost through to high cost measures. Information on the EPC ratings of public and commercial buildings (which accompany these reports) can focus these activities. Access available funding for homes, such as ECO funding.
- Energy audits of businesses and community buildings to understand opportunities for improving their energy performance and install renewable energy technologies.
- Partnership project with social housing providers to futureproof social housing, including increasing energy efficiency, installing solar PV, and piloting the install of low carbon heating technologies.
- Project to engage private landlords in improving the energy performance of their properties.
- Green Open Homes events for householders to share experiences, ideas and learnings (existing resources and online platform: http://www.greenopenhomes.net/).
- Solar PV installation on community, leisure and commercial buildings.

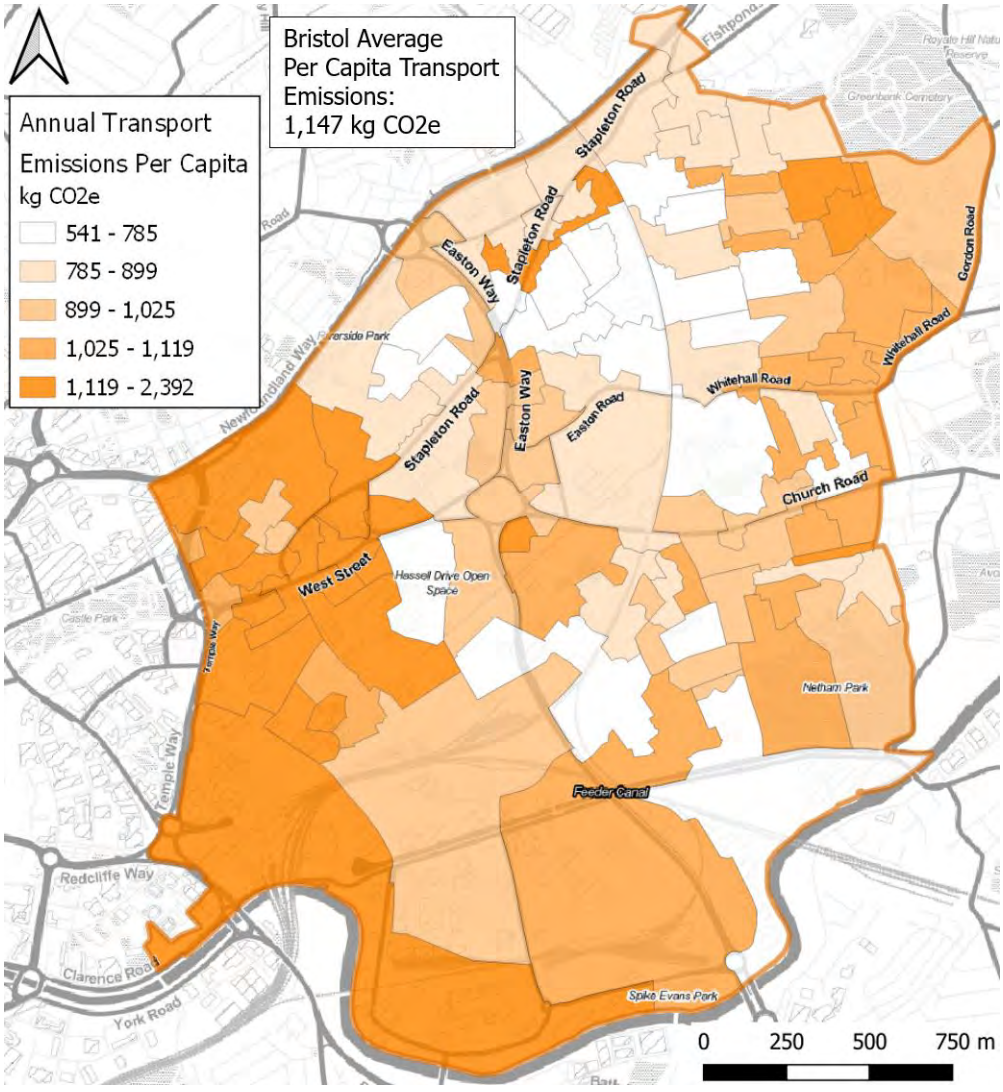
- Bulk buy solar PV schemes for homes, like Frome's Solar Streets, to increase the affordability of domestic solar PV.
- Workshops, events and regular advice sessions to increase energy literacy.
- Community energy champion project.

4. Transport

We can see from the community's whole carbon footprint that **18% of Easton and Lawrence Hill's residents' carbon emissions come from their transport use – with 11% being from car use, 4% public transport, and 3% air travel**. This section will give you more detail, looking at how transport emissions, car ownership levels and car commuting distances varies by neighbourhood.

a. Transport emissions per person

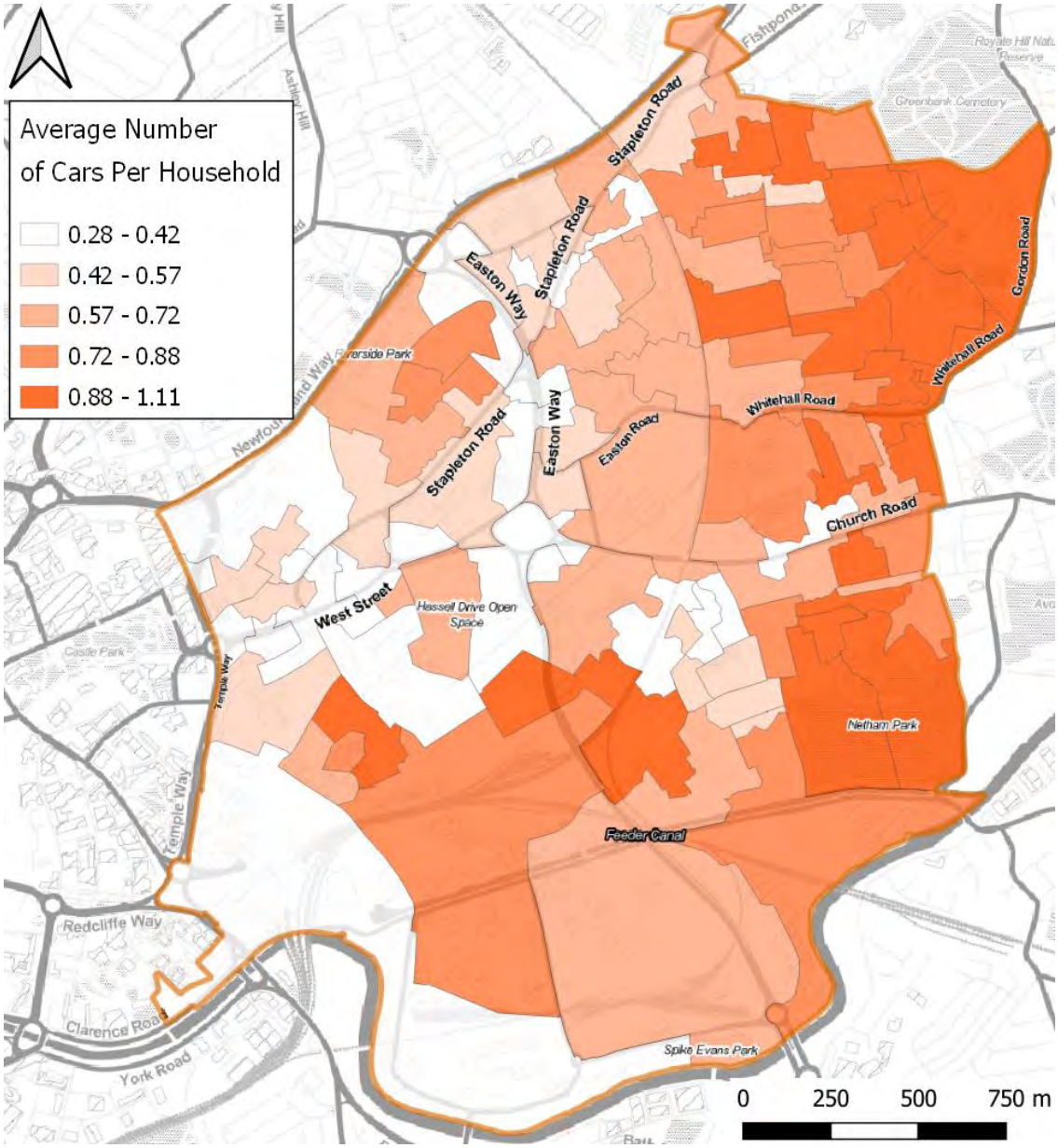
This map shows you how annual transport emissions per person vary by neighbourhood across Easton and Lawrence Hill.



	Average annual emissions ($kg.CO_{2e}$)
Easton & Lawrence Hill	960
Bristol	1,150

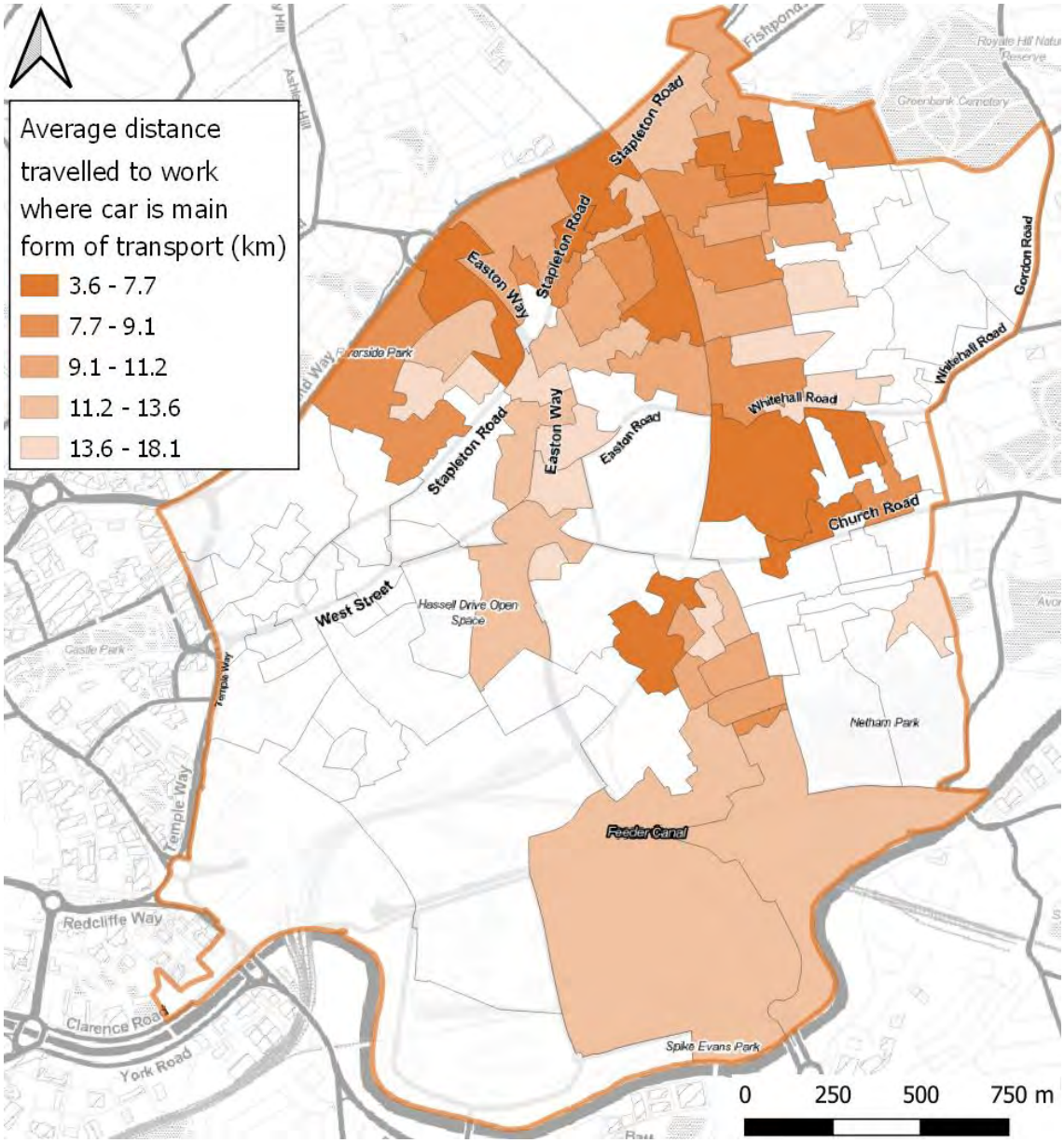
b. Average number of cars per household

This map shows you the average number of cars per household by neighbourhood.



c. Car commuting distance to work

This map shows you where the highest levels of short travel-to-work car journeys are, by neighbourhood.



f. Reducing transport emissions

Outlined below are the headline objectives from Bristol's One City Climate Strategy which are relevant to transport. They outline changes that are needed to the city's transport activities and wider system by 2030 if Bristol is to be the carbon neutral and climate resilient city that it has committed to be.

Bristol's One City Climate Strategy: Objectives for transport

1. Significant reduction in car use, with an increase in public transport use, walking and cycling; aiming for a total 40% reduction in total vehicle miles.
2. All Bristol's cars are ultra-low emission vehicles (ULEVs), with 90% of other vehicles being ULEVs.
3. Reduce emissions from all air travel.
4. Significant improvements made to accessibility, service & climate resilience of sustainable travel infrastructure.
5. All electricity supplied to and generated in Bristol will be carbon neutral (this will include ~ 350MW of solar installed within the city), and 'smart electricity' solutions will be widely adopted (decarbonisation of electricity is relevant for the increase in ULEVs, many of which will be electric).
6. Everyone lives and works within a 10 minute walk of a quality green space with good tree canopy cover.
7. Bristol's natural environment has been restored, preserved and enhanced to maximise climate resilience, and health and wellbeing.

Below are some examples of community and Bristol-wide initiatives that could contribute to achieving these objectives, whilst simultaneously realising multiple co-benefits.

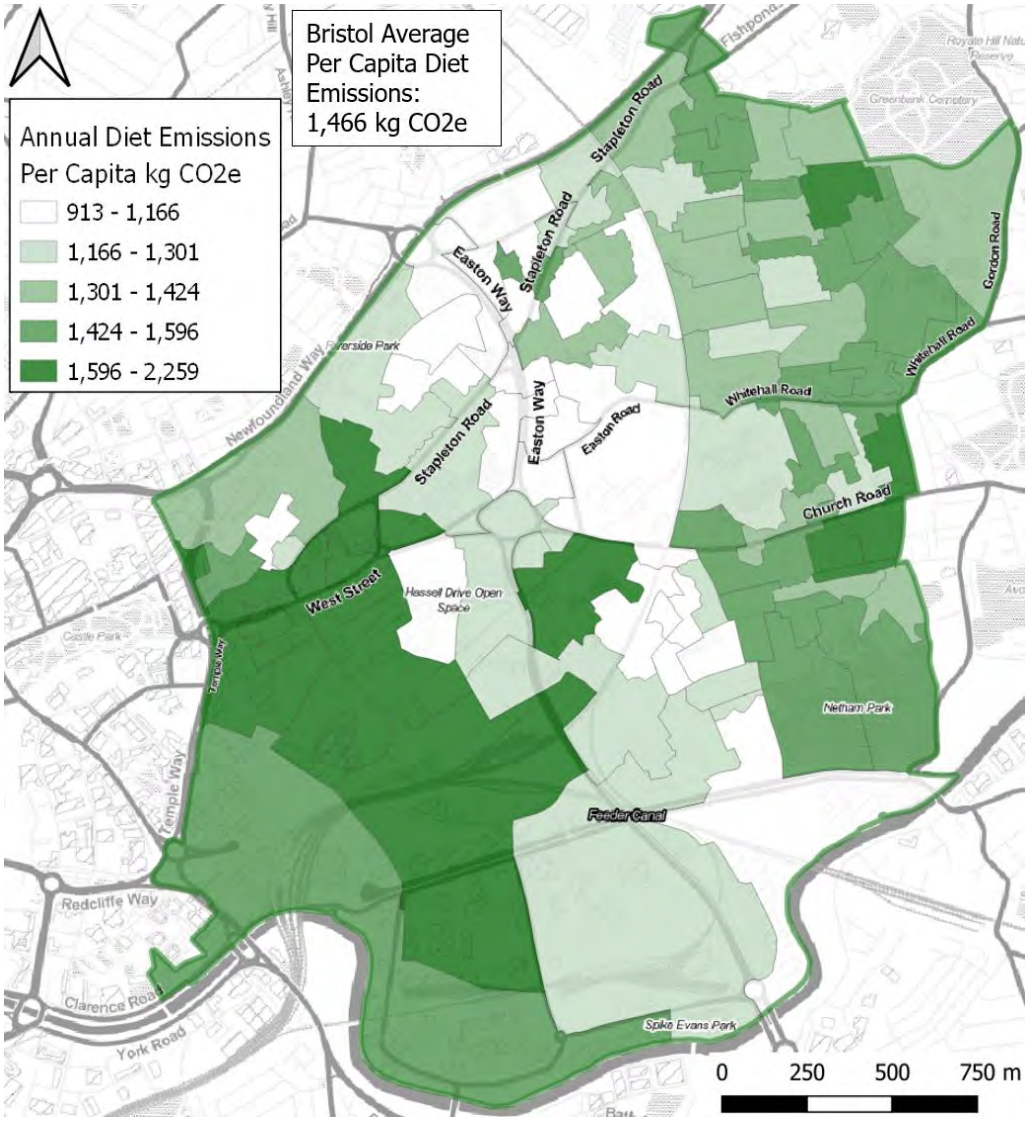
- Campaign to reduce short car journeys – learn from other initiatives, such as *Our Streets Chorlton*.
- Partnership with other Bristol communities to establish Bristol-wide car reduction campaign, such as '1 less car journey a week'.
- Community e-bike and cargo bike rental scheme for residents.
- Community programme to support residents with cycle confidence and safety.
- Map local pedestrian and cycle routes, with links to broader Bristol, and identify areas of improvement – explore opportunities to partner with Sustrans and other transport organisations to address these.
- Engage with local businesses to understand their transport behaviours and opportunities for reducing their transport carbon emissions
- Share stories of residents & businesses who have electric or hybrid vehicles.

5. Food & diet

We can see from the community's whole carbon footprint that **26% of Easton and Lawrence Hill's residents' carbon emissions come from the things they eat and drink – 15% is from eating meat and fish, with the remaining 11% from consuming other food and drink items**. This section will give you more detail, looking at how food & diet-related emissions vary by neighbourhood.

a. Food & diet emissions by neighbourhood

This map shows you how annual food/diet emissions per person vary by neighbourhood across Easton and Lawrence Hill.



	Average annual emissions (kg.CO_{2e})
Easton & Lawrence Hill	1,360
Bristol	1,470

b. Where do food-related emissions come from?

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 the greatest impact on carbon emissions, rather than necessarily where our food has travelled from – although, of course, eating locally-produced food brings other benefits such as supporting local farmers, 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 transport emissions are actually very small for most raw food products, many emissions come from land use change (e.g. forest being cut down and converted into arable farmland) and on-farm practices (e.g. emissions from fertilisers, machinery, and methane from cows). Also, the emissions from a food item can really vary depending on how it is grown or reared. But 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://tinyurl.com/y8cvstuh[3].

Of course, tragically, much of the food that we buy also ends up being wasted. The amount of food wasted 'post-farm-gate' in the UK is equivalent to 22% of food purchased – and 70% of all this food waste is from households. Whilst some of this is composted, about half of *edible* food that is wasted ends up in landfill or the sewage system[4].

c. Reducing food & diet-related emissions

Outlined below are the headline objectives from Bristol's One City Climate Strategy which are relevant to food. They outline changes that are needed to the city's food-related activities by 2030 if Bristol is to be the carbon neutral and climate resilient city that it has committed to be.

[3] For further information, you can also read this Our World in Data (Oxford University) study: https://ourworldindata.org/food-choice-vs-eating-local

[4] WRAP, 2020

Bristol's One City Climate Strategy: Objectives for food

1. Sustainable urban food production potential is maximised and used as a mechanism for active community participation and education in food sustainability.
2. Bristol's citizens will have a more plant-based diet, minimise food waste and support an increase the market for sustainable and carbon neutral food.
3. All businesses and organisations, and all public and VCSE service organisations, in Bristol are carbon neutral (direct and supply chain emissions).

Below are some examples of community and Bristol-wide initiatives that could contribute to achieving these objectives, whilst simultaneously realising multiple co-benefit.

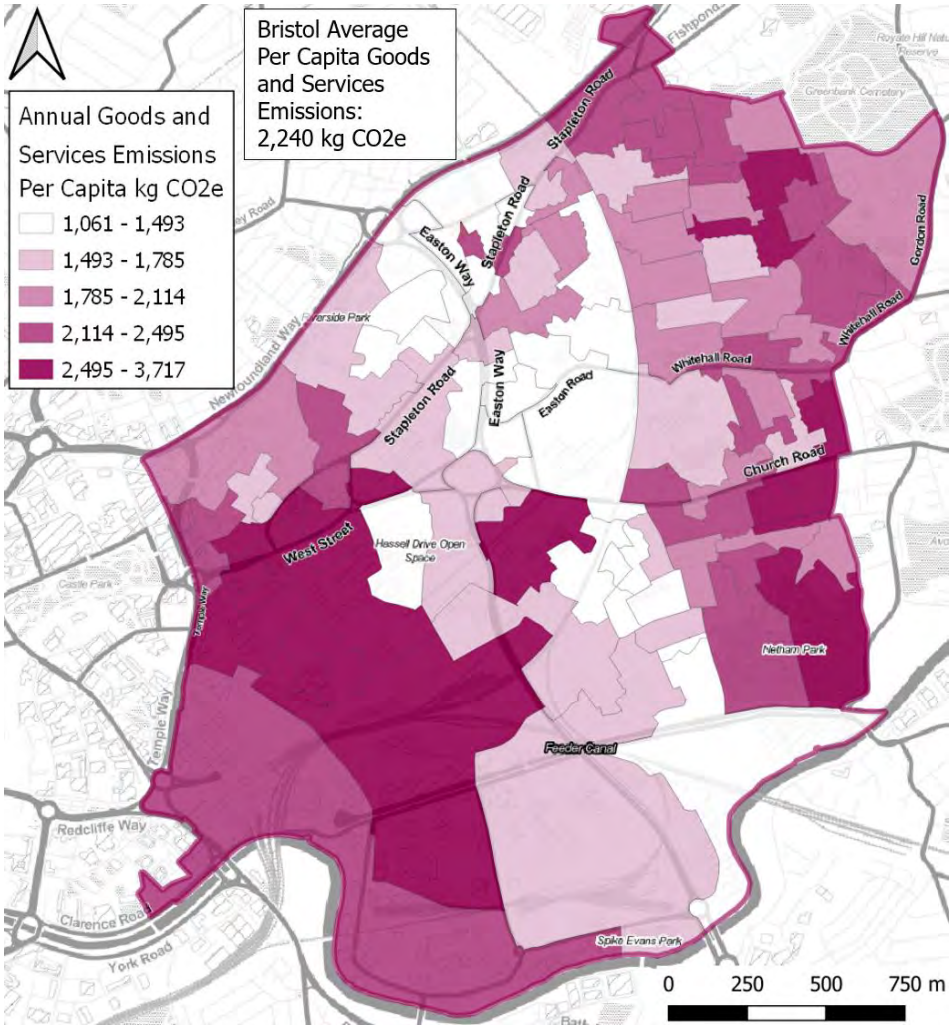
- Awareness raising campaign highlighting which foods have the highest carbon intensity – partner with other Bristol communities to make this Bristol-wide.
- Awareness raising campaign to reduce food waste, and increase composting of inedible food items.
- Cookery classes which explore ways to reduce food waste.
- Set up bulk buy schemes of quality food items to increase affordability.
- Set up vegetable box schemes to increase access to healthy and affordable fruit and vegetables.
- Establish (or support existing) community food growing projects to provide space to engage residents in learning about food growing and healthy, more sustainable eating.
- Encourage local and Bristol food businesses to commit to reducing carbon and waste associated with food and drink, such as the Courtauld Commitment 2025
- Set up a community fridge so surplus items can be easily redistributed (learn best practice from existing community fridges in Bristol).

6. Goods & services

We can see from the community's whole carbon footprint that **20% of Easton and Lawrence Hill's residents' carbon emissions are from the buying of goods, 9% from the use of services, and 7% from other consumption activities such as leisure and entertainment**. This section will give you more detail, looking at how goods and services-related emissions vary by neighbourhood.

a. Goods & services emissions by neighbourhood

This map shows you how annual goods and services-related emissions per person vary by neighbourhood across Easton and Lawrence Hill.



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 & repair of home, vehicles & other equipment, banking & insurance, medical services, treatments, education costs, communications (e.g. TV, internet, phone), & other fees & subscriptions.

Other – leisure, entertainment, sporting or social activities.

d. Where do emissions from goods we buy and services we use come from?

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 embedded in the goods they use (e.g. gym equipment, vehicle repair machinery).

b. Reducing goods and services-related emissions

Outlined below are the headline objectives from Bristol's One City Climate Strategy which are relevant to the buying of goods and the use of services in Bristol, outlining what changes are needed by 2030 if Bristol is to be the carbon neutral and climate resilient city that it has committed to be.

Bristol's One City Climate Strategy: Objectives for goods & services

1. Bristol's retail economy has transitioned to high quality, durable products that can be easily repaired.
2. Everyone follows principles of responsible consumption, using and buying less and buying carbon neutral goods and services.
3. All businesses and organisations, and all public and VCSE service organisations, in Bristol are carbon neutral (direct and supply chain emissions).
4. Renewable energy generation within the city will be maximised, including approximately 350MW of solar, and 'smart electricity' solutions will be widely adopted.
5. The energy performance of existing buildings is improved to minimise heat demand, whilst also preventing overheating.

Below are some examples of community and Bristol-wide initiatives that could contribute to achieving these objectives, whilst simultaneously realising multiple co-benefits.

- Set up a regular repair café, learning from existing ones in Bristol. This could include opportunities for residents to upskill so they can upcycle, make and repair items.
- Create a community re-use and repair guide.
- Grow the local second hand market through increasing opportunities to regularly swap and sell second-hand items.
- Set up streetbanks / library of things – enabling neighbours to share household items such as power tools, sewing machines, lawn mowers.
- Encourage local businesses to reduce their carbon emissions, signposting them to schemes which will help them, such as the Climate Action Programme, and inspire them, such as the Bristol Green Capital Partnership's Climate Leaders Group.
- Encourage businesses to switch to a green energy provider, such as Ecotricity or Good Energy.

7. Waste

We can see from the community's whole carbon footprint that **1% of Easton and Lawrence Hill's residents' carbon emissions are from the management of the waste that they generate** (a lack of more detailed data on waste and recycling streams below local authority level has meant that emissions associated with waste have been distributed out evenly across the population).

Bristol's recycling rate is actually the highest across all of the English core cities, with 47% of waste being recycled (the national average is 45%). The city has also experienced a reduction in 'landfill' waste, which means we are creating less waste as a city[5].

But it is important to remember that the emissions from the *management* of waste represent a fraction of the emissions associated with every item that ends up in our bins or recycling boxes.

a. Reducing waste-related emissions

Outlined below are the headline objectives from Bristol's One City Climate Strategy which are relevant to the generation and management of waste. They outline changes that are needed to how the city generates and manages waste by 2030 if Bristol is to be the carbon neutral and climate resilient city that it has committed to be.

Bristol's One City Climate Strategy: Objectives for waste

1. Bristol will generate no carbon emissions from waste management.
2. Significant levels of waste reduction (particularly for food, textiles, and plastic).
3. At least 65% of all 'waste' is repaired, recycled or re-used.
4. All businesses and organisations, and all public and VCSE service organisations, in Bristol are carbon neutral (direct and supply chain emissions).

[5] Bristol Waste Company, 2020

Below are some examples of community and Bristol-wide initiatives that could contribute to achieving these objectives, whilst simultaneously realising multiple co-benefits.

- Awareness raising campaign to reduce waste going to landfill and increase recycling. This could include research to better understand the key barriers to recycling.
- Street-level project, with household-specific targets to reduce the weight of black bin waste.
- Awareness raising campaign to reduce food waste, and increase composting of inedible food items.
- Street-level project copying War on Plastic, to reveal to households the scale of plastic waste.
- Set up a regular repair café, learning from existing ones in Bristol. This could include opportunities for residents to upskill so they can upcycle, make and repair items.
- Create a community re-use and repair guide.

8. The role of nature

The natural environment is critical to our well-being and the climate resilience of our city – cleaning the air we breathe, improving our mental and physical health, reducing the risk of flooding and extreme temperatures (the two major climate change risks facing Bristol in the coming years), and acting as a carbon 'sink' (absorbing carbon from the atmosphere). Whilst nature is so important it is also collapsing at an alarming and unprecedented rate.

Outlined below are the headline objectives from Bristol's One City Climate Strategy which are relevant to the natural environment.

Bristol's One City Climate Strategy: Objectives for the natural environment

1. All new developments maximise tree and plant cover.
2. The city's natural environment has been restored, preserved and enhanced to maximise carbon sequestration (absorption), climate resilience and health and wellbeing.
3. Everyone lives and works within a 10-minute walk of a quality green space with sufficient tree canopy to provide refuge for citizens during climate change-induced extreme heat conditions.
4. Bristol businesses and organisations are wildlife friendly, providing habitats, bird boxes, and sponsoring the development of green spaces.

Here are some examples of community-level initiatives that could contribute to achieving these objectives:

- Map the community's green spaces and highlight opportunities to create green corridors to link these spaces and create a more connected ecological network.
- Explore opportunities to increase tree cover in your community – this could be through on-street planting, planting trees in existing green spaces, and encouraging larger land owners/managers to increase tree cover on their land.
- Map access to green space (e.g. using Friends of the Earth's 'Green Space Rating' tool), highlighting parts of the community with high levels of green space deprivation. Use this information to campaign to the council to improve green space provision.
- Awareness raising campaign stressing the benefit of garden space and the negative impacts of covering front and/or back gardens in hard-standing.

WORKING TOGETHER

ACH

Ambition Lawrence Weston

Bristol Disability Equality Forum

EASTSIDE COMMUNITY TRUST

Heart of BS13

Lockleaze Neighbourhood Trust

IN PARTNERSHIP WITH

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