

BUCKINGHAMSHIRE: *Uncovered*

Air Quality and the Environment

Shining a spotlight on our county of contrast





It is important to consider the quality of the air we breathe.
Poor air quality can:

- reduce life expectancy of residents and damage their quality of life
- exacerbate health conditions from before birth to older life stages
- degrade biodiversity and destroy habitats for wildlife across the county.

The people who live and work in Buckinghamshire do not have an equal experience of air quality.

For example, on a typical day at peak rush hours, Aylesbury measures at over 1,995 tonnes of carbon per 1km², whereas Princes Risborough, and surrounding areas, are within a range of 32-100 tonnes of carbon per 1km².

The good news is that if we act collectively, we can tackle these challenges, improve our air quality and support the health and wellbeing of our communities.

Introduction

The environment plays a significant role in our lives and has a direct impact on other important areas such as public health. The quality of air is an integral part of our wider environment and ecosystems, as well as affecting our own personal wellbeing. Air pollution knows no geographical boundaries, and Buckinghamshire is no exception to this.

We understand there are complexities related to air quality including pollutants, their sources, and the impact they have on local residents. This report seeks to shed light on factors that affect the composition of Buckinghamshire's air quality, explore the disparities between the urban and rural spaces and factors affecting local approaches to improving air quality. We hope that this information will better inform appropriate and effective action to address air quality challenges faced by Buckinghamshire communities. Heart of Bucks will continue to work towards ensuring Buckinghamshire thrives as a place of natural beauty with clean and breathable air for future generations.



Photo: Flora SK

Insight

Total carbon emissions for Buckinghamshire, as of 2018, stands at 2,832 kilotonnes which is less than the nearby county of Cambridgeshire (4,523 kilotonnes) but more than our neighbouring county of Bedfordshire (2,420 kilotonnes). The data for per person carbon emissions shows Buckinghamshire as equal to the UK average at 5.2 tonnes. However, we know that there are differences beneath the surface which are not equal to the county or national average. These differences are uncovered further when we look at the National Atmospheric Emissions Inventory (NAEI) interactive map (see page 7). There are numerous factors which can influence total and per person carbon emissions too, such as rural or urban environments and the population of an area.

Transportation related emissions account for 51% of emissions in Buckinghamshire, which includes motorways, rail and all other roads. Although motorways account for just 1.8% of the total roads in Buckinghamshire, it produces 45% of transport emissions and 23% of total emissions. As a result, there are nine Air Quality Monitoring Areas declared, of which the majority are main roads and motorways.



91.2% of respondents to an engagement survey reported that they were concerned about air quality and 69% stated that they are more concerned about it than they were two years ago.

Buckinghamshire Council
Air Quality and Climate Change Strategy, 2021

Carbon Emissions, 2018

Emission Source	Total Carbon Emissions (Kilotonnes CO₂)	Percentage of Carbon Emissions	Per Person (Tonnes of CO₂/person)
Global	36.5m	100%	4.8
UK	366,000	~1% of global emissions	5.2
Buckinghamshire	2,832	0.8% of the UK	5.2
Hertfordshire	5,877	1.6% of the UK	5.0
Cambridgeshire	4,523	1.2% of the UK	6.9

Buckinghamshire Carbon Emissions, 2018

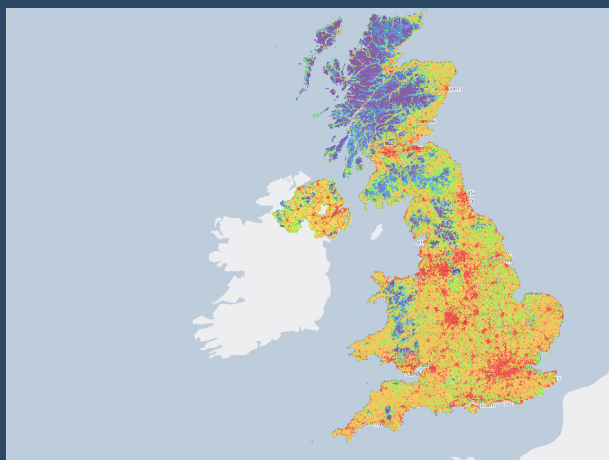
Source	Annual Carbon Emissions (Kilotonnes CO₂)	Percentage of Carbon Emissions
Business and Agriculture	578	20%
Domestic: Gas	575	20%
Domestic: Electricity	231	8%
Domestic: Other fuels	95	3%
Transport: Motorway	657	23%
Transport: All other roads	746	26%
Transport: Rail and others	48.5	2%
Land use, land-use change and forestry	-99	-3%

The 'National Atmospheric Emissions Inventory' (NAEI)

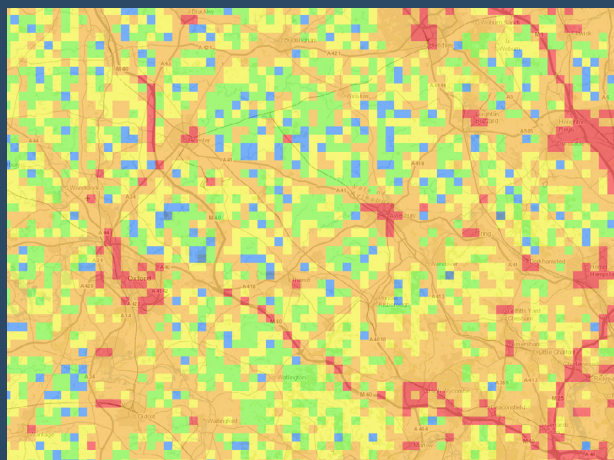
The NAEI provides hyperlocal level data showing quantities of pollutants, such as carbon dioxide, that we can compare between urban and rural areas, to show the spatial disparity in air quality. For example, on a typical day at peak rush hours, parts of Aylesbury measures at over 1,995 tonnes of carbon per 1km², whereas Princes Risborough and surrounding rural areas, are within a range of 32-100 tonnes of carbon per 1km². These variances can be affected by time of day and whether there are main transport links through that location.

The NAEI estimates annual pollutant emissions from 1970 to the most current publication year for most pollutants. To deliver these estimates, the NAEI team collect and analyse information from a wide range of sources – from national energy statistics through to data collected from individual industrial plants.

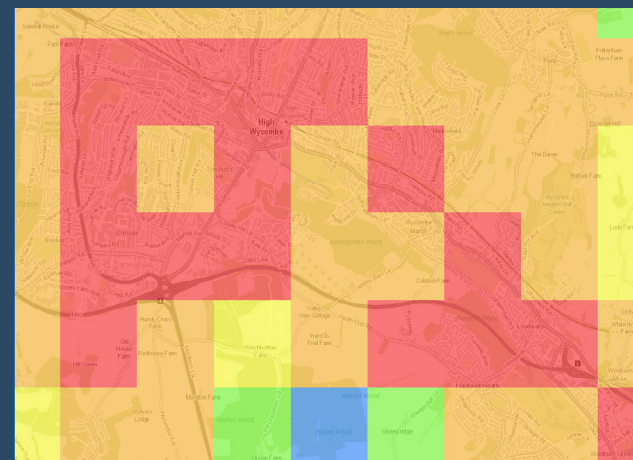
Images from naei.beis.gov.uk/emissionsapp



National data (UK)



Local data (Bucks)



Hyper-local data (High Wycombe)

Local communities have different needs that determine their capacity to create change, which must be accounted for when it comes to tackling air quality. A collective effort is needed to improve understanding of:

- what contributes to air pollution and poor air quality
- the impacts, both environmental and physical
- the differences in cause and effect for Buckinghamshire's rural and urban areas.

Efforts should be focused on being both inclusive and appropriate so that residents can have agency over their actions. This effort must consider levels of deprivation, geography (urban/rural) and consider that people will be affected by poor air quality differently, due to health conditions and vulnerability. For example, a higher air quality index rating (1-10) will exacerbate symptoms and pose health risks for individuals with asthma and heart conditions, and children with lung problems.

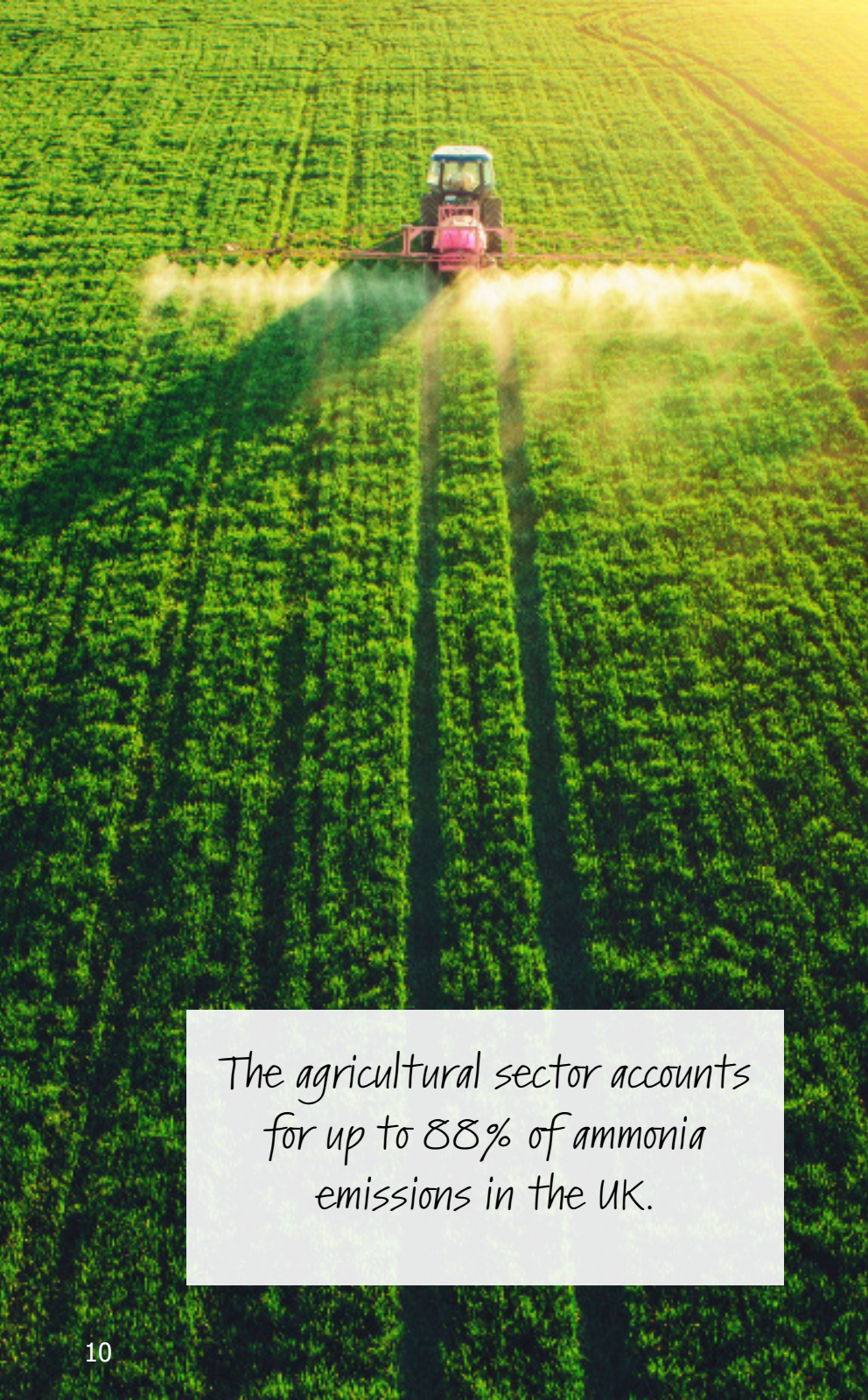


Urban Issues: Making a Difference in Built-Up Areas

Various studies have shown that planting in urban areas can trap pollution caused by traffic. This is particularly important around busy roads. The NAEI data shows that many pollutants are concentrated around busier roads. It is suggested that using this data to identify local pollution 'hot-spots', and planting trees appropriately, would trap more particles and improve air quality. A number of busy roads in urban areas in Bucks are subject to particularly high levels of traffic pollution.

Other simple infrastructure measures, such as having minimum distances between children's play areas and busy roads, would ensure that children are breathing cleaner air when they are outside. This is particularly important in larger settlements, where the quality of air is likely to be worse due to higher levels of traffic, especially at busier times on the roads.





Rural Issues : Making a difference through farming and agriculture

“The agricultural sector accounts for up to 88% of ammonia emissions in the UK and the variance of pollutant sources within Buckinghamshire, due to its landscape, heightens the chances of sources reacting within the air to become highly concentrated, secondary particulate matter.”

Ammonia emissions have a significant impact on the environment, air quality and our health. We must work towards supporting farmers in Buckinghamshire to minimise the damaging effects of nitrogen pollution, ensuring farming businesses can still thrive and work in harmony with the environment.

The agricultural sector accounts for up to 88% of ammonia emissions in the UK.

For example, *“Natural England teams are already, through the Catchment Sensitive Farming programme, working on the ground providing essential advice and guidance to farmers to tackle pollution to water, land and the air.”*

Poor Air Quality Contributors

We often think of air pollution as being an issue caused solely by transport and burning fossil fuels. Although these are contributing factors, we need to acknowledge and tackle other sources of air pollutants that can damage our health and our environment.



Impacts of Poor Air Quality

According to the Environment Agency, air quality is the largest environmental risk to health in the UK. It is important to note that our health can be affected by exposure to bouts of short term, high density pollution and longer term exposures with lower levels of pollution.



The Bigger Picture

Identifying the key aspects influencing local environmental strategy



Infrastructure Challenges

Since 2019 plans for the expansion of Luton airport have been under review. The scale and size of the project means it has been recognised as a *Nationally Significant Infrastructure Project*.

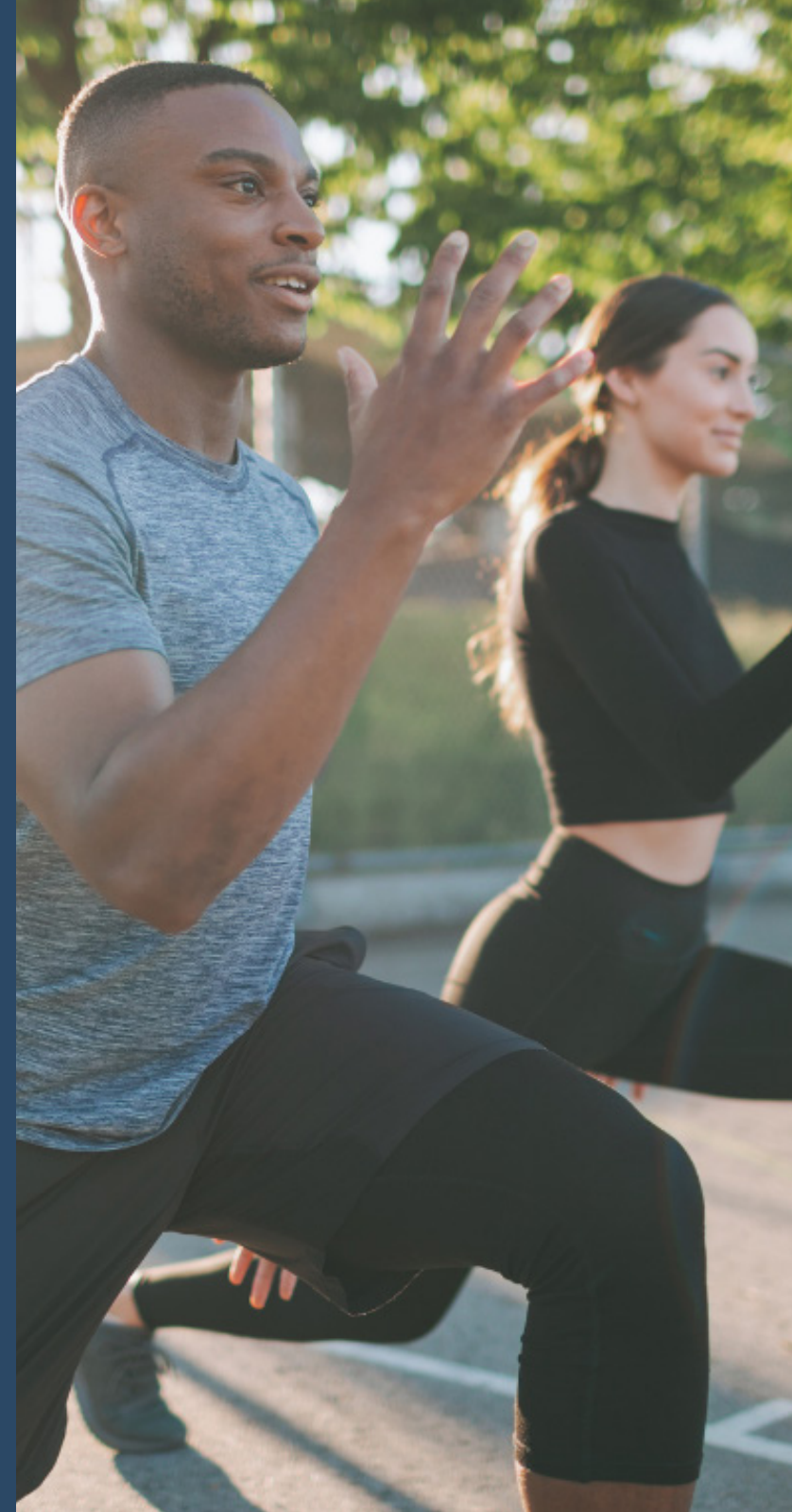
Despite economic benefits and increased employment opportunities, the increase in travel to Luton airport through Buckinghamshire will have a negative impact on air quality, specifically across the Chilterns and Areas of Outstanding Natural Beauty.

Chiltern Conservation Board have objected to the expansion plans due to environmental disturbances such as: negative impacts from air pollution on habitats and biodiversity, reduced air quality from a rise in traffic and travel to the airport through Buckinghamshire and cumulative effects on the peace and tranquillity of the Chilterns.

Health Communication

Health communication is the effective dissemination of information that is designed to 'influence and empower individuals, populations and communities to make healthier choices'.

In order to successfully engage residents to participate in local action, it is vital that information is communicated effectively. This includes education on both the impact of air quality, and how to take effective and appropriate action. This information must be accessible to the communities for which it is intended, if strategy and decision-making is to be inclusive of vulnerable groups within society. For example, individuals may lack digital skills or access to online information. Buckinghamshire is a very diverse county that has large rural communities and pockets of deprivation.





Leading From The Top

The United Nations has 17 Sustainable Development Goals (SDGs), four of which refer to air quality – good health and wellbeing, sustainable cities and communities, responsible consumption and production and climate action.

However, it is not clear that air quality is a priority as there is not an SDG focused on improving it. To ensure action is taken to reduce the impacts of poor air quality, it will need to be considered with more importance by those at the very top.

Although the SDGs may not specifically mention air quality, Buckinghamshire Council have taken steps in the right direction and are making an impact locally in highlighting air quality as an important issue.



Buckinghamshire Council recognise that, although there is no legislative requirement for local authorities to reduce their carbon emissions, they still have an important role to play in improving air quality for residents' health and wellbeing.

The Buckinghamshire Climate Change and Air Quality Strategy 2019 specifically addresses the challenges Buckinghamshire faces, how we can adapt, and what improvements have been made so far. Additionally, the 'Clean Up Our Air' campaign, led by Buckinghamshire Council, is an example of a local response to the national 'Clean Air Day' campaign.

Although there are great initiatives in place, we recognise there is still more that could be done in partnership, from the grassroots to the global, to improve air quality.

Funding and Philanthropy

When it comes to national grant funding, the environment receives considerably less in comparison to its thematic counterparts such as health and wellbeing. This trend is replicated at a local level at Heart of Bucks.

Only 6% of our total funding distribution was awarded to environmental projects in 2022/23. This ranks fifth out of the six Heart of Bucks funding categories. This low distribution is due to the fact that we do not receive many applications from groups and charities operating in this space, rather than a lack of desire to fund environmental projects.

However, as a Community Foundation, we recognise that there is more we can do to encourage local funders to work collaboratively and raise awareness of the grants available so we can direct more funding into the local Buckinghamshire environment.



“It is fair to say that the £313 million in foundation and lottery funding for environmental work in the latest year pales in comparison to the scale of the environmental crises we’re facing”

“Although environmental funding as a proportion of total UK foundation giving remained relatively low at 5.8%, the strong upward trend in giving levels is extremely encouraging and yet another sign that public concern is on the rise.”

The Environmental Funders Network

Community Foundation Best Practice:

Heart of England Community Foundation – Breathe Better Air Community Fund

We want to acknowledge best practice in environmental funding through community foundations to show what could be possible in Buckinghamshire.

The 'Breathe Better Air Community Fund' from Heart of England Community Foundation, launched on 5th June 2023 to mark World Environment Day. It aims to help grassroots community groups raise awareness and tackle air pollution. The focus of the Breathe Better Air Community Fund is to tackle air pollution at a local level to demonstrate impact across areas most affected by air pollution.

The scheme encourages and enables grassroots organisations in the Liverpool City Region, Birmingham and Manchester, to become effective air quality campaigners. It will give visibility to community representatives driving awareness of air quality issues, and seek to strengthen evidence bases regarding local approaches to tackling air pollution. For more information visit heartofenglandcf.co.uk.

Community Case Study: Chiltern Rangers



"Look after the environment and the environment will look after you" John Shaw, MD, Chiltern Rangers

Chiltern Rangers works with the local community to improve green spaces across the county. We love to plant and lay mixed native hedgerows. These wildlife superhighways provide bed and breakfast for an array of species such as birds, bats and hedgehogs! They also have other superpowers. Studies have shown they are great at providing other ecosystem services intercepting exhaust fumes and reducing air pollution as well as absorbing CO₂ and reducing the impact of run off. So we need to plant more!

If you are a local business looking to give back and maybe off-set some of your carbon footprint, check out the Chiltern Rangers ['Be a Ranger Days'](#) or visit chilternrangers.co.uk to find out more about volunteering.





“Air quality is a critical issue that affects everyone, even if you don’t know it.”

Daniel Cope

Heart of Bucks Ambassador for
the Environment

“It’s important to recognise that the effects of pollution are not limited to certain regions or countries. In the U.K., nearly 40,000 deaths a year occur due to human created emissions, with further health issues for many more. Even in Buckinghamshire, which is generally cleaner than many other counties, hyperlocal impacts, especially felt by those living near heavy traffic routes and more urbanised areas are disproportionately affected. Once again, people living in lower income households and those with health issues, are those facing the greatest impacts, and as such, a key concern for Heart of Bucks. This does not mean that policies should be implemented that further harm the economic security of individuals. On the contrary, actions should be taken in tandem across business, regulation, and people-action to mitigate the negative effects of air pollution.

This report aims to highlight the impact of air pollution, both from financial and health perspectives, and to consider areas of focus to address this complex yet important issue. The issue is complex and can only truly be solved when a genuine effort takes place to collectively reduce the harm the environment is facing through our actions. Until this transition, we must both recognise and support those most impacted.”

Be the Change

By incorporating these small actions and avoiding certain practices in our daily lives, we can all play a collective role in improving air quality and promoting a healthier environment.

Three simple positive actions we can all take to make a difference:



Reduce car emissions: Consider taking public transport for one journey a week



Conserve energy: Switch to LED lightbulbs throughout your home



Go Green at home: Consider planting additional plants or shrubs in your garden

And three simple activities to stop doing or reduce:



Idling engines: Turn off your car engine when parked or waiting for an extended period



Reduce meat consumption: Consider adding a meat-free day to your diet once a week



Minimise pesticide use: Explore organic and natural alternatives to garden chemicals

Our future considerations

Collaboration

Air quality has an impact on, and is linked to, other fields including health and wellbeing. A collaborative approach across sectors is required when considering funding for projects, informing policy, and developing strategy. For example, housing and planning departments within local authorities should communicate and work effectively with environmental agencies to understand, and work to reduce, the negative effects of air quality on the health of residents. This can be achieved through thoughtful mitigation strategies for poor air quality near busy roads.

Inequalities

Do we all have an equal opportunity to make a difference? We must understand the differing community needs across Buckinghamshire and how this impacts the capacity and resources of those communities when it comes to impacting air quality. Therefore, any strategy to improve poor air quality locally must contain inclusive, affordable and accessible actions so that all residents have an opportunity to make change.

Recognition

There is a need for the inclusion of a UN Sustainable Development Goal (SDG) specifically for air quality. This will promote the importance and encourage environmental priorities to be focused on air quality at both global and local levels, sitting alongside and connected to SDGs for clean water, energy and waste management.





Community Foundations

The role that Community Foundations can have when it comes to working at a very local level is profound. Most of the charitable funding for environmental projects goes to international climate work rather than UK-focused initiatives. Community Foundations are uniquely placed to work closely to tackle hyper-local 'green' issues that will directly impact the communities in which they operate.



Upskilling and Technology

There are new developments in technology to help tackle the climate crisis and improve our environment which require high levels of skill. As an entrepreneurial heartland, Buckinghamshire is bursting with opportunity in this industry. This will mean that future generations need to be appropriately skilled and trained in using technologies that will help us combat environmental issues.



Place Based Strategy

For strategies and initiatives to tackle air quality concerns effectively, there needs to be an understanding of local challenges, connections and assets to coordinate action that will improve air quality in Buckinghamshire. This will help to provide a framework for identifying local needs and improving wellbeing in a particular area or for those who are disadvantaged. Buckinghamshire has a great opportunity to be a leader in clean air provision for local people and this would be enhanced further by exploiting our local assets, knowledge, and green infrastructure.



Health Communication

It is important to raise public awareness about air quality and the health and environmental outcomes of poor air quality. However, information must be communicated in an effective way which is engaging and appropriate for the community which it is intended for. The most effective health communication strategies will come from a collaborative approach between different organisations and a better understanding of Buckinghamshire's wider inequalities.

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References

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[Clean Air Strategy 2019](#)

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[DEFRA Air Pollution](#)

[Environmental Funders Network](#)

[Heart of England Community Foundation - Breathe Better Air Fund](#)

[Local Nature Recovery Strategy](#)

[Luton Airport Expansion Response](#)

[National Atmospheric Emissions Inventory](#)

[Rural Health Info](#)

[Sustainable Development Goals](#)

[Working with farmers to tackle air pollution](#)

Cover photo: Wycombe at Twilight by Simon Barker

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