

CLIMATE CHANGE AND GREEN FUTURES STRATEGY

2023-2027

DRAFT

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Foreword

Climate change is a global problem. Extreme weather events arising from the warming of the earth pose a real risk to property, health, wildlife, habitats and food production. Nations have seen temperatures reach levels never before recorded and in 2022 the UK saw a 50°C temperature swing, from the hottest day ever recorded in July to some of the coldest since 2010 in December (source: McCarthy M, Nikos C and Stott P: Met Office: A review of the UK's climate in 2022).

Climate change affects us all, but we also have the power to do something about this and the UK is well placed to set an example to the rest of the world.

Broxtowe Borough Council wants to be a role model and trailblazer for the country, bringing everyone on its journey to carbon neutrality and beyond.

The purpose of this Strategy is to highlight key areas where stakeholders can work together to drive this positive change, as well as setting out some important context in policy and emission data.

Since 2009, the Council has been measuring its own carbon footprint and implementing measures to reduce carbon emissions. Since the initial assessment in 2009 and re-assessment in 2020, the Council achieved a 45% reduction in carbon emissions and supported numerous climate friendly policies and projects. Despite all of these past efforts, an acceleration of action is needed to mitigate the worst impacts of climate change.

In 2019, the Council declared a Climate Emergency and made an ambitious commitment to become carbon neutral by 2027. The Climate Change Strategy and the Climate Change and Green Futures Programme followed, providing a framework and strategic direction to achieve this ambition.

Meeting this commitment will be a journey for us all and changes will need to be made to the way that we all live our lives. The global cost of living crisis, supported by spiralling and increasing costs of traditional fossil fuels means we have to look to cleaner more sustainable alternatives.

As we move forward, we will also need to adapt to and increase our climate resilience. Short term investment is necessary if appropriate infrastructure is to be created so that the worst impacts of flooding and extreme weather events can be mitigated.

This Climate Change and Green Futures Strategy builds on the foundations of the original and is structured around ten programme themes. The Strategy will continue to be dynamic and evolutionary and will be reviewed annually to ensure emerging strategies are captured, themes, project strands, and actions remain up to date, and performance is managed.

We want to invite you to help shape the future. We will therefore consult on a regular basis with our residents and stakeholders on this Strategy. We invite views, ideas and comments that can shape future policies, helping support us all on this journey together.

Executive summary

Theme	Strategic Importance to Climate Change
Climate Strategy	<p>The existence of a Climate Strategy is fundamental in addressing climate change. The measures within the Strategy provide the direction of travel towards achieving carbon neutrality by 2027 and net zero beyond that.</p> <p>The Climate Change and Green Futures Strategy is a live document and will be reviewed regularly to ensure it remains current.</p>
Transport and Travel	<p>The Council will reduce its emissions by operating sustainable fleet management systems, through a combination of electrification, consideration of alternative fuels, and operational and driving efficiencies.</p> <p>The Council will encourage residents and businesses to make more sustainable transport choices.</p>
Energy and Water	<p>Reduction in energy and water consumption is a core objective for the Council. The Council will actively seek ways to ensure that its assets are as energy and water efficient as possible. It will look to decarbonise heating systems where appropriate.</p> <p>Residents and businesses will be encouraged and signposted to grants providing energy efficient measures and will be encouraged to install renewable generation technology where appropriate.</p>
Built Environment	<p>For the Council's own new build assets, measures to address climate change will be reflected in the design, materials and heating systems. For existing assets, the Council will look to understand and implement measures to improve energy efficiency, increase the use of renewable energy and decarbonise heating systems where appropriate.</p> <p>The Council will sign post, encourage and engage with residents on appropriate retrofit and energy efficient measures for their homes.</p>
Core Strategy and Planning	<p>Through the planning process, the Council will ensure that more ambitious and meaningful planning policies can be introduced through the Local Plan to encourage or enforce more energy efficient developments.</p> <p>New developments are being approved and constructed all the time, this is therefore an ideal opportunity to improve the efficiency credentials of the Borough's built environment.</p>
Recycling and Resources	<p>Natural capital is one of our most valuable assets. The Climate Change and Green Futures Strategy sets out how the Council will preserve resources by minimising waste, promoting resource efficiency and moving towards a circular economy.</p> <p>At the same time, the Council will minimise the damage caused to the natural environment by reducing and managing waste appropriately, and in accordance with the waste hierarchy.</p>

Theme	Strategic Importance to Climate Change
Natural Environment	<p>The natural environment acts as a sink to capture and store carbon emitted naturally, and so plays a fundamental part in the mitigation and reduction of carbon emissions.</p> <p>The Council will strive to ensure the natural environment is managed appropriately to increase biodiversity, and ensure that healthy ecosystems thrive throughout the Borough and will consider options in which best to address the current ecological crisis.</p>
Communities	<p>The Council cannot tackle climate change in isolation. Most of the emissions in the Borough relate to operations outside the direct control of the Council.</p> <p>It is therefore important that the Council engage and encourage stakeholders to influence positive behaviour change with regards to reducing carbon emissions.</p>
Business and Supply Chain	<p>The Council will work with businesses to support their efforts to become sustainable, as well as focus on its own supply chain to make environmental considerations a key part of procurement.</p>
Communications	<p>Communications and engagement is an overarching theme which is key to the delivery of the overall Climate Change and Green Futures Strategy.</p> <p>Well-considered and designed communication activities are key components for stakeholder engagement. This programme theme will support the various project strands in terms of raising the profile and awareness of the climate agenda, promoting best practice and driving positive behaviour.</p>

Table 1 – Executive summary

Section One: Climate Change Strategy

“Climate change affects us all, but we also have the power to do something about this”.
Cllr Helen Skinner, Cabinet Member for Environment and Climate Change.

Introduction

In July 2019, Broxtowe Borough Council declared a ‘Climate Emergency’ and pledged to become carbon neutral by 2027. Following this, in 2020 the Council’s first Climate Change Strategy was produced and the Climate Change and Green Futures delivery programme was developed. This programme of activity mapped out the next phase of the journey to reduce the Council’s carbon footprint. It also detailed how the Council would influence, encourage and assist key stakeholders to strive towards the same goal.

What is Climate Change?

Climate change is a long-term shift in temperatures and weather patterns. Whilst these changes may be in part due to natural cycles, human activities such as heating and lighting our homes, consumption of goods and travel, have become the main driver of climate change.

This has primarily been due to the burning of fossil fuels like coal, oil and gas. Gases released from fossil fuels trap heat from the sun, increasing the average temperature of the earth, which in turn causes more frequent and extreme weather events such as heatwaves and heavy rainfall leading to flooding. (Source: *What is climate change? United Nations Climate Action*).



Image 1: Flooding and storm damage across Broxtowe Borough during 2023

Why does the Council need a Climate Change Strategy?

The world is getting warmer! *‘The year 2023 has been confirmed as the world’s hottest year on record, driven by human caused climate change and boosted by the natural El Nino weather event.... sea surface temperatures have also smashed previous highs.’* (Source: *BBC News Science and Environment: 2023 confirmed as world’s hottest year on record.*)

On the 19 July 2022, the UK recorded its hottest ever temperature of 40.3°C with the summer of 2022 being the fourth hottest on record.

2023 has been reported by the Met Office as provisionally the second warmest year on record for the UK, according to mean temperatures. Eight of the twelve months were warmer than average, with June and September being particularly warm compared to average. 2023 also

saw 11% more rain than average, with some parts of the UK recording a third more rainfall than normal. (Source: Met Office).

A Climate Change Strategy is therefore necessary to identify, manage and mitigate the worst impacts of climate change.

How is climate change affecting Broxtowe?

Over recent years the Borough of Broxtowe has experienced damage and disruption due to extreme weather events. This includes:

- Flooding causing damage to properties and road infrastructure.
- Heatwaves damaging road surfaces.
- Heatwaves disrupting bin collections.

(Source: LCLIP A summary of the Local Climate Impacts Profile for Nottinghamshire (2011)).

The autumn/winter of 2023/24 has already seen eight storms (as of January 2024) hit the UK causing disruption across the country from gales, intensive rainfall, coastlines battered by huge waves and flooding, risking lives and damaging properties. (Source: Met Office).

Throughout these events, the Council has provided assistance to residents and local businesses. From the provision of sandbags and temporary accommodation for flood affected households, to the removal of fallen and dangerous trees, to the collection of flood damaged items from affected households. The Council has made significant efforts to address the immediate impacts of climate change. As the Council reviews its response to recent events, it will be crucial to consider the investment necessary to continue with these emergency responses.

Climate Change Drivers

The table below sets out the key drivers for addressing climate change.

Driver	Summary
Climate Change Act 2008	Commitment to be Net Zero by 2050. 78% reduction on Carbon Emissions by 2035.
Paris Agreement 2015	Legally binding international treaty on climate change. Limit global warming to well below 2°C, preferably to 1.5°C, compared to pre-industrial levels.
Environment Act 2021	Aims to improve air and water quality, reduce waste/increase recycling, improve biodiversity (referred to as Bio Net Gain or BNG) and tackle wastecrime.
Ten point plan for a Green Industrial revolution - 2020	Support Green jobs and accelerate the path to net zero.
Net Zero Strategy: Build Back Greener – October 2021	Sets out policies and proposals for decarbonising all sectors of the UK economy to meet the net zero target by 2050.

Driver	Summary
Taking charge: the electric vehicle infrastructure strategy – March 2022	Vision and action plan for the rollout of electric vehicle charging infrastructure in the UK.
D2N2 Energy Strategy 2019 - 2030	Targets and actions that align with the national Clean Growth objectives. By 2030, D2N2 aims to make Derbyshire and Nottinghamshire a pioneer in green growth.
Nottinghamshire County Council - Carbon Reduction Plan	The plan provides a roadmap of how Nottinghamshire County Council will reduce its carbon emissions over the next seven years and become carbon neutral by 2030.
Broxtowe Borough Council's Carbon Management Plan- 2009	The Council's first Carbon Management Plan developed in 2009. Achieved a 45% reduction in carbon emissions when baselining was undertaken against 2018/19 data.
Broxtowe Borough Council Corporate Plan – 2020-2024	Corporate vision: 'A greener, safer, healthier Borough, where everyone prospers'. Version of CP to be updated?
Broxtowe Borough Council Environment Business Plan 2024-2027	Environment Objectives: <ul style="list-style-type: none"> - Reduce carbon emissions and improve air quality - Continue to invest in our parks and open spaces - Reduce the amount of waste disposed of in the black-lidded bin and increase recycling and composting
Broxtowe Borough Council -2019	Climate Emergency Declaration.
Broxtowe Borough Council -2019	Commitment to become carbon neutral by 2027 for the Council's own operations (Scope 1 and 2, and some elements of Scope 3).
Broxtowe Borough Council Climate Change and Green Futures programme - 2020	Launched in February 2020, the programme identified a series of activities to achieve the Council's commitment to become carbon neutral by 2027 for its own operations. It also detailed how the Council would 'influence, encourage and assist the local community to strive towards the same goal'.

Table 2 – Climate Change Drivers

Strategic Vision

The Council's vision as identified in the Corporate Plan 2023 - 2027s:

“Protect the environment for the future”

The strategic aim will be delivered through the following three key priorities:

- Reduce carbon emissions and improve air quality.

- Continue to invest in our parks and open spaces.
- Reduce the amount of waste disposed of in the black- lidded bins and increase recycling and composting.

The strategic aims for the Climate Change Strategy are:

- To become carbon neutral by 2027 for the Council’s own operations.
- To establish a baseline for all carbon scopes and then to propose a date for net zero using science based targets for the Council’s own operations.
- To align to the UK’s net zero Commitment of 2050 for the Borough and establish the actions and potential budget required to achieve this (working to an earlier date if possible).

Delivering the Strategy

To deliver on the commitment to be carbon neutral by 2027 the Council will:

- Reduce its carbon emissions year on year as much as possible.
- Engage with all stakeholders on issues regarding climate change at every opportunity.
- Refresh the Climate Change and Green Futures Strategy and Carbon Management Action Plan regularly to ensure it remains relevant, up-to-date and fit for purpose.
- Review projects and approve investment based on a cost to benefit rationale.
- Look to work with external partners to seek investment, funding and professional advice.

The difference between carbon neutral and net zero

It is often assumed that ‘carbon neutral’ and ‘net zero’ mean the same thing. Whilst they both will achieve the same end result (to remove carbon emissions from the earth’s atmosphere), the scope and source of the emissions that are removed are different.

	Carbon Neutral	Net Zero - best practice
Defined by:	PAS 2060 standard.	Standard developing.
Measurement Scope 1 and 2	Required.	Required.
Measurement Scope 3	Not required.	Required.
Carbon reduction target	No requirement to reduce carbon emissions on a certain trajectory in order to be carbon neutral.	Zero (reduce to as close to zero as possible). To be net zero an organisation must be reducing its emissions along a 1.5°C trajectory across Scopes 1, 2 and 3.
Residual emissions	To achieve carbon neutrality, an organisation must purchase carbon offsets that either result in carbon reductions, efficiencies or sinks.	For net zero, an organisation must purchase greenhouse gas removals that result in carbon sequestration from the atmosphere.

Table 3 – Carbon Neutral/Net Zero Definitions (source: www.carbontrust.com/what-we-do/assurance-and-certification/carbon-neutral-certification; www.planetmark.com/about-us)

The need to move towards net zero at pace

Unless more far reaching action is taken, scientists are predicting that global warming will exceed 4°C by 2100 and the impact from such a rise would be catastrophic for the planet.

In March 2023, the Intergovernmental Panel on Climate Change (IPCC) released a report part updating on the impacts of climate change. The report warned that globally our “Pace and

scale of climate action are insufficient to tackle climate change” and that “adverse impacts from human- caused climate change will continue to intensify” including:

- Increase in agricultural and ecological drought.
- Increase in wildfires.
- Increase in flooding.
- Increase in extreme weather events – including heavy rainfall and heatwaves.
- Melting of glacial ice, leading to a rise in sea levels.

Image 2, summarises such physical impacts modelled for England.

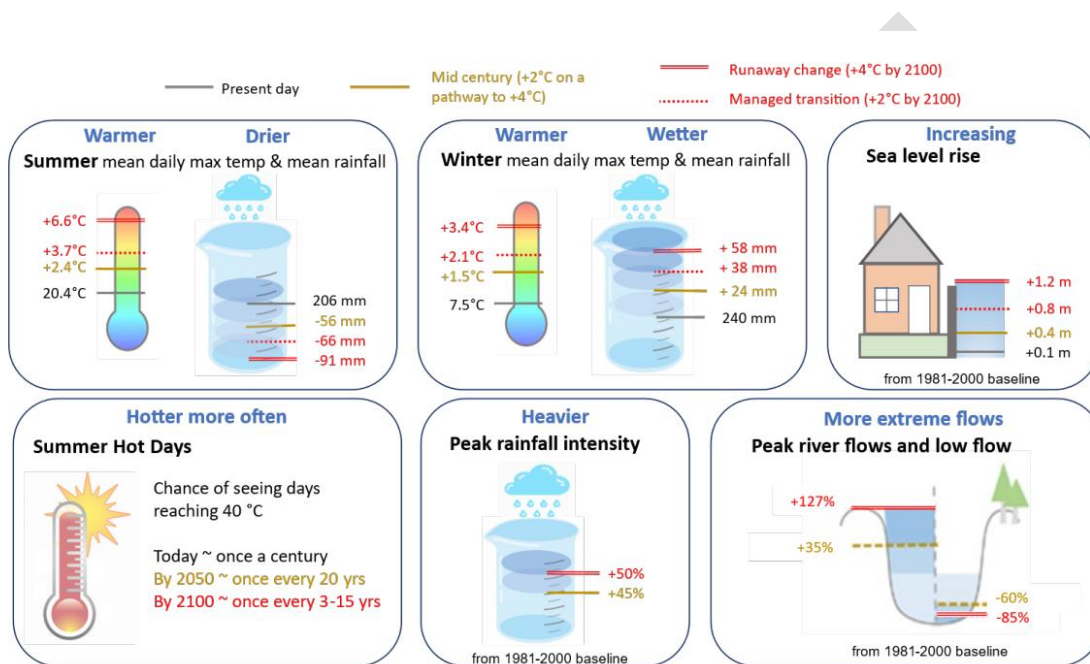


Image 2: Physical Impacts of Climate Change modelled for England (Source: Climate Impacts Tool: guidance for Environment Agency Staff. Understanding the risks and impacts from a changing climate, October 2023).

The IPCC report highlighted that the world has already warmed by 1.1°C and is likely to breach the 1.5°C threshold in the 2030s (this is something that governments had agreed to act to avoid). This means that urgent action is required now as there is a “rapidly closing window of opportunity to secure a liveable and sustainable future” (IPCC 2023).

The report highlights that if the 1.5°C rise is breached then this could be reduced again by achieving and sustaining net zero. The Council’s commitment to become carbon neutral is a strong starting point to managing the impacts of climate change. However, to ensure that action is undertaken fast enough the Council must work towards becoming net zero following a 1.5°C pathway.

Section Two: Broxtowe’s Carbon Reduction Journey

The initial baseline study

Back in 2009 the Council commissioned a baseline study by the Carbon Trust to establish its carbon emissions.

Carbon emissions refer to the six main greenhouse gases (GHG’s) as set out in the Kyoto protocol:

Carbon Dioxide (CO₂)
Methane (CH₄)
Nitrous Oxide (N₂O)

Hydrofluorocarbons (HFCs)
Perfluorocarbons (PFCs)
Sulphur Hexafluoride (SF₆)

All of these have negative impacts, warming our climate via the Greenhouse Effect and therefore causing climate change.

Though emissions are comprised of several GHGs, they are converted into a common unit called Carbon Dioxide Equivalent (CO₂e) for reporting purposes, and are often referred simply as 'carbon emissions'.

The study established a baseline of 4,242 tCO₂e for Scopes 1,2 and business travel (Scope 3). A carbon management plan was produced, which supported the ambition of achieving a 34% reduction by 2020.

Declaration of the Climate Emergency

After the declaration of the Climate Emergency in July 2019, a further study by the Carbon Trust was commissioned. This followed the same parameters of the original study to allow for consistency.

The outcome of the second study highlighted that the Council had reduced its carbon footprint by 45% based on a 2009/10 baseline. This reduction was achieved through delivery of 60 projects which included, refuse round efficiencies and the installation of solar photovoltaics panels on the Council's own buildings (image 3).

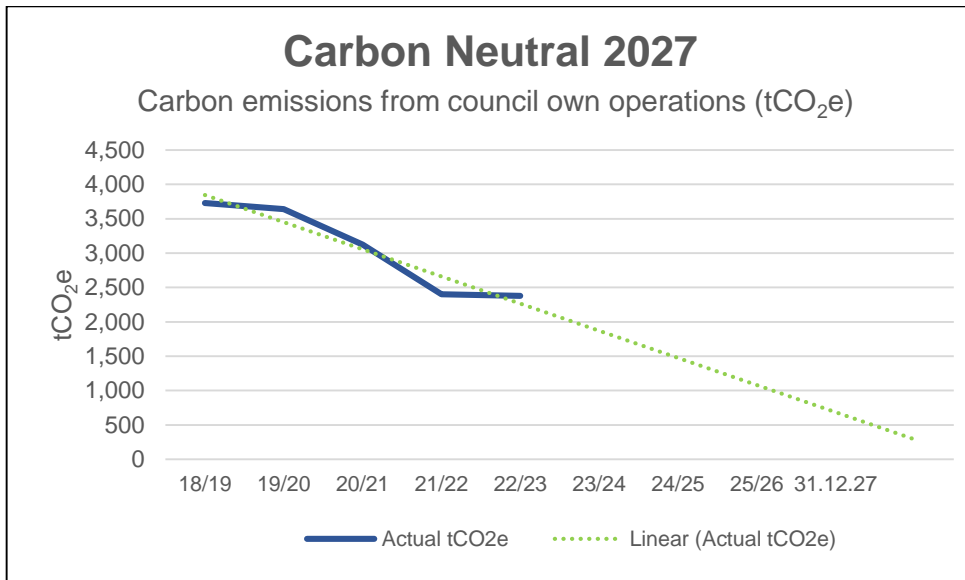


Image 3: Solar PV on the main Council offices at Foster Avenue, Beeston

Re-establishing the baseline

In November 2021, the Environment and Climate Change Committee approved the re-calculation of the Council's own operation baseline to incorporate emission data that had previously not been included (this was a recommendation by the Carbon Trust in their 2018/19 report). The new baseline was established at 3,704 tCO₂e for 2018/19.

Graph 1 shows the carbon emission figures for Broxtowe Borough Council since the re-baselining exercise in 2021. The green line shown in the graph 1 is a trend line to highlight the direction of travel for the Council's carbon emissions.



Graph 1- Broxtowe Borough Council's own operation carbon emissions since 2018/19

Where is the Council now?

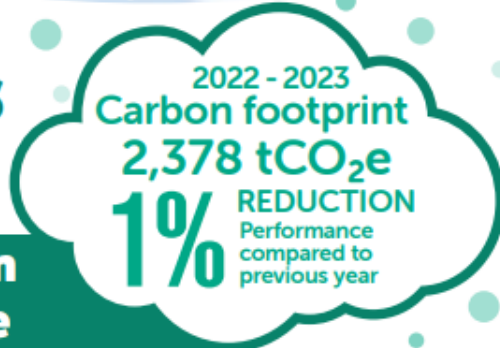
Since the recalculated baseline in 2018/19, the Council has achieved an overall reduction of 36% in its own operation carbon emissions.

Key points for 2022/23

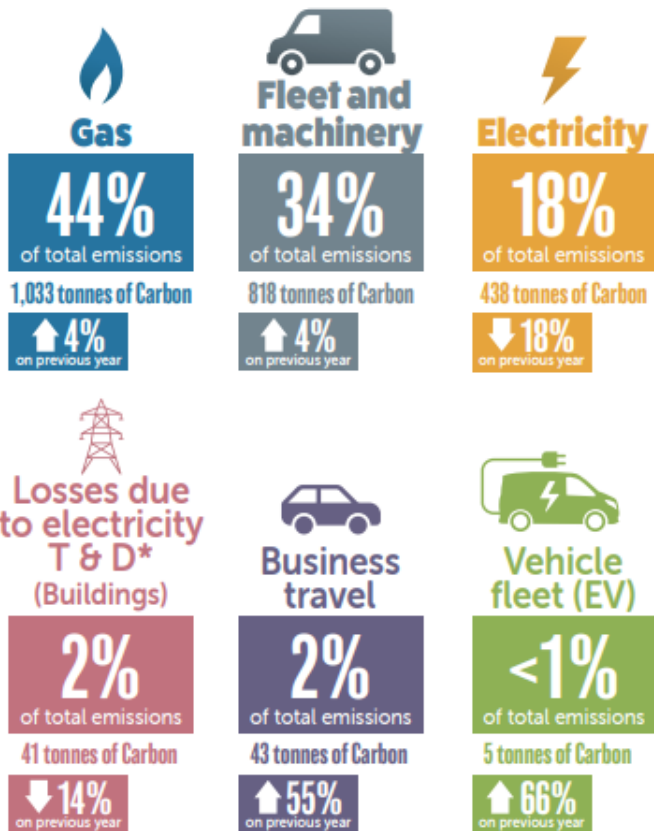
- Carbon reductions of -1% compared to the previous year (2021/22).
- 44% of the Council's own operation emissions come from gas usage.
- Fleet emissions account for 34% of the overall total emissions.

Broxtowe Borough Council
**Own Operation
Carbon Emissions**

Reporting Year:
1 April 2022 - 31 March 2023




Carbon footprint by emission source for year 2022/23 tCO₂e



*Transmission and distribution (T&D) is associated with grid losses (the energy loss that occurs in getting the electricity from the power plant to the organisations that purchase it). Utility data has been estimated.

Highlights:

 Creation of pocket and mini orchards including Ghost House Lane and Inham Nook, Chilwell

4 GREEN FESTIVALS held throughout the year 

Shortlisted for the LGC and MJ awards for the Green Rewards platform

 **greenrewards**

Local Authority Delivery (LAD) funding used to retrofit energy saving measures for

158 homes



 **Climate Change & Green Futures**

www.broxtowe.gov.uk/climatechange

Image 4: The Council's Carbon Footprint for 2022/23

Section Three: Achievements

As of 2022/23, actions undertaken from the original Climate Change and Green Futures programme have resulted in a 36% reduction in carbon emissions against the recalculated 2018/19 baseline.

Climate Change and Green Futures Strategy 2023 -2027

March 2024 – V1

The cross cutting actions achieved to support this reduction over the past few years include:

- 100% renewable electricity energy tariff.
- Introduction of further Electric Vehicles (3.5 tonne vans) bringing the total to 9, saving approximately 2 tonnes of carbon per year, per vehicle.
- Mini Orchard planted at Grove Avenue Allotments in February/March 2021.
- Bee-line at Leyton Crescent, planted November 2021.
- New car lease scheme (August 2021) introduced, promoting low emission/EV cars for employees.
- Creation of pocket parks including Ghost House Lane, Inham Nook, Chilwell – September 2022.
- 3,000 trees planted across the Borough in 2022/23 with over 134,000 planted since the start of the tree planting programme in 2008.

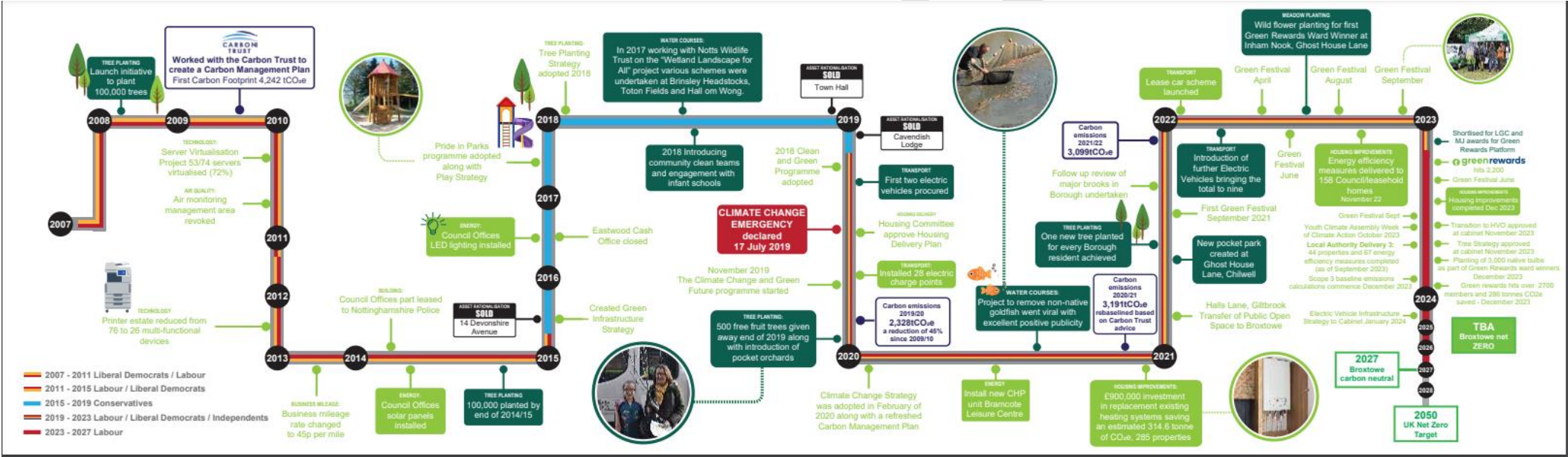
These achievements have continued into 2023/24 and include:

- Over 2,700 registered resident users, avoiding 286 tonnes CO₂e in total so far on the Green Rewards engagement app.
- Additional employees resourced for recycling and climate change.
- Local Authority Delivery (LAD) Phase 3 successfully implemented, with over 60 properties identified as eligible. 65 measures implemented including solar PV, external wall insulation and loft insulation.
- Hosting several sessions as part of the Youth Climate Social Action Week, October 2023 including:
 - Practical conservation day – clearing Rhododendron and bulb planting at Bramcote Hills Park.
 - Litter pick around Ilkeston Road Recreation Ground and the Hemlock Stone (Image 5) – 22 people total.
 - Final day conference with Councillors.



Image 5: Litter picking as part of the Youth Climate Social Action Week at Hemlock Stone

Climate Change and Green Futures Timeline

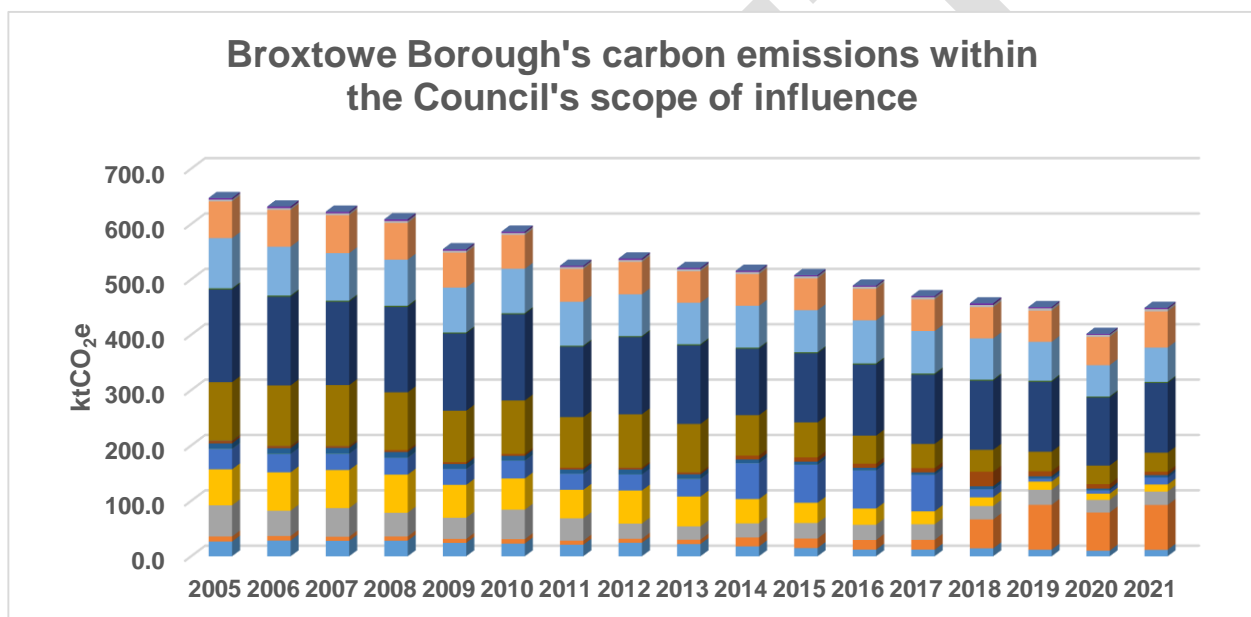


Broxtowe Borough's carbon footprint

Broxtowe Borough Council has a key role to play when it comes to achieving the UK's 2050 net zero greenhouse gas emissions target. The latest available information from BEIS suggests that the Council's own emissions contribute approximately 2 to 5% (this is all carbon scopes) to the Borough's overall emissions.

In 2021 the Borough of Broxtowe is calculated to have emitted 448.9ktCO₂e (Source: Business, Energy and Industrial Strategy Department: UK local authority carbon dioxide emissions national statistics). This equates to:

- Per Capita emissions 4.1 (tCO₂).
- Emissions per km² 5.6 (ktCO₂).

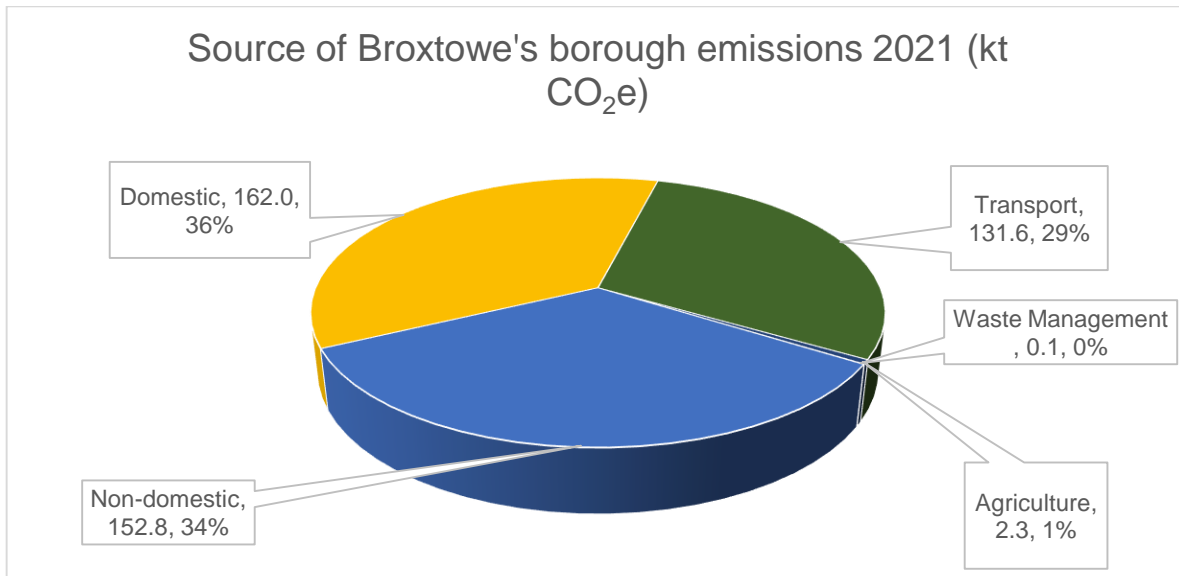


Graph 2 - Carbon emissions for the Borough. (Source: Department for Business, Energy and Industrial Strategy (BEIS) (June 2023))

Since 2005 Broxtowe's per capita emissions have reduced by 32%, this is largely due to the decarbonisation of the electricity grid, however, other energy efficient measures for transport and homes have also contributed to this decline (Source: ONS 2021).

The Borough's emissions have generally been reducing year on year, however as shown in Graph 2, they rise again in 2021. This is a consequence of emerging out of the COVID 19 pandemic. Although there have been positive reductions in Borough emissions, it is evident that these reductions are occurring at a sufficiently rapid enough pace.

Graph 3 shows that domestic emissions (from gas and electricity usage for domestic dwellings) account for the largest portion of emissions at 36%, non-domestic emissions (from commercial, industrial, retail and public sector properties) accounts for 34% and this is followed by transport with 29% (from all vehicles including cars, LGVs, motorcycles, buses and HGVs). Agriculture contributes 1%, whilst waste management accounts for less than 1%.



Graph 3: Source of Broxtowe Borough emissions (ktCO₂e)

Broxtowe Borough's carbon budget

Carbon budget Definition

This is the amount of carbon dioxide permitted to be emitted over a certain period of time which would allow global warming to be limited to no more than 1.5°C. Dealing with the environmental consequences from a temperature rise above the 1.5°C threshold is seen by some scientist as irreversible.

Tyndall Centre for Climate Research

Researchers from The University of Manchester and the Tyndall Centre for climate change research have developed an online tool which can be used by local authorities to help understand their role in meeting the climate change objectives.

Tyndall Carbon Budget Reports provide UK local authority areas with budgets for energy related CO₂ emissions from 2020-2100 (graph 4). This allows users to calculate a carbon budget for their Council and will enable climate change targets to be set. These targets will then help meet the objectives of the United Nations Paris Agreement on climate change.

Carbon budget for Broxtowe

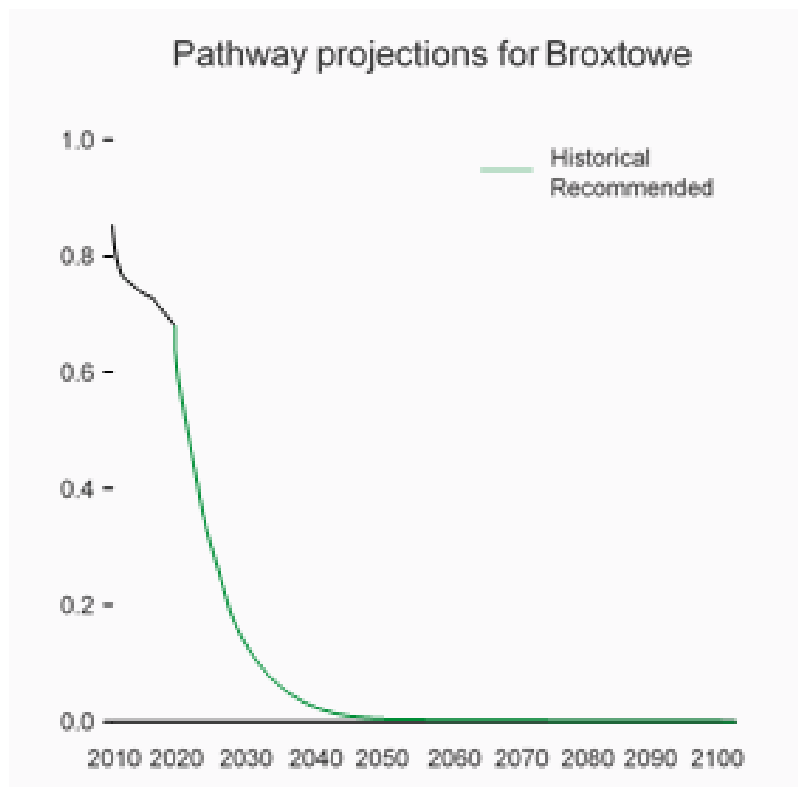
The carbon budget identified for Broxtowe applies to only CO₂ emissions from energy systems. An energy system is defined as '*systems meeting our everyday needs through a range of services, including; heating, cooling; mobility and powering appliances*' (Source: Tyndall Centre for Climate Change – Setting Climate Commitments for Broxtowe).

Using the toolkit, the report recommended that for Broxtowe to make a 'fair' contribution towards the 1.5°C temperature change threshold for the period 2020-2100, the Borough should stay within a maximum cumulative carbon dioxide budget of 4.1 million tonnes (MtCO₂). The report warns that at 2017 CO₂ emission levels:

Broxtowe would use its entire carbon budget up by 2026.

(Source: Tyndall Centre for Climate Change – Setting Climate Commitments for Broxtowe).

Given that this is a similar position for most local authorities, it only goes to demonstrate that an accelerated response from all stakeholders is necessary in order to mitigate the worst impacts of climate change.



Graph 4: Pathway projections for Broxtowe

Section four: Governance

The Council currently operates under a Cabinet system with a Lead Portfolio Holder for each priority area within the Council. Represented on the Cabinet is a Portfolio Holder for Environment and Climate Change.

Within the Council, climate change is managed across the whole organisation. Each department is responsible for delivering projects and improvements in their specialist work areas.

Under the Strategy, ten cross cutting climate change themes are all managed by a theme lead. Within each theme, there are a number of project strands. These project strands are represented by an individual. The programme theme leads are responsible for governing the delivery of projects strands, with strand leads being responsible for the delivery of the project.

The theme leads report to a Climate Change and Green Futures Programme Board, which meet on a quarterly basis. This group provides updates on progress to the General Management Team (GMT). The governance structure is demonstrated in figure 1.

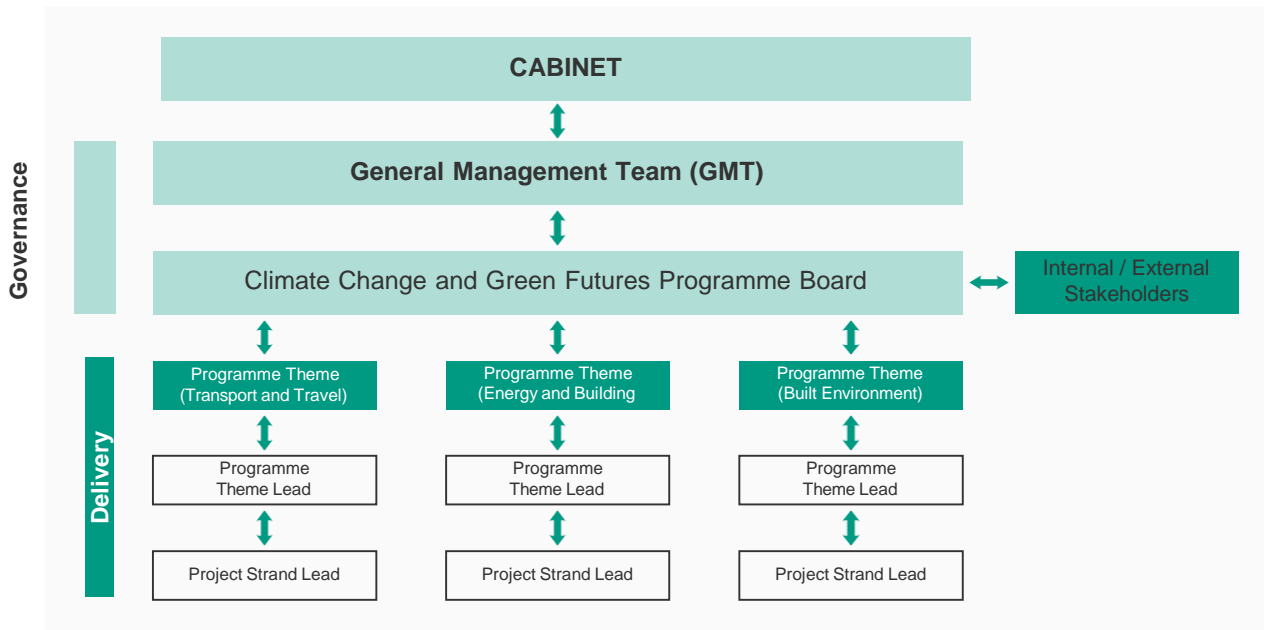


Figure 1: Climate Change and Green Futures Governance Structure

Governance Strategies

The Council has a number of corporate strategies which address and support improvements with regards to climate change. These strategies are aligned to the Council’s corporate plan and support the Council’s corporate aims and objectives. These strategic documents include:

- Green Infrastructure Strategy
- Waste Strategy
- Local Plan
- Planning Core Strategy
- Site specific habitat management plans
- Communications and engagement Strategy
- ICT and business transformation Strategy
- Air Quality Strategy
- Digital Strategy
- Tree Strategy
- Housing Delivery Plan
- Electric Vehicle Infrastructure Strategy (currently in draft)

Section Five: Strategy Review and Consultation

The refreshed Climate Change and Green Futures Strategy went out for public consultation during the summer of 2023. Members of the public were invited to comment on the document via:

- On line survey.
- Paper copy.
- In person focus groups.

A total of 294 participants took part. Feedback, comments and suggestions have been reviewed and incorporated (where feasible) into this version of the document.

Four key recommendations were highlighted as part of the consultation process:

1. Changes to the Strategy:

a. Changes to recycling

Recycling emerged as the topic with the highest number of comments during the public consultation. The focus was on the challenges that hinder recycling efforts. These challenges included the limited waste acceptance criteria via the kerbside. This has been addressed under Theme Six: Recycling and Resources.

b. Stakeholder engagement.

During the consultation, it was identified that the Strategy lacks specificity regarding the actions different stakeholders can undertake to support the Council's efforts and reduce their own carbon footprint. This has been addressed by adding a new section to this document, Section Seven: The Role of Stakeholders.

c. Measuring success.

People want to see more information on how the Council plan to measure the success of the actions put into place and receive notifications of when goals are achieved. This has been addressed in Section Six: Carbon Management Action Plan.

2. Format of the Strategy

Participants reported that they found the Strategy document difficult to read online when using a digital device, due to it being formatted in landscape. As a result, this document is now presented in portrait.

3. Increasing climate change education in Broxtowe Borough Council

The findings from the consultation suggested that the Council should implement targeted education schemes aimed at specific groups of people. This recommendation stems from the varying perceptions of climate change observed in the consultation responses. To address this a range of different methodologies will be employed including, workshops, Green Festivals, Green Rewards and communications.

4. Improvements to research methods

The level of engagement via the public consultation was lower than expected and in some cases those taking part had not read the full Strategy prior to responding to the questionnaire/attending the focus group. With this in mind, careful consideration has been given to the statistical significance of comments and suggestions made. Any future public consultations will look to encourage higher engagement rates and consider making it compulsory for participants to read all documents before responding.

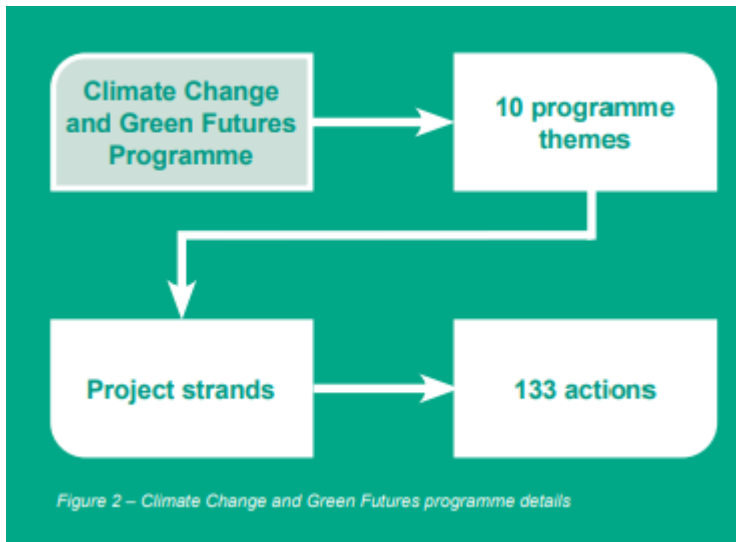


Figure 2 – Climate Change and Green Futures Programme details

The Climate Change Strategy is a live document and will be reviewed regularly to ensure it is up to date, relevant and meets legislative requirements.

Section Six: Carbon Management Action Plan

The Carbon Management Action Plan, found in the Appendix, sets out the time bound actions that will be delivered to reduce emissions and achieve the strategic aims within this climate Strategy. Those actions include activities to address the Council's own carbon footprint as well as those aimed at influencing residents, the local community and businesses to work towards the same ambitions.

The Climate Change and Green Futures Programme is the delivery vehicle by which the Carbon Management Action Plan is managed. The Plan will be monitored and reviewed regularly with the programme theme leads and during quarterly governance meetings and updated as necessary.

Success will be measured in a number of ways including:

- Completion of the actions set out in the Carbon Management Action Plan.
- Reduction in the Council's CO₂e emissions.

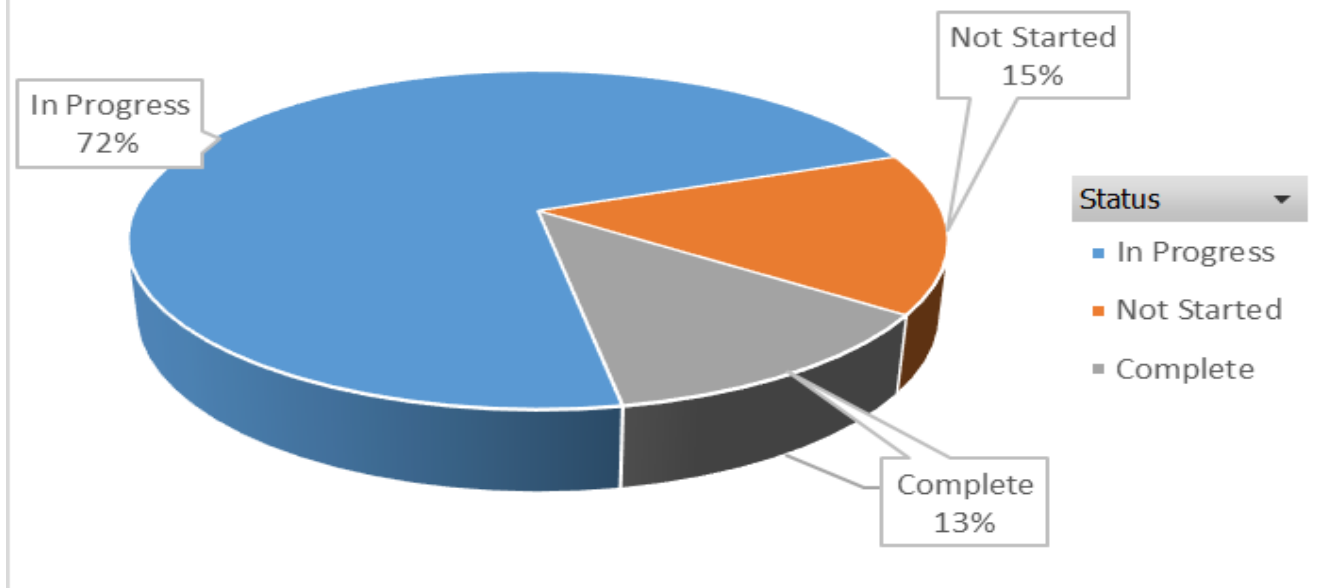
External notification of progress will be via:

- The revised Strategy being published on the Council website.
- Updated Carbon Management Action Plan published on the Council website.
- Council communications streams including email bulletins, press releases and social media posts.

Progress to date

Graph 5, illustrates progress to date against all of the current actions within the Carbon Management Action Plan 2023/24.

Climate Change and Green Futures Progress 2023/24



Graph 5: Carbon Management Action Plan Progress to Date

Actions for the 2024/25 Carbon Management Action Plan, have been formulated from those that have not been completed from the previous year and new actions identified as part of the consultation process.

Section Seven: The Role of Stakeholders

Climate Change necessitates collaborative actions from a variety of stakeholders.

This new section, added in response to the feedback received during the 2023 public consultation, aims to support stakeholders, highlighting actions where they can make a difference. This is an area so many are keen to support but do not know where to start.

Opportunities for involvement:

1. Sign up to the free climate change engagement platform (Green Rewards) and join a network of over 2,700 Broxtowe residents who have already saved over 280 tonnes CO₂e. The platform encourages small lifestyle changes that can help to achieve carbon emission reductions. There is also the chance for participants to win prizes at an individual and/or Ward level. The platform also offers exclusive discounts across Nottingham <https://notts.greenrewards.co.uk/>
2. Keep up to date with the latest Climate Change news by signing up to the Council's Environment bulletin via Email Me <https://www.broxtowe.gov.uk/about-the-council/communications-web-social-media/email-me/>
3. Visit the Council's dedicated Climate Change webpages: <https://www.broxtowe.gov.uk/for-you/climate-change/>
4. Contact the Council's Climate Change Manager for advice, help, support. Suggestions

for carbon emission reduction are also welcome. Please email:
environment@broxtowe.gov.uk

5. Visit the Environment team in person, along with other Climate Change related organisations at the Council's Green Festivals.
6. Consult with Nottingham Energy Partnership who can provide advice and guidance on energy saving at home. <https://www.nottenergy.com/what-we-offer>
7. Contact with the UK Business Climate Hub <https://businessclimatehub.uk/>

Section Eight: Themes

There are ten themes within this Climate Change and Green Futures Strategy as listed below, each one is addressed in detail the following section of the Strategy.

1. Climate Strategy
2. Transport and Travel
3. Energy and Water
4. Built Environment
5. Core Strategy and Planning
6. Recycling and Resources
7. Natural Environment
8. Communities
9. Business and Supply Chain
10. Communications

THEME ONE: Climate Change Strategy

Strategic aims

The high level strategic aims for addressing climate change and helping shape and inform decision making over the next four years are:

- To establish a Scope 3 baseline for the Council's own operations and to put in place systems to monitor it.
- To set out a roadmap to address Scope 1, 2 and 3 emissions and to transition from carbon neutral to net zero.
- To identify and prepare projects so that they are ready for submission for appropriate government grants.
- To identify all areas of the Council, its operations and the Borough that will be affected by climate change and where appropriate put in place adaptation measures to improve climate resilience.

Climate Strategy and funding

Since the declaration of a Climate Emergency over four years ago, it was recognised that in order to deliver the actions of the Climate Change and Green Futures Programme a significant level of funding would be required. However, due to the level of expenditure required

(especially on some of the more comprehensive infrastructure projects), the Climate Change and Green Futures Programme needs to be aligned and integrated within the Council's Medium Term Financial Strategy (MTFS). To support this, other potential funding sources will also be explored. These include:

- Direct local authority.
- Nottinghamshire County Council/Devolution.
- Government Grants (PSDS/SHDF/LAD).
- Funding from business.
- Biodiversity Net Gain.

Adaptation and climate resilience

Planning for climate mitigation and adaptation is not only necessary on the macro scale but also at the local level. Extreme weather conditions have the ability to impact directly on the services provided by the Council and have done over the past few years. This has been observed over the past four months with eight storms hitting the UK so far this autumn/winter 2023/24. This has caused significant disruption to the Borough, threatening lives and damaging properties from gale force winds and flooding. Increased risk of grass fires, or heat exposure during the summer months are just some of the other issues which will undoubtedly need to be included in service planning in the future.

To build service resilience, a number of emerging strategies are being created. This includes blocked drain reporting to Nottinghamshire County Council and the inclusion of drought and disease resistant trees during tree planting programmes.

Climate Change inclusion in all Council key decisions and policies

As part of the response to climate change, the Council has included a climate change implications section in all relevant committee reports to identify:

- What effect Council activities have on the climate and what will be implemented to mitigate these.
- What impacts a changing climate may have on the Council's services and functions and what actions will be taken to adapt to this and improve Council climate resilience.

Including a climate change consideration into all relevant Cabinet/Committee reports acts to:

- Encourage officers to consider climate change impacts when writing and researching reports and policies.
- Improves visibility with regards to the decision making process and enable Members and residents to see and understand the impact that climate change will have on decisions.

THEME TWO: Transport and Travel

Strategic aims

The high level strategic aims for addressing transport and travel over the next four years are:

- Continue to explore and introduce reliable alternative fuels for the fleet and plant.
- Encourage the use of public transport.
- Improve air quality.

- Raise awareness and influence behaviour change to increase the uptake of active travel options.
- Develop an Electric Vehicle (EV) charging infrastructure strategy for the Borough.

Broxtowe Borough Council fleet

Based on 2022/23 carbon footprint data, the Council’s fleet contribute 34% (818 tCO₂e) to the Council’s overall carbon emissions. A sustainable fleet is one that considers a combination of electrification, alternative fuels along with operational and driving efficiencies.

The Council will continue to review appropriate opportunities for operating a diverse fleet of vehicles and plant to ensure the most cost effective lifecycle and incorporating carbon emission efficiency.

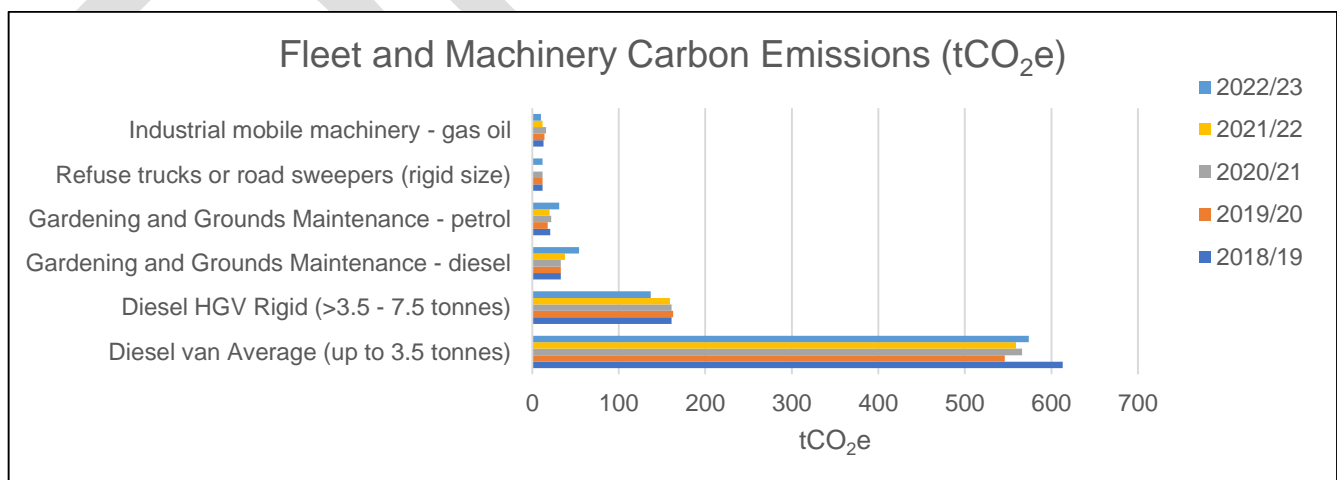
The Council will train its employees in the most fuel efficient driving techniques. This will achieve additional benefits through reduced wear and tear and lifecycle extension.

Electrification of the fleet

The majority of transport emissions arise from the refuse and cleaning fleet (graph 6). Decarbonising the fleet, using methods such as electrification or alternative low emissions fuels, is a priority for the Council. In 2022, a desk top study was undertaken to understand the financial implication of electrifying the Council fleet. Estimated at over £18 million, the cost to transition is currently cost prohibitive.

However, progress is being made to facilitate this through methods such as installation of shared charging facilities across the D2N2 network, which will provide a greater driving range for council vehicles across Nottinghamshire.

The Council’s first Electric Vehicle Infrastructure (EVI) Strategy has been written to be taken to Cabinet for approval by summer 2024. The Strategy’s aim is to ensure access to a reliable EV chargepoint network across Broxtowe for residents, businesses and visitors. The implementation of this Strategy will also support the decarbonisation of transport and travel within the Borough. Within this new Strategy an action plan will be implemented to ensure progress is made in accordance to the Council’s commitments.



Graph 6 – Fleet and machinery carbon emissions

Hydrotreated Vegetable Oil (HVO)

In recent years the UK has seen a growth in the number of vehicles moving from diesel fuel to more sustainable, lower emissions alternatives, such as Hydrotreated Vegetable Oil (HVO) in a bid to become net zero.

HVO is a renewable fuel produced from plant-based oils and although the fuel is not a zero emissions one, it has a much lower carbon footprint compared to traditional diesel.

In October 2023, Cabinet agreed to the transition from diesel to HVO for the Council's vehicle fleet. This will result in significant carbon savings, which will support the Council's ambition to become carbon neutral by the end of 2027. The transition process is currently being programmed and it is expected that the fleet will move to HVO in early 2024.

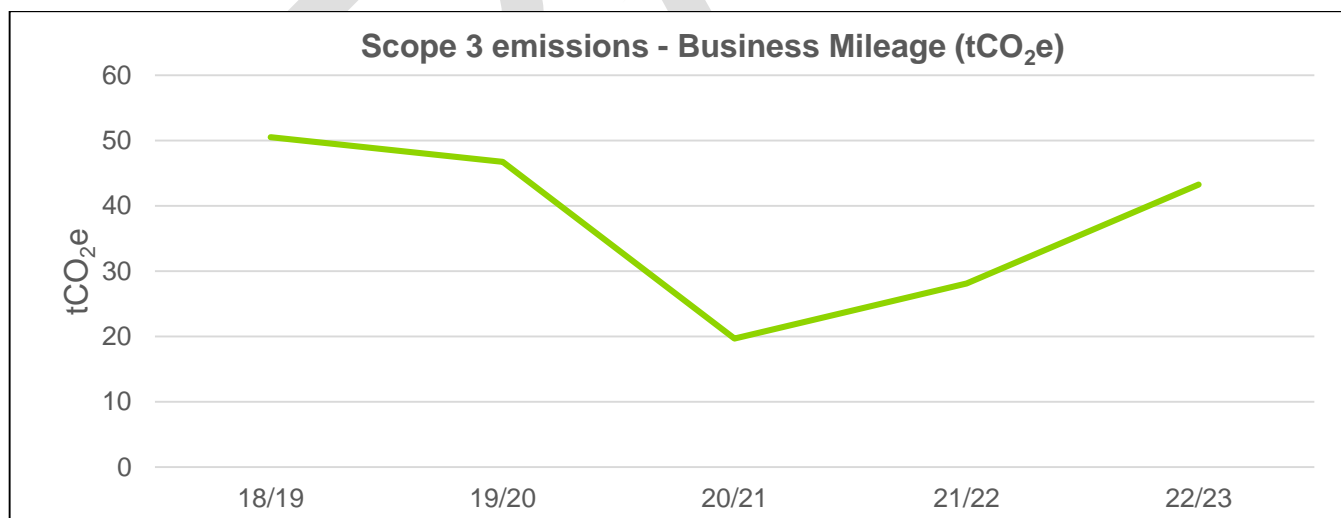
Based on fuel usage for 2022/23, the total tCO₂e savings each year for Broxtowe Council would be in the region of 629 tCO₂e. This represents a 77% reduction in transport carbon emissions and an overall reduction of 26% in the Council's total carbon emissions.

Business mileage

Business mileage undertaken by Council employee's and Members falls under Scope 3 emission reporting. Graph 7 shows carbon emissions arising from business travel.

The Council will continue to promote the use of low emission vehicles to employee's along with improved journey planning to reduce their transport footprint emissions. The use of video calls will continue, along with the promotion of hybrid working.

How employee's commute to work also contributes towards Scope 3, however these are not currently calculated. The baseline calculations for these and all other Scope 3 emissions has commenced in 2024.



Graph 7 – Carbon emissions resulting from Broxtowe Borough Council employee business mileage

Sustainable Travel Options

The Council will encourage residents to make sustainable choices regarding their travel arrangement by:

- Promoting public transport options and any discounts available by local providers.
- Encouraging car share.

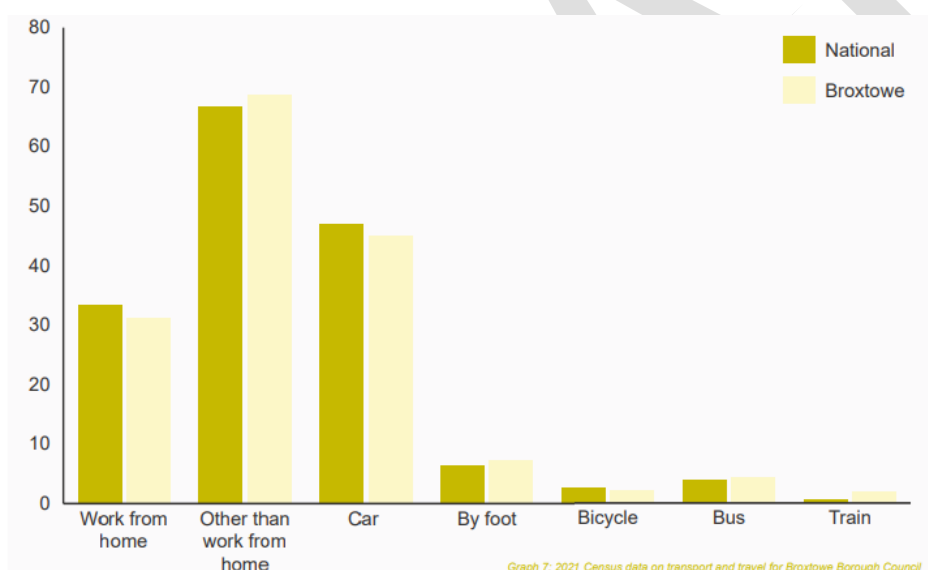
- Working with external stakeholders to help expand the number of EV charging points across the Borough (both off and on street).
- Lobbying local public transport providers on network connectivity opportunities when opportunity arises in areas where provisions do not currently exist and/or as part of new developments.
- Incorporating cycle paths and bike storage in new developments

As shown in graph 8, in the 2021 CENSUS data shows:

- 31.2% of residents ages 16 years and over and who are in employment worked mainly at or from home.
- 8.9% of people travelled less than 2 kilometres.
- 13.5% travelled between 2 and 5km.
- 15.9% travelled at least 5 kilometres to less than 10kilometers.
- The most selected mode of travel to work was driving a car or a van at 45.1%. 7.3% of people travelled by foot, 2% travelled by bicycle. 4.2% by bus and 1.9% by train.

This shows the impact of homeworking and how ‘new ways of working’ has affected resident’s commute. This information will be used to support the delivery of this programme theme.

Place of work and Transportation to Work (%)



Graph 8: 2021 Census data on transport and travel for Broxtowe Borough Council

Active Travel

Not only is transport a cause of air pollution, it accounts for 28% of greenhouse gas emissions in the UK (Source: Gov.UK – Climate and health: Applying All Our Health (May 2022)). Both of these impact the health of our residents and our climate.

By increasing awareness and participation in active travel, the Council will not only support a reduction in unnecessary vehicle journeys, but will increase the physical activity of our residents, offering them improved health and wellbeing.

Barriers to participating in active travel can relate to matters such as bike thefts, lack of cycle lanes, the poor condition of roads, and no safe spaces for bike storage. Any promotion and investment in active travel should look to address such matters'.

Whilst the condition of roads and number of cycle lanes are the responsibility of Nottinghamshire County Council (NCC), Broxtowe Borough Council is able to work with and influence decisions taken by NCC. The Council can also review bike storage provision across the Borough and will ensure these continue to be part of design considerations going forwards.

THEME THREE: Energy and Water

Strategic aims

The high level strategic aims for addressing energy and water related issues over the next four years are:

- Produce a decarbonisation plan for the Council's key building assets.
- Energy and water efficient properties to be a key theme of the new Housing Delivery Plan.
- Continue to secure external funding to retrofit existing housing stock.
- Produce a fuel poverty strategy.
- To signpost residents and businesses to appropriate energy and water efficient funding streams.

2022/23 the Council's energy consumption accounted for 62% of its current overall footprint. From a Borough perspective, domestic energy consumption accounts for 36% of its total emissions in 2021.

A reduction in energy consumption and decarbonising heating systems is a core objective for the Council. As well as the impact on climate change, the War in Ukraine has highlighted the risks and vulnerabilities on the reliance of fossil fuels.

The rapid inflationary pressures on fuel and energy prices has impacted on the Council, residents and local businesses. A reduction in energy consumption and a move to more sustainable technologies is critical in order to provide improved energy security as well as mitigate against the worst impacts of climate change.

Energy Management

Energy management in buildings is an important area that will assist in achieving carbon neutrality and net zero. It is nevertheless challenging where buildings are old, or even listed and are therefore inherently energy inefficient.

The more recent challenge is as a result of COVID, where working from home, or hybrid working have resulted in buildings, particularly offices, being underutilised. The Council is monitoring utilisation of the Council Offices and exploring options for energy savings and/or increased utilisation moving forwards.

Understanding how energy can be saved, as well as how it is used, are both key components regarding efficient and intelligent energy management. The principle of the 'fabric first' approach (ensuring the structure is as insulated as it can be), the way in which energy is purchased (acquiring energy from renewable/green energy sources) and determining peak usage trends through meter readings, are all key parts of energy management.

Decarbonisation plans for three of the Council's key assets: The Council Offices, Kimberley Depot and Bramcote Crematorium, have been commissioned for completion in 2024. This information will help to support any potential decarbonisation funding bids the Council submits for these assets and/or capital investment.

Where possible the Council will promote measures to improve energy efficiency by offering advice and signposting the community within Broxtowe to relevant grants and trusted energy support services. Everyday actions can be accessed via the Green Rewards engagement app for residents.

Fuel Poverty

Fuel poverty occurs when a householder needs to spend more than 10% of their income to adequately heat their home. The solution to fuel poverty is to ensure that all householders can achieve 'affordable warmth', that is all householders should be able to heat their home sufficiently to maintain health and wellbeing without spending over 10% of their income.

Although the greatest impact on fuel poverty is household income and the cost of energy, inefficient heating systems and poor insulation are also contributing factors. Improving the energy efficiency of housing is an essential step to reduce the number of people in fuel poverty.

A fuel poverty strategy will be produced identifying measures to address the impacts of fuel poverty on Broxtowe residents.

Renewable energy generation

A number of Council assets have renewable energy suppliers fitted in the form of solar PV panels. The Council will establish a benchmark for energy generation and set renewable targets for future years.

Residents and businesses are encouraged to change to renewable energy suppliers where possible. The Council facilitates this through signposting and administering external grant aid funding systems.

Water management

Water is a valuable resource and its management is therefore a priority. The Council will explore opportunities to maximise water efficiency savings across its own estate as well as promoting positive behaviour habits for residents and businesses in order to reduce demand on supply.

In December 2023, thirteen Council properties were audited for water efficiency opportunities via the Severn Trent Green Recovery Project. This was funded by the Water Services Regulation Authority (Ofwat). Any remedial works required were completed either during the site visit or have been programmed in for completion within the next six months.

The use of rain and greywater across the Council's own estate needs to be explored. Residents, businesses and charities in the Borough can seek water saving advice from their water company as well as via Green Rewards platform.

THEME FOUR: Built Environment

Strategic aims

The high level strategic aims for addressing the Built Environment over the next four years are:

- Develop a suite of documentation to provide guidance on sustainable new build properties.
- Develop a long term retrofit strategy for private householders in Broxtowe.
- Ensure that all funding opportunities that would benefit private householders are applied for (e.g. Sustainable Warmth, SHDF, HUG2).
- Develop guidance that will allow householders to understand what retrofit measures are suitable for their home and how they can access grant funding to facilitate this.

The built environment is one of the most significant contributors to climate change. Moncaster (Source: *Open University Climate Change and the Built Environment (2022)*) identified that the built environment is responsible for 39% of all global carbon emissions, 28% is from operational activity such as heating, lighting and cooling and 11% is from embodied carbon, arising from the construction of new buildings.

New buildings and development

For both newly built and redeveloped commercial properties, the planning and building regulations are key drivers for ensuring that the climate change agenda is taken into consideration as part of the process.

The Council's target for the total number of new builds across the Borough is 350 each year. Contributing to this is the target to increase the number of Council owned homes by 200 across a 10-year period (2019-2029).

The planning regime and building regulations will ensure that sustainable practice is considered in all new schemes. In all new build Council projects, consideration will be given to designs that reflect the use of low carbon/zero carbon materials, the installation of renewables and energy efficient measures.

Retrofit of existing private housing stock

There are currently 48,363 households across the Borough and a breakdown by housing property type is shown in table 4.

Housing Type	Total Properties
Semi-detached	17,392
Detached	17,519
Terraced	7,816
Flat	4,524
Converted or shared house	436
A Caravan or other mobile structure	88
Part of another converted building	256
In commercial building e.g. over a shop	332
Total	48,363

Table 4: Housing types in Broxtowe Borough Council (source: ONS - 2021 Census (TS062))

Analysis of BEIS data for the Borough (Section 2) shows that heating and lighting of homes is one of the biggest contributing factors for the Borough's carbon emissions. Therefore, signposting and engaging with residents on appropriate retrofit and home energy efficient measures is essential.

The University of Nottingham have been appointed to commence a fundamental piece of work during 2024, which will help the Council understand the condition of not only the Council's own housing stock but that of the households across the Borough. A roadmap to support its decarbonisation through retrofit, will also be provided.

Housing stock including Independent Living

The Council's housing stock has been subject to retrofitting with regards to heating systems and loft insulation. There is a planned maintenance programme in place to support the roll out of further measures. In addition, the Council have commissioned an asset management review that will form the foundation for identifying opportunities to address energy efficiency issues and enable a program of activity to be determined.

Broxtowe Borough Council have a total of 564 properties that are classified as hard to treat (for example properties that are steel framed or that are in conservation areas). Over the last five years the Council has made progress in reducing this number. This has been achieved through the Council's commitment to agree budgets and procure contracts to install energy efficiency measures.

Local Authority Delivery (LAD) funding

The Council has utilised funding from the Local Authorities Delivery (LAD) and Sustainable Warmth funds. During 2022/23, this has been used to deliver retrofit measures for 158 homes across the Borough. These measures have improved the energy efficiency within households of low income and low energy performance (energy performance certificate (EPC) ratings of D, E, F or G). This will help to reduce household energy bills, address fuel poverty and support the phasing out of fossil fuel heating.

As part of the LAD Phase 3 (as of September 2023), 44 properties have received funding (£569,340 in total) to enable the installation of energy saving measures, such as solar PV, external wall insulation and loft insulation.

The Council will continue to seek funding in order to support residents retrofit measures.

Energy Company Obligation (ECO) Scheme

Launched in September 2023, eligible households across the Borough can receive energy efficiency measures such as wall, loft and underfloor insulation, heating controls and low-carbon heating systems for free. These upgrades will help towards improving the property's energy performance, helping to reduce energy usage and significantly reducing heat loss.

Residents are able to apply for further information and advice via email to retrofit@broxtowe.gov.uk or by calling E.ON and referencing Broxtowe Borough Council.

Social Housing Decarbonisation Fund (SHDF)

In November 2023, planning permission was granted for the external wall insulation works to be undertaken on thirteen council owned properties in the Borough as part of the SHDF.

The total expected energy savings from the project are 495,086kWh, which equates to 90tCO₂e. Measures include:

- External wall insulation.
- Eaves extensions to roofs.

- New rainwater goods.
- New windows for certain properties.
- Damp proofing works.

The Council will continue to seek funding in order to support residents retrofit measures and will communicate these opportunities via email bulletins, social media, webpage updates, guidance documents, case studies and any other means available.

Other social housing providers

Other social housing providers are responsible for ensuring the domestic properties they own are compliant with the legislation governing their sector.

The Council will work collaboratively with other social housing providers to ensure that their properties are as energy efficient as possible. The Council will also explore opportunities to secure funding in partnership with these providers.

Private Landlords

Private landlords are responsible for ensuring the domestic properties they own are compliant with the Domestic Minimum Energy Efficiency Standard (MEES). This requires a property to have an Energy Performance Certificate (EPC) with a minimum band rating E. This applies to all domestic private rented properties that are:

- Let on specific types of tenancy agreements.
- Legally required to have an Energy Performance Certificate (EPC).

The Council will enforce these standards and will be working with private landlords to ensure an appropriate approach is implemented.

THEME FIVE: Core Strategy and Planning

Strategic aims

The high level strategic aims for addressing issues relating to core strategy and planning over the next four years are:

- To include a climate change implications section in all relevant committee reports.
- To produce Supplementary Planning Documents (SPD) for Climate Change and Renewable Energy.
- To include additional policies on sustainability and climate change in the revised Broxtowe Local Plan.

“Planning has a vital role to play in enabling and encouraging the transition to a competitive and resilient low-carbon society that also supports the environment and human health and wellbeing. “(Source: *Town and Country Planning Association & Royal Town Planning Institute (2023)*).

Planning can also help with the mitigation and adaptation of climate change by:

- Providing opportunities for renewables and low carbon technologies.
- Promoting low carbon design approaches in building design.
- Consider future climate change risks over the life time of new development sites.

The Council's Core Strategy (the first part of the Local Plan) sets out the vision, objectives, spatial strategy and the strategic policies for the Borough up to 2028. The document provides a framework and sets out the strategic policy direction for future developments in Broxtowe Borough, along with Nottingham City and Gedling Borough.

The Core Strategy provides a broad guide to development and growth in the Borough. It sets our key issues that will need to be addressed. It co-ordinates policies and programmes together with the public resources so that these can be delivered.

As part of this approach appropriate, ambitious and meaningful planning policies will be introduced via the Local Plan process, or through supporting documentation. This will encourage and support sustainable development across the Borough.

Local Plan

The Aligned Core Strategy is currently being reviewed and will result in the production of the Greater Nottingham Strategic Plan. The Strategic Plan will outline the main policy areas and identify key areas for development. It will also include policies relating to climate change and carbon reduction within new developments.

Concurrently, work is being undertaken on a Climate Change and Renewable Energy SPD, which will assist homeowners and developers when considering these sustainable components and will outline the planning requirements associated with them.

This document will be made available to all via the Council webpages including those dedicated to climate change.

THEME SIX: Recycling and Resources

Strategic aims

The high level strategic aims for addressing issues relating to recycling and resources over the next four years are:

- Follow and promote the principles of the waste hierarchy.
- Increase education and engagement on recycling, especially around those materials that are difficult to process.
- Full review of current refuse rounds to incorporate capacity for the next four years.
- Encourage more community involvement around recycling activities.

Natural capital is one of the most valuable assets. The air we breathe, the water we drink, the land we live on, and the stock of material resources we use in our daily lives are at the heart of our economy, our society and our way of life.

The Council's Climate Change and Green Futures Strategy sets out how the Council will encourage, support and influence the preservation of material resources by minimising waste, promoting resource efficiency and moving towards a circular economy. At the same time, the Council will continue to minimise the damage caused to the natural environment by reducing and managing waste appropriately and in accordance with principles of the waste hierarchy.

Round efficiencies

In 2018 the refuse team undertook a round review to rebalance and then future proof the current refuse and recycling collection system, so that it could incorporate the number of scheduled new builds.

The current collection rounds are now reaching capacity and need to be reviewed again to ensure that they are fit for purpose for the next four years. The review will also need to incorporate mandated weekly food collections that will need to be implemented by October 2027.

Whilst addressing capacity issues, the rounds can also be assessed for fuel efficiency, which will help support further carbon emission reductions.

Other areas to be reviewed to further support fuel savings and carbon emission reductions include:

- Review of the missed bin policy.
- Consolidation of recycling rounds.

Increase recycling and composting

Recycling generally produces less carbon emissions than creating brand new products. In addition, recycling materials helps reduce deforestation, minimise greenhouse gas emissions, reduces energy consumption and eliminates the need for new raw materials to make products (Figure 3).

Items that can and cannot be recycled by residents in the Borough are determined by the contract between Nottinghamshire County Council and Veolia. Broxtowe Borough Council are not able to change these items, however, following feedback received from the public consultation, measures aimed at helping residents have a clearer understanding of what can and cannot go in the kerbside recycling bins have been implemented during 2023 and this will continue throughout 2024.

Measures include:

- Revision of information provided on the Council's dedicated 'Waste and Recycling' webpages including a 'Recycling A-Z'.
- Revision and redesign of kerbside bin contamination tags.
- Waste and Recycling guidance via email bulletins and social media posts.
- Targeted engagement, including a newly designed dedicated recycling leaflet delivered to each household.
- Face to face engagement sessions for local groups and schools.
- Collaboration with Veolia to promote their educational tours of the Materials Recycling Facility (MRF).
- Promotion within Green Rewards platform.

The kerbside recycling services provided by the Council are shown in table 5.

Recycling Stream	Recycling Criteria	Frequency and method
Mixed dry recycling	Paper/card/plastic bottles and their tops/margarine and butter tubs, yoghurt pots	Alternate fortnightly with the general waste bin.

Recycling Stream	Recycling Criteria	Frequency and method
		Collected in either 140 litre or 240 litre bin.
Mixed glass	Mixed coloured glass	Collected every 4 weeks either a 37 litre bag (householders can have up to 4 free of charge) or a 140litre red-lidded bin which is chargeable.
Garden (Subscription service)	Grass cuttings, weeds, small branches, hedge clippings	Collected every fortnight (March to November, then monthly December to February) in 240 litre brown bin.

Table 5: Kerbside recycling streams collected in Broxtowe Borough

HOW YOU CAN SAVE ENERGY BY RECYCLING

Everytime a new product is made from raw materials, large amounts of energy are consumed, recycling products decreases the amount of energy it takes to produce these items

WHY WE SHOULD RECYCLE AND HOW WE CAN ALL MAKE A DIFFERENCE

Recycling uses less energy → So fewer fossil fuels are burned → Which reduces carbon dioxide in the atmosphere → So decreased greenhouse gases → Which decrease global warming

HOW MUCH ENERGY YOU CAN SAVE BY RECYCLING

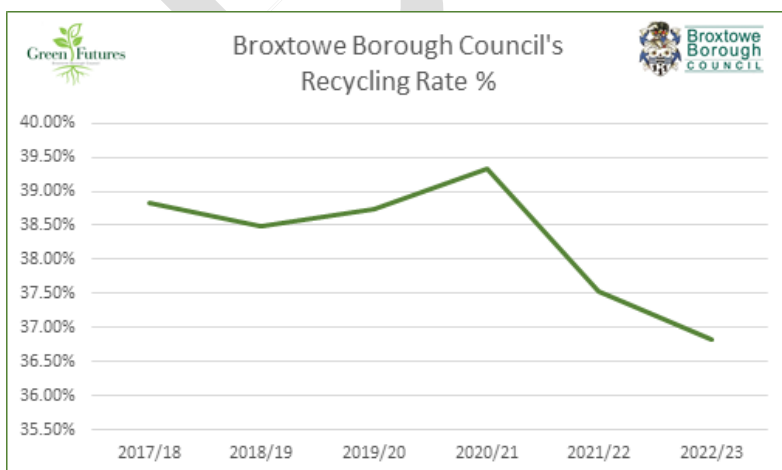
Producing new aluminium from old products uses 95% less energy than making it from new materials.

The amount of energy saved from recycling one glass bottle could power an old 100-watt light bulb for 4 hours and a new low-energy LED equivalent for a lot longer.

(Source: Friends of the Earth - '7 benefits of recycling' (2022))

Figure 3: Saving energy by recycling

As graph 9 shows, recycling rates have stagnated somewhat over recent years. This is an issue that is not unique to the Council and has been experienced across the whole Country.



Graph 9: Broxtowe Borough Council's Recycling Rates

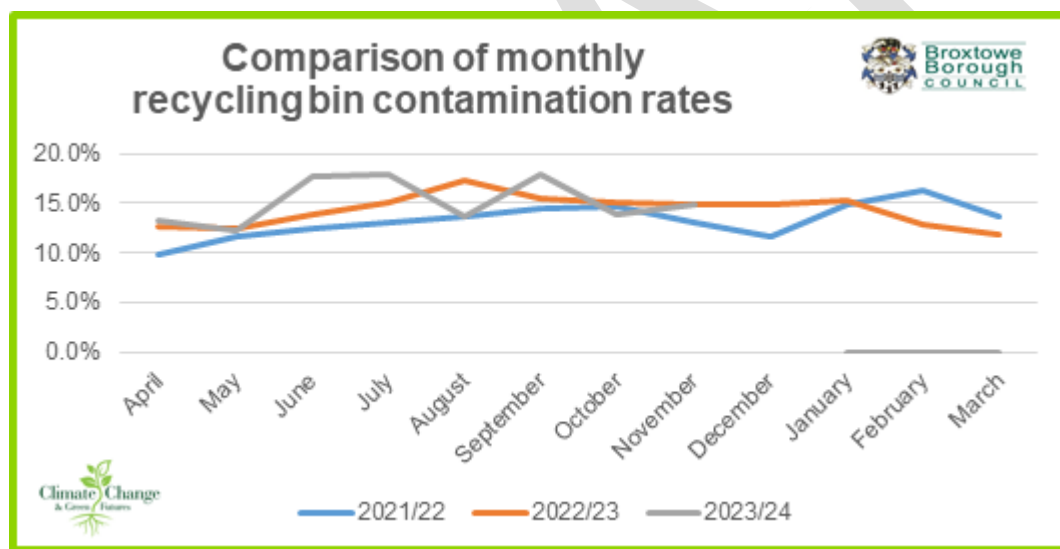
This stagnation can be attributed to a number of factors, but it is understood that reduced engagement with stakeholders at both national and local level has had an influence. The Council has recognised this and recruited a Waste and Recycling Engagement Officer to support activities aimed at reversing the current declining trend.

Reduce contamination

Defra’s Resources and Waste Strategy states that there is a ‘need to drive better quantity and quality in recycling’. The Council wants to promote UK-based recycling and export less waste to be processed abroad, but sometimes this is not practicable. To ensure this process is as cost effective as possible the Council needs to ensure that recycling sent for processing is high quality.

WRAP defines contamination as ‘any unwanted materials that householders include in boxes, sacks or bins set out for recycling or collection crews placed in the wrong compartments of recycling collection vehicles’ (Source: WRAP – Tackling contamination in dry recycling (2020)).

Unwanted materials in the recycling bin has the potential to contaminate a whole load of recyclables. Not only is contamination difficult to separate from the ‘clean’ material but it can become embedded within the material during the processing of making it. The Council is looking at ways in which contamination can be reduced, including a review of the current recycling bin contamination procedure. Graph 9 shows monthly recycling bin contamination rates since 2021.



Graph 9: Broxtowe Borough Council Contamination Rates

Promotion of the waste hierarchy principles

Within the waste industry there are four steps for dealing with waste and these are ranked according to environmental impact. This ranking is referred to as the ‘waste hierarchy’ (figure 4).

It is important that the Council engages with residents to influence and drive behaviour change, encouraging stakeholders to adopt the waste hierarchy principles.

This will lead to:

- An overall reduction in the waste produced.

- A reduction in the waste being disposed of.
- Preservation of natural resources.
- Moving towards a circular economy.

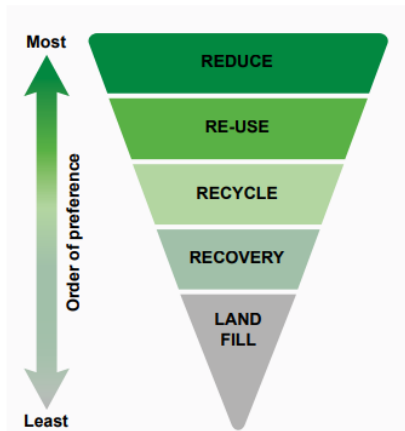


Figure 4: The Waste hierarchy

Moving towards a circular economy

Adopting circular economy principles and strategies can significantly reduce greenhouse gas emissions. In the main, carbon reduction efforts are focused on renewable energy production and energy efficiency measures; however, a vast majority of emissions are associated with making products and the circular economy offers a solution to tackle this.

There needs to be a move away from a linear model of “take, make, waste” (Source: Ellen MacArthur Foundation (2019) to a circular economy (Figure 5) which is designed to benefit businesses, society, and the environment. Finding more efficient and effective manufacturing processes, reusing and, perhaps most importantly, recycling materials means that the lifecycle extends, so less resources are needed which leads to less waste.

The Council can support a circular economy in the following ways:

- Awareness and engagement around waste and recycling.
- Improve the quality of the materials sent for recycling.
- Purchase goods and services that are more aligned to the circular economy.

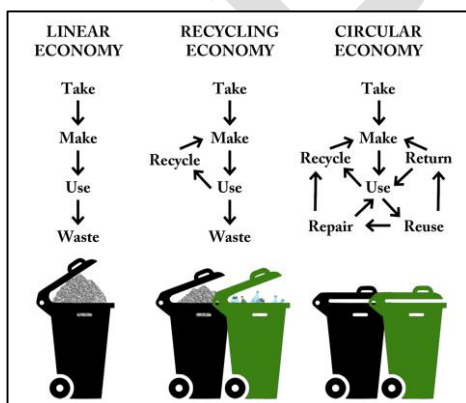


Figure 5: Illustration to show the difference between linear, recycling and circular economies (source: <https://www.madebytheforge.co.uk/pages/circular-economy.html>).

THEME SEVEN: Natural Environment

Strategic aims

The high level strategic aims for addressing issues relating to the Natural Environment over the next four years are:

- Identify opportunities to enhance biodiversity across the Borough.
- Maximise opportunities through Biodiversity Net Gain.
- To establish a sequestration value for the Council's natural assets using an appropriate methodology.
- To continue to work with relevant stakeholders in order to bring about improvements in local air quality.

The natural environment plays an important role in mitigating climate change. Nature based solutions such as appropriate tree and soil management remove and store carbon dioxide from the atmosphere, all whilst releasing oxygen back into the air. These enhance the environment both economically and socially, as well as providing ways for people and wildlife to adapt to the stresses of climate change.

The Council is committed to protecting and improving the natural environment, ensuring efficient and sensitive use of land that fits all needs. Through balanced management practices the Council, will enhance carbon sequestration and create climate resilience to support the natural environment for future generations.

Blue and green infrastructure

Green infrastructure is a network of multi-functional green space (both urban and rural) delivering quality of life and environmental benefits for communities.

Green infrastructure is not simply an alternative description for conventional open space. It includes parks, open spaces, planting fields, woodlands – as well as street trees, allotments, private gardens, green roofs and walls, sustainable drainage systems (SuDs) and soils.

(Source: Town and Country Planning Association (2023)).

Blue infrastructure includes rivers, streams, canals and other water bodies.

Blue-green infrastructure is important as a climate change mitigation and adaptation measure. Not only does it support biodiversity by linking networks together but it also creates both economic and social benefits for the wider community to enjoy.

Maintaining, improving and enhancing these pathways involves a partnership approach across a number of agencies and the Council will continue to explore opportunities to expand this provision across the Borough.

Tree planting

As the climate crisis emergency deepens, the perception and awareness of the importance and dependence on trees continues to grow. Trees are excellent at sequestering (storing) carbon, locking this away for many years. It is imperative that the Council has robust mechanisms in place for the management and protection of existing trees and looks at ways to increase canopy cover in the future. This will be achieved through a number of measures, including habitat management strategies and working with a variety of stakeholders.

The Council's first Tree Management Strategy adopted in November 2023, sets out a proactive approach to managing the Council's own trees. The aim is to enhance and safeguard the environment, establish green spaces and effectively mitigate against the impacts of climate change.

The Council are responsible for trees on land such as the parks and open spaces. Trees growing from pavements or public highway verges are usually the responsibility of Nottinghamshire County Council Highways department.

As part of its drive to address climate change and be responsible for its tree stock the Council has planted over 134,000 since 2008, that's more than one for every resident in the Borough.

Natural adaption and mitigation

Increasing levels of carbon dioxide in the atmosphere makes changes to the earth's climate inevitable. Broxtowe Borough Council is working to understand and manage these changing climate risks, to ensure that assets, services and infrastructure continue to function appropriately and that the Borough becomes more resilient to extreme climate events such as flooding, drought and heatwaves.

Ecological emergency

The ecological balance of the planet is in a critical state. Natural habitats and the wildlife it supports are under threat due to the effects of habitat loss and climate change. The Council is taking active steps to protect, manage, mitigate and enhance ecological systems across the borough. To support this, the Council will work with key stakeholders to consider options in which best to respond to the ecological emergency, developing comprehensive and effective plans.

Biodiversity

Biodiversity is essential for supporting life on Earth. Without it, animals, plants and microorganisms would not have the healthy ecosystems that are required to "clean our water, purify our air, maintain our soil, regulate the climate, recycle nutrients and provide us with food" (*Source: Wilson:2010*).

The Borough of Broxtowe contains a diverse range of habitats, many of which are owned and/or managed by the Council and a variety of other stakeholders including Nottinghamshire County Council and Nottinghamshire Wildlife Trust.

The most significant areas for wildlife within the Borough are the Erewash and Trent Valleys. They provide valuable habitat opportunities for wetland bird species, water voles, otters and crayfish. The River Erewash feeds into Attenborough Nature Reserve, which is an important Site of Special Scientific Interest (SSSI) managed by Nottinghamshire Wildlife Trust.

Within the Borough there are also a number of urban habitats providing havens for wildlife. These include gardens, church yards, allotments, orchards, verges, school grounds and railway sidings. Many of these areas are post-industrial, brownfield sites supporting a rich and diverse ecosystem. These areas can be enhanced by the creation of log piles to encourage insects, the installation of bird and bat boxes, or by increasing the number of no mow areas.

The Council is proactively looking for opportunities to increase biodiversity within the Borough by changing land management regimes and working with partner organisations.

Management

The management of the blue and green infrastructure within the Borough needs to adapt in response to the changing climate. For example, the weed growing season has lengthened due to milder, wetter weather.

Whilst weeds in the correct location can provide benefits to local wildlife, in particular insects and pollinators, those in locations that pose health and safety risks or can damage infrastructure such as pavements and roads require management. The Council uses a 'green on grey' approach for weed management and wherever possible uses manual methods such as sweeping to limit the spraying of Glyphosate. The quantity of Glyphosate used is limited as much as possible and reviewed annually with opportunities continually identified to reduce this further. It is only used across the Borough where absolutely necessary.

The use of compost (peat free, peat reduced or with peat) across the Borough is reviewed regularly with opportunities to reduce compost containing peat identified. Trees that are planted across the Borough are contained within peat free compost.

Carbon Sequestration

Carbon sequestration is the process by which carbon dioxide is captured and stored. Sequestration can occur either biologically (trees, soil etc) or technologically (where carbon is captured and stored underground in appropriate geological formations).

For the purpose of this Strategy, carbon sequestration will focus on the biological. The science and understanding around how different habitats sequester and store carbon is still developing, but it is clear that the Council's green/blue infrastructure will play a significant part in achieving both carbon neutrality and net zero.

The Council is currently mapping sequestration value for the Council's green assets and will formulate a carbon sequestration value and methodology which could potentially support the Council's climate change commitments.

Air quality

Air pollution is generally defined as any type of particulate (dust) or gaseous substance (for example Oxides of Nitrogen) that is emitted into the atmosphere either through the combustion of fuels such as coal, oil, gas, petrol, diesel or the burning of wood/natural gas from domestic central heating boilers or power stations. When these fuels are combusted, particulates are emitted into the atmosphere and they affect the air quality within the United Kingdom (UK).

Poor air quality can affect people's health on a daily basis and can result in premature death. Therefore, it is imperative that poor air quality is recognised as a public health issue and that continual measures are taken to improve the air quality even if the air quality objectives in the UK are being met.

The two main types of air pollution within the UK are Nitrogen Dioxide (NO₂) and Particulate Matter (PM₁₀ and PM_{2.5}).

The Council monitors the concentration levels within the Borough and have also devised and introduced measures to improve air quality within the Borough, which are detailed in the other programme themes in the Strategy.

Agriculture

Whilst agricultural activities only account for 1% of the Borough's emissions, it has been highlighted as an area of focus via the public consultation. An action to engage with local farmers is now part of the 2024/25 Carbon Management Action Plan.

THEME EIGHT: Communities

Strategic aims

The high level strategic aims for addressing issues relating to communities over the next four years are:

- Support Town/Parish Councils and local community groups to take climate action.
- Formulate appropriate climate adaptation strategies to support health and wellbeing.
- Develop a green social prescribing model in Broxtowe.
- Reduce the supply chain emissions of Council events.

Local communities have a significant role to play in helping to mitigate the worst impacts of climate change. Communities encourage people to work together to take actions which:

- Reduce greenhouse gas emissions.
- Enhance nature based solutions increasing the amount of potential carbon capture.
- Build resilience and encourage adaptation to climate change.

The Council will look to support all appropriate stakeholder groups by:

- Supporting the development of local plans.
- Making local communities aware of the potential funding opportunities.
- Ensure communities have an aligned approach to the Council's own climate change commitments.

Town/Parish Council's and local community groups

Parish and Town Councils along with local community groups operate at the closest level to neighbourhoods, which enables them to take the lead to inspire local residents to take action. In doing so they can be a force to drive positive behaviour helping address the climate emergency.

In 2023 the Council began to work more closely with Town and Parish Councils and other local stakeholders on the climate change agenda so they can:

- Align to the Council's carbon neutral and net zero ambitions.
- Understand what action or change is necessary and help support this.

Health and Wellbeing

Climate Change may affect health and wellbeing through the impacts of extreme weather events, declining air quality, threats to food and water quality and the impact that this will have on mental health.

Many people are now being forced to deal with the impacts of climate change and this can have an impact on their emotions and the way that they feel. This is Eco-anxiety and it is defined as "a chronic fear of environmental doom, a worry for what might happen if the world does not take action to avert disaster in time." (Source: Wright S and Oserloff E (2022)).

On the whole, younger people are generally experiencing significant levels of eco-anxiety, "as they see the window to fix the planetary emergency closing, but often feel powerless to enact meaningful change" (Source: Wright S and Oserloff E (2022)).

In 2023 the Council began to develop a Green Social Prescribing model for the Borough, which will enable residents to engage in nature-based interventions and activities to improve their mental health.

Risks to human health are also increasing due to climate change.

These include:

- Extreme heat causing exhaustion and heatstroke.
- Increased asthma cases due to extreme heat reactions to air pollutants.
- Increases in temperatures alters the spread of diseases.
- Health impacts from other extreme weather events such as droughts, wildfires and storms (*Source: Ashworth J (2022)*).

The Council will formulate appropriate adaptation approaches for its own operations, e.g. earlier start times for its operational employee's, so they are avoiding extreme heat weather events.

THEME NINE: Business and Supply

Strategic aims

The high level strategic aims for climate change addressing issues relating to Business and Supply Chain over the next four years are:

- Establish a baseline for Scope 3 supply chain emissions using the Green House Gas Protocol.
- Support businesses and skill building that supports green economic interventions.
- Embed sustainable purchasing practices across the Council, raising awareness and promoting best practice.
- Work with suppliers to minimise or reduce climate change impacts for example reduction of packaging and reduced transport miles.

Local businesses play a key part in reducing emissions in the Borough and helping to drive behaviour change. The Council will work with businesses to support their efforts to be more sustainable as well as focus on its own supply chain to make environmental considerations a key part of procurement.

Sustainability support for local businesses

There are approximately 5,846 businesses within Broxtowe Borough. Analysis from the Office for National Statistics (ONS) indicates that almost all businesses within the Borough are categorised as SMEs (where employee numbers are 249 or less), with 84% being micro businesses (employing nine people or less).

Businesses continue to feel the economic effects of rising energy bills, but there is also the challenge of prioritising sustainability, especially as the impact of climate change is being felt.

The Council, together with local partners (for example both Nottinghamshire universities, Fast Followers (a two year project to deliver an efficient, scalable route to net zero for Derby, Derbyshire, Nottingham and Nottinghamshire (D2N2) Local Energy Partners (LEP)) and Nottingham Energy Partnership) will work together to provide small businesses with

resources, access to events and support to help them on their carbon reduction journey and align with the Council's carbon neutral ambition.

The Council will also work with businesses to identify opportunities to support the creation of green jobs and skills within the local areas.

Sustainability and procurement

It is widely acknowledged that the purchasing of good and services has a significant impact on the environment, society and the economy. The Green House Gas Protocol defines Scope 3 emissions as "all indirect emissions that occur in the value chain of the reporting company, including both upstream and downstream" and this includes the supply chain.

In order for the Council to work towards any net zero commitment it must first establish its Scope 3 emissions and this will include the supply chain. The baseline calculations for Scope 3 are expected to be completed by the end of March 2024.

For most organisations the emissions in the supply chain, (attributed to bought goods and services) are the organisation's most significant contributor to its carbon footprint. Once a baseline has been established, the Council will work with suppliers to reduce carbon emissions on the goods and services procured.

THEME TEN: Communications

Strategic aims

The high level strategic aims for addressing climate change issues relating to communications over the next four years are:

- To develop and deliver a comprehensive climate change communications plan.
- To achieve Carbon Literacy accreditation 'Silver' by March 2025.
- Increase awareness amongst stakeholders (residents, businesses, employees etc.) of climate change and the positive changes that can be made to help mitigate the worst impacts.

Well-considered and designed communication activities are key components for stakeholder engagement. This programme theme will support the various project strands in terms of raising the profile and awareness of the climate agenda, promoting best practice and driving positive behaviour change.

Employee and Member training and engagement

Embedding sustainability across the Council is key in being able to support the commitment of becoming carbon neutral by 2027. A crucial driver for this is employee and Member awareness.

Employees and Members need to be aware of how the authority will be impacted by climate change, the individual practical actions needed to reduce emissions and the significant changes needed to incorporate a transition towards a net zero culture.

To ensure that climate change is embedded across the authority, the following steps are being undertaken:

- Include information about the Council's carbon footprint in the annual performance review.

- Include climate change as part of the Corporate induction process for new starters.
- Ensure that all employees are aware of the climate change impacts related to their department.
- Ensure that all Members are briefed and have regular climate change updates.
- Creation of a climate change e-learning package for all employee's and Members to complete.
- Creation of climate change champions across the authority.
- Work towards becoming a carbon literate organisation.

Behaviour change

By using behavioural science techniques, we can 'nudge' stakeholders to change their behaviour and reduce their carbon footprint.

The EAST framework sets out an approach for this:

- Easy – making smarter choices easy to make.
- Attractive – presenting benefits in a way that maximises their perceived value.
- Social – harnessing 'peer pressure' by showing the desired behaviours are supported by others.
- Timely – ensuring messages are received when people are most likely to be receptive.

Stakeholders are placed into one of three categories to help target messaging and make it more effective:

- Already engaged – Promote and reward behaviour and encourage them to support others.
- Willingness to engage but need support – Ensure information and support is available to help them change their behaviour and celebrate their success when they do.
- Not engaged and unlikely to engage – Understand the reasons why they aren't engaged to determine what action could be taken to support them.

Using a variety of tools including the Green Rewards platform, internal stakeholders have worked together to deliver a climate change communications plan, which aims to drive positive behaviour change and will support internal and external stakeholders in understanding sustainable actions, which will in turn lower their carbon footprint.

Green Events

The Council's Green Festivals (image 6) are events designed to help educate, encourage and support local people to make more sustainable choices. They are a fantastic way people to find out how they can contribute towards the climate change agenda helping to mitigate the worst impacts.



Image 6: Broxtowe Borough Council Green Festival 2023

In 2023/24 Broxtowe Borough Council held its largest Green Festival to date at Coronation Park, Eastwood (image 6). Over 30 stall holders attended, representing local charities, local businesses as well as national organisations. They were on hand to talk to members of the public about the work they were involved in to help tackle climate change whilst providing help and advice. The event was interactive and families were able to participate in a variety of environmentally themes activities.

Following on from its success, the aim is to continue to develop these festivals across the Borough, growing engagement and reach.

Section eight: Opportunities and Benefits

The Council is in a key position to be a trailblazer with regards to climate change engaging and influencing behaviour across a large audience. This position provides many opportunities and benefits to:

- Deliver and promote positive action on climate action.
- Drive positive environmental behaviour change.
- Positive engagement with internal and external stakeholders.
- Facilitate the creation of green jobs and support the local economy.
- Efficiency savings.
- Improve health and wellbeing.
- Improvements to air quality.
- Improved public transport and active travel routes across the Borough.
- Development of Members/employees skills and knowledge base.
- Reduction in fuel poverty.
- Mitigation against the worst impacts of climate change leading to increased resilience and therefore service improvement.

- Increase in biodiversity levels across the Borough.
- Opportunities to link or align with other key strategies.

Section nine: Risks and Challenges

There are many risks and challenges that will be faced along that journey to carbon neutrality and net zero. However, these will need to be addressed and overcome if the Council's commitments are to be achieved.

Some of the main risks and challenges are:

- Build internal expertise to deliver on the Climate Change Strategy.
- Develop and implement comprehensive communications plan.
- Higher cost of any potential sustainable technologies/methodologies.
- Look for opportunities to identify additional land for procurement, work with landowners and other stakeholders.
- Work to build funding requirements into the Council's medium term financial plan (MTFS) limited scope to commit the Council's own financial resources.
- Ensure arrangements for data capture is included in the earlier stages of project development.
- Availability of sustainable goods and services.

Glossary

ACS – Approved Contractor Scheme

BEIS – Department for Energy and Industrial Strategy. (Government department).

Biodiversity – variety of plant and animal life in a particular habitat or ecosystem.

BNG - Biodiversity Net Gain. It is a way of making sure land used for construction is left in a better state than it was before development.

Carbon budget – the amount of carbon dioxide permitted to be emitted over a certain period of time, which would allow global warming to be limited to no more than 1.5°C.

Carbon Neutral – Balance of carbon emissions released against carbon emissions captured.

Carbon Sequestration – is the process by which a carbon sink, such as forestry, reduces the amount of greenhouse gases in the atmosphere.

Circular Economy – A production and consumption system whereby materials are kept within a closed loop (there is a reliance on reduce, reuse, recycling rather than dispose).

Climate Adaptation – A change to process that means that living things are able to cope with a new or changing environment.

Climate Resilience – The ability to adapt to change.

CO₂e – There are six greenhouse gases (GHGs) as set out in the Kyoto protocol. These gases are converted to carbon dioxide equivalent CO₂e and are referred to as 'Carbon emissions'.

D2N2 – Local Enterprise Partnership for Derby, Derbyshire, Nottingham and Nottinghamshire.

DEC – Display Energy Certificates – show the energy performance of a building.

EPC – (Energy Performance Certificate) is a certificate that shows how energy-efficient a property is.

EV – Electric Vehicle.

EVI – Electric Vehicle Infrastructure

GHG – Greenhouse Gas (Gases released in the earth's atmosphere that trap heat).

HVO – Hydrotreated Vegetable Oil

LAD – Local Authority Delivery (Funding to improve the energy efficiency performance of low income and low energy efficiency homes).

LEP – Local Energy Plan

LEVI – Local Electric Vehicle Infrastructure

MRF – Materials Recovery Facility

NEP – Nottingham Energy Partnership

Net Carbon Zero – Cutting greenhouse gas emissions to as close to zero as possible, with any remaining emissions captured.

NO_x – Nitrogen oxides are gases that are formed during the combustion of fossil fuels.

NPPF – National Planning Policy Framework

Ofwat – The Water Services Regulation Authority

PSDS – Public Sector Decarbonisation Scheme

PV – Photovoltaics (Solar Panels – the conversion of light into electricity). A renewable energy source.

Science based targets – these targets aim to limit global warming to no more than 1.5°C.

Scope 1 emissions – Direct emissions from using fossil fuels for heating and for fleet vehicles.

Scope 2 emissions – Indirect emissions from purchased electricity.

Scope 3 emissions – Emissions from sources that are outside an organisation's direct control but that are associated with its activities for example waste, water and purchased goods.

SHDF – Social Housing Decarbonisation Fund

SPD – Supplementary Planning Document (used in planning).

SUD's – Sustainable Urban Drainage Systems – a range of sustainable measures for surface water management which reduce the amount, flow or rate of surface water discharge into sewers. These can also create valuable habitats for local wildlife.

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