

CARBON NEUTRAL PLAN 2030

MONITORING REPORT
(2022-2023)

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The following provides our update to the 2030 Carbon Neutral Plan, which sets out our ambitions and action plan to be a carbon neutral council by 2030. Throughout this report, we make reference to our carbon footprint. In most cases this is accompanied by the unit of measure which is tonnes (t). We also refer to the carbon footprint as CO₂e. This is a metric measure that is used to compare emissions from various greenhouse gases on the basis of their Global Warming Potential by converting amounts of other gases to the equivalent amount of Carbon Dioxide (CO₂).

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Welcome to our 2022 update



In 2021, we approved the Charnwood Carbon Neutral Plan 2030, an ambitious plan to achieve carbon neutrality from the Council's operations by 2030. This monitoring report provides an update to the Carbon Neutral Plan and our target to be carbon neutral by 2030.

We continue to build on our long-standing efforts to reduce the carbon impacts of our activities. This includes our efforts to support positive action against relevant UN Sustainability Goals.



Our world is already changing around us, with increasing temperatures, changing weather patterns and risks to our Council and Borough. Climate change affects us all, but we also all have the power to do something about it. Our Climate Change Board continues its work in our quest to decarbonise our activities and become carbon neutral by 2030.

About our Plan

The Carbon Neutral Plan is a subset of our Climate Change Strategy. As reported previously, the Carbon Neutral Plan was designed to be flexible and regularly reviewed. Now in 2023, we have 7 years left to achieve our aspirations of net zero after emerging from a world-wide COVID-19 Pandemic that has impacted our people and our activities.

To facilitate action, the Climate Action Board, meets bi-monthly to provide a conduit for ensuring that we monitor the actions that were agreed and to enhance or modify our efforts as appropriate. The Board will call on outside expertise that can't be sourced in the Council, as required and where appropriate.

Climate Action Board

The Climate Action Board was established to:

- Take forward the actions outlined and approved in the Council's Carbon Neutral Plan.
- Oversee and manage the Change Climate Strategy.
- Oversee and manage other Council actions that contribute positively to climate change (e.g. air quality).



Borough Wide

This Action Plan does not set out how the Borough as a whole will reach carbon neutrality. It does identify our impact on the Borough and ways that the Council can use its powers to support the transition to a low carbon future

such as through land use planning and the provision of infrastructure. However, we are continually working with communities, partners, residents and businesses to seek to decarbonise our Borough.

A summary of our journey to date

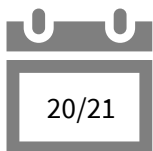


Carbon Management Plan

In 2015, we developed a Carbon Management Plan aiming to achieve a 15% reduction in carbon emissions by 2020 against a 2012-2013 baseline. Within a year from 2015-2016, as a result of energy savings across the Council operations, we had achieved a 21% decrease.

Our commitment to carbon neutrality was announced in June 2019. By the end of 2019, our emissions had fallen by 37%. In absolute terms, this was a reduction of 787 tonnes of carbon dioxide equivalent (tCO₂e). This assisted financial savings of over £280,000. To achieve these savings we switched to using renewable electricity, which means the electricity purchased didn't create carbon emissions, installed highly energy-efficient LED lighting and controls in offices, buildings, car parks including Beehive Lane car park and communal areas of sheltered housing, installed more energy-efficient heating in Charnwood Museum and swapped vehicles for electric and more fuel-efficient ones.





Charnwood Carbon Neutral Plan 2030

In 2021, we launched our Carbon Neutral Plan to present options for inspiring local and regional action whilst reducing our carbon footprint. We established this by consultation with all parts of Charnwood Borough Council.

We established a new 2018-2019 baseline of a carbon footprint of 1,130 tCO₂e which took into account our decision to procure renewable electricity.

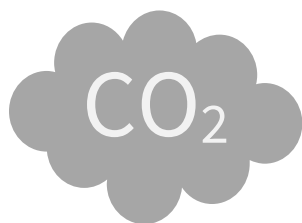
Our 2020-2021 footprint was calculated as 1,092 tCO₂e, a decrease in our footprint from our baseline and previous years. Once again, the impact of the decarbonisation of the national grid for electricity and our decision to procure renewable energy had a positive impact. Building and transport emissions were also reduced by the COVID-19 Pandemic Governmental travel/working restrictions.

Our decarbonisation efforts continued in 2021-22. A normalisation of our activities as we unwound from the impacts of the COVID-19 pandemic saw only a minor increase in the overall footprint to 1,130 tCO₂e. Continued energy efficiency works in our buildings stock saw a further reduction in GHG emissions (particularly in terms of natural gas use).



Tiny Forest Project – Holt Drive, Loughborough

Our 2023 Carbon Footprint



Our 2022 Carbon Footprint has been calculated using the same principles as in 2021-2022, to ensure a true comparison. It is based upon emissions generated from 1st April 2022 through to 31st March 2023. We anticipate that at some point in the future, we may have to rebaseline, as we enhance our carbon reporting to take into account our indirect emissions and potential changes within our data sets.

Our methodology

1

Step 1 – Location based

Calculation of our emissions from buildings (gas & electricity), transport, waste and water.

2

Step 2 – Market based

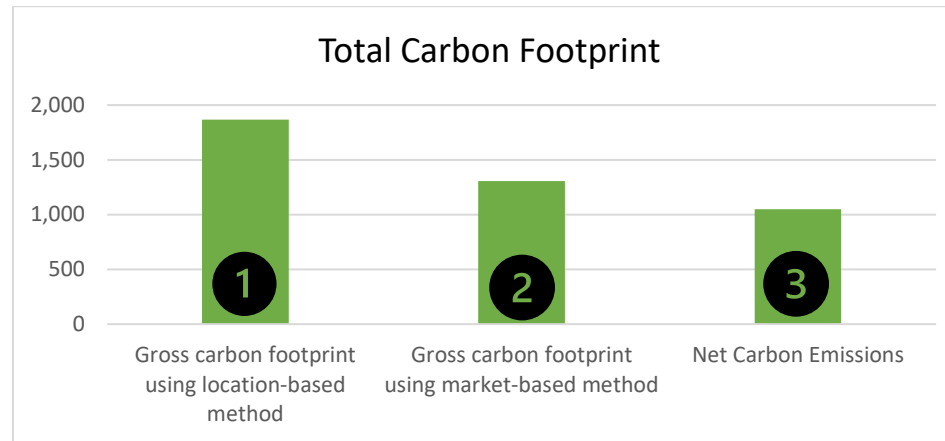
Accounting for our use of 100% renewable electricity at our council buildings creating zero emissions.

3

Step 3 – Calculation of net footprint

This is the emissions generated in step 1, minus the emissions “saved” in step 2, together with activities that take carbon dioxide directly from the atmosphere (sequestration).

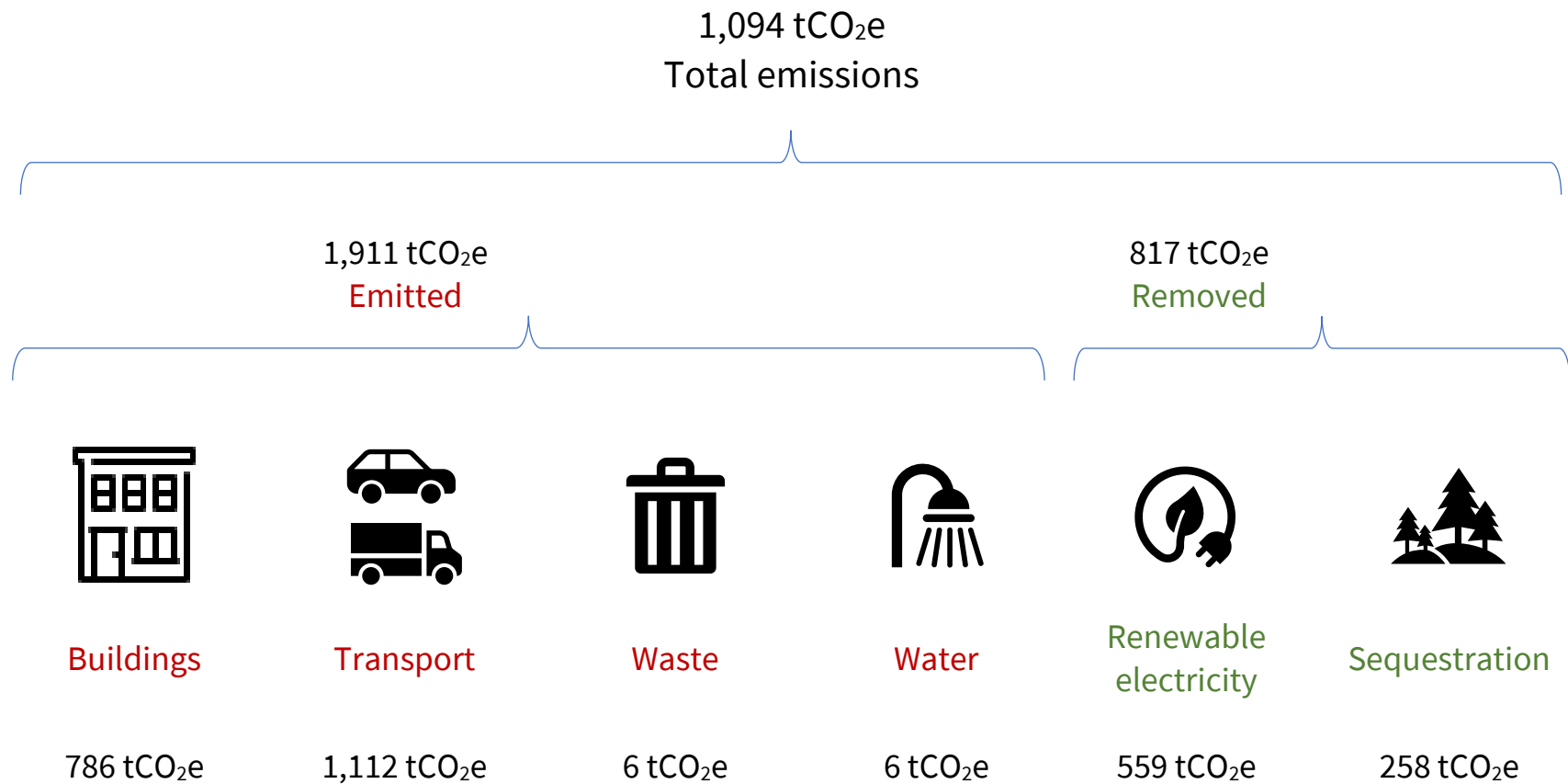
Total Carbon Emissions 2023



Total Net Carbon Emissions

1,130 tCO₂e	1,377 tCO₂e	1,092 tCO₂e	1,130 tCO₂e	1,094 tCO₂e
2018-2019 This is our baseline year. This included sequestration by trees and renewable energy.	2019-2020 This was the first year after our baseline year was set. It represented a 24 CO ₂ e tonne increase in buildings and 138 tonnes in transport. A change in methodology of sequestration also increased the footprint.	2020-2021 This footprint is set within the decrease of emissions across buildings, transportation and water principally due to the impact of the COVID-19 pandemic on our activities.	2021-2022 This shows only a 3% increase from 2020-2021 which is encouraging since activities were normalising post COVID-19 pandemic. Our buildings continue to decarbonise particularly where we use electricity.	2022-23 This footprint shows continued progress within Buildings and transportation, set against a backdrop of normalised activities post pandemic

Emissions, renewable electricity and sequestration in 2022-2023



Carbon footprint comparison



Yearly comparison of Net emissions in tCO₂e

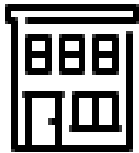
The 2022/23 carbon footprint highlights the continued benefit of our ongoing actions have in maintaining and improving the efficiency with which we use energy in our buildings. The 2022/23 footprint is 3.2% lower than the 2018/19 baseline year; it is also 3.2% lower than the 2021/22 reporting year. It is positive to note no significant increase in building related emissions. This reflects both efforts to reduce overall heating energy needs and continued focus on efficient use of electricity (including use of LED lamps where at all practicable).

Type	2018 -2019	2019 -2020	2020 -2021	2021 -2022	2022 -2023
Buildings	298	1059	833	786	786
Transport	1,149	1,279	1,133	1,130	1,112
Waste	6	6	6	6	6
Water	16	23	9	4	6
Renewable electricity	0	-737	-631	-538	-559
Sequestration	-338	-252	-258	-258	-258
Total	1,130	1,377	1,092	1,130	1,094

We continue to purchase electricity from certified renewable sources in order to move closer to a net zero position in terms of our operations. Feasibility work looking at options for our own renewable generation will be considered alongside purchased electricity so that we can make the most cost-effective investments. However, this will take time given current lack of grid capacity to accommodate any renewable generation we install. National Grid has a queue of upgrades to carry out before any Council generation can be connected. We also continue to look at nature-based solutions, with our tree planting in 2022-2023 of some 14,000 trees supporting an increase in our sequestration overall.



Four-year carbon footprint comparison



Yearly building emissions in tCO₂e

The ongoing benefit of the range of measures already implemented is clearly seen in the data for buildings. In terms of electricity, consumption in buildings will vary according to the occupancy patterns and end use. While buildings such as the Museum and Southfields have reduced electricity consumption in comparison to last year, others such as the Town Hall have risen. The rate of change in overall grid electricity carbon intensity slowed in comparison to previous years meaning that overall emissions have risen slightly for every unit of energy we consume.

Since 2022/23 was generally a warmer period than 2021/22 we would expect to see some reduction in natural gas use. However, significant reductions in natural gas use at Woodgate Chambers and the Oak Business Centre show the benefit of fabric improvements and boiler replacement.

Buildings	2019-2020	2020-2021	2021-2022	2022-2023
Electricity	679	550	470	515
Natural gas	322	234	273	227
Transmission and Distribution losses	58	49	43	45
Total	1,059	833	786	786

We continue to review the opportunities for further savings through wider feasibility studies, helping us have a potentially more holistic perspective of our buildings which should provide greater reductions in future. This is particularly true when looking at how we might move from natural gas boilers to heat pump use for space heating in our buildings.



Four-year carbon footprint comparison



Yearly transport emissions in tCO₂e

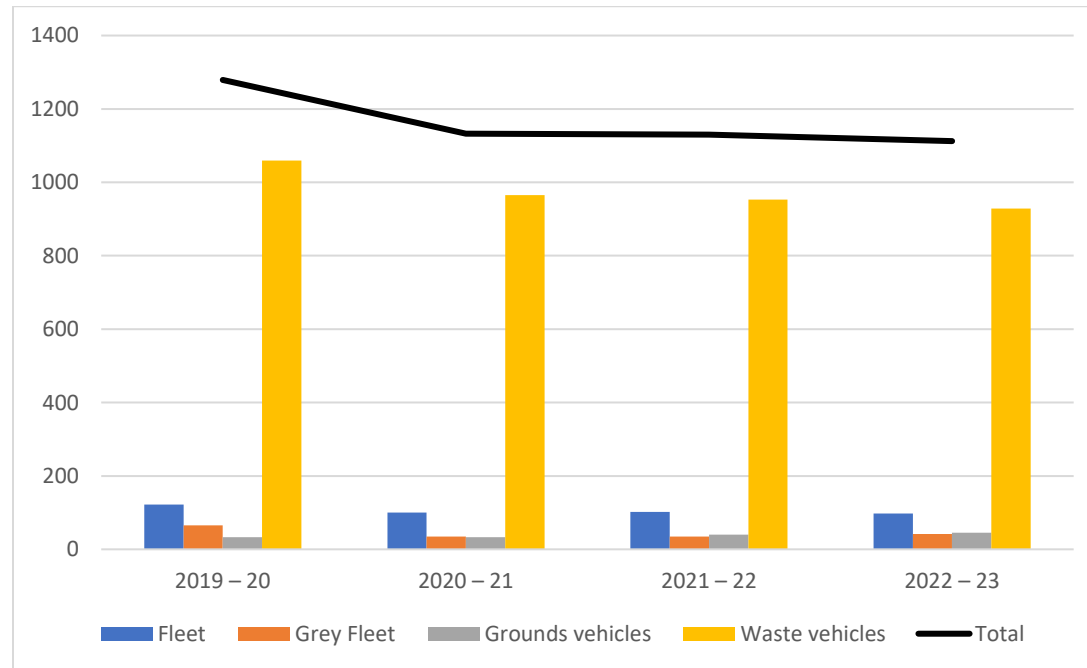
Overall, the amount of tCO₂ related to transport, fell by 13% between 2019-2020 and 2022-2023. Encouraging alternative travel aside from by car has reduced overall emissions associated with our grey fleet. Optimisation of waste management collection routes has also helped reduce emissions from our refuse collection fleet.

Transport	2019- 2020	2020- 2021	2021- 2022	2022- 2023
Fleet	122	100	102	97
Grey Fleet	65	35	35	41
Grounds vehicles	33	33	40	45
Waste vehicles	1,059	965	953	925
Total	1,279	1,133	1,130	1,112

We continue to seek further reductions in emissions by exploring further use of electric vehicles and by potential fuel substitution across the waste vehicle fleet. Wholesale fleet replacement requires considerable investment and so can only be achieved incrementally. There are challenges in terms of both the availability of alternative vehicles (and fuels), the relative cost of these changes and how soon vehicles or fuels can be available. Electric waste vehicles are currently around twice as expensive as conventional diesel vehicles.

We have already installed further charging points to support a future fleet switch to electric vehicles. In the short term, one possibility is a fuel switch for existing refuse collection vehicles to HVO (Hydrogenated Vegetable Oil). This has the potential to reduce reportable GHG emissions from these vehicles by up to 90%; this would reduce overall transport emissions by around 70%.

HVO fuel is more expensive than conventional diesel; it is also important for us to consider how this fuel is made. Much of global HVO is made from processed palm oil which potentially contribute to deforestation in regions where palm oil is cultivated in preference to native habitat.



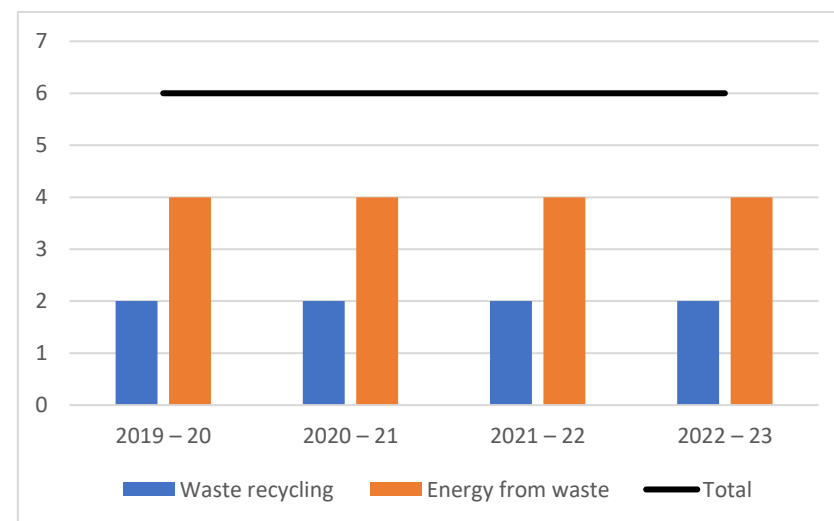
Four-year carbon footprint comparison



Yearly waste emissions in tCO₂e

Waste from our activities has remained constant. In 2022-2023 we estimated our waste based upon an average of previous years. This is because we switched the company that we transfer our waste to. There have been no significant changes to our operations that result in any upturn in the amount of waste arisings.

Waste	2019-2020	2020-2021	2021-2022	2022-2023
Waste recycling	2	2	2	2
Energy from waste	4	4	4	4
Total	6	6	6	6



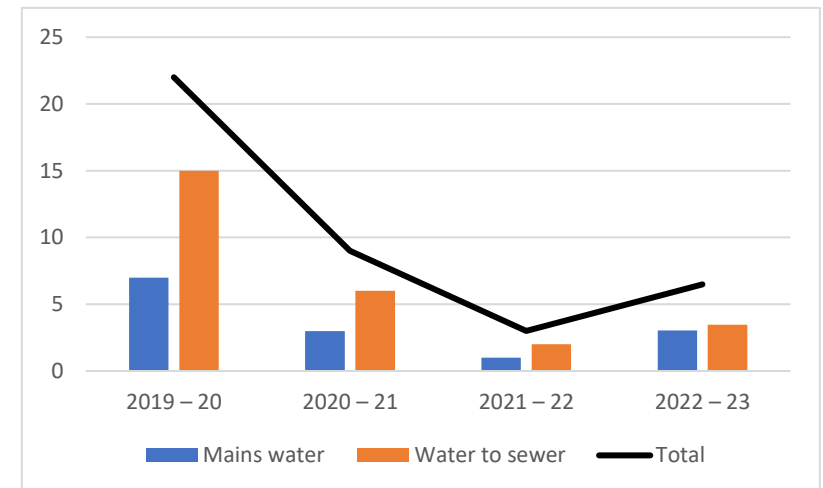
Four-year carbon footprint comparison



Yearly water emissions in tCO₂e

Water related GHG emissions in 2022/23 were 70% lower than in our baseline year. Mains water GHG emissions rose significantly in comparison to 2021/22. We continue to monitor opportunities for water efficiency in our buildings, particularly during routine maintenance replacement schedules for kitchen and sanitaryware.

Water	2019-2020	2020-2021	2021-2022	2022-2023
Mains water	7	3	1	3
Water to sewer	15	6	2	3
Total	22	9	3	6



An update of our Actions

Our Corporate Plan, Climate Change Strategy and Carbon Neutral Plan includes climate change as priorities. The following provides an update to our Carbon Neutral Plan approved actions, in order to meet our goal of carbon neutrality by 2030.



Main Challenges

The tracking of our carbon footprint demonstrates we have three main challenges:

1. Reducing net carbon emissions from buildings
2. Reducing net carbon from transport
3. Investing in carbon positive activities

01

Reducing net emissions from buildings

The carbon footprint of our buildings is dominated by gas consumption, gas burnt to heat our buildings and produce hot water. It remains our intention to decarbonise, as far as practicable, gas burnt to heat our buildings and produce hot water.

02

Reducing net emissions from transport



















The carbon footprint of our vehicles is dominated by diesel consumption although across our reported Transport category we are encouraged that there are 6 full electric vehicles including our Mayorial car. Our intention is to minimise and optimise, wherever practicable, our fleet journeys and seek alternative fuel sources.













03
































Investing in carbon positive activities




















Our intention is to seek renewable energy opportunities where it is possible. In addition undertake tree planting which will not only sequester carbon but add to biodiversity.





































Detailed analysis of our actions
































Timescale		CO ₂ e reduction Impact	Borough impact	Financial cost /risk	Project owner	Progress
0-2 years		Low 	Low 	Low 	Officer 	In preparation 
3-5 years		Medium 	Medium 	Medium 	Manager 	In progress 
5 plus		High 	High 	High 	Head 	Complete 

No.:	Action detail:						Commentary:	
1	Ensure dedicated resources are in place to implement the management and delivery of the Carbon Neutral Plan.						<p>The Climate Action Board meets to ensure that the Carbon Neutral Plan actions are managed and delivered effectively while ensuring delivery is financially sustainable. The current, approved Capital Plan contains a Climate Action Fund budget of £1 million available to progress individual projects. This resource will be used to fund feasibility studies and other preparatory work. We also have a dedicated full-time Sustainability Officer.</p> <p>Individual projects, if shown to be feasible, will be funded by Capital or Revenue, with the associated authorisation obtained through established governance routes.</p>	
2	Formalise and embed a process for evaluating the impact arising from the Council's decisions.						<p>The guidance document for decision-making reports is in development to strengthen how a report, issue/proposed decision contributes, mitigates, or reduces our impact on the climate, our goal to be carbon neutral or the likely impact on our carbon footprint.</p>	

3	Install a solid and better insulating door at the rear entrance of the Town Hall (stage door) to eliminate the current loss of heat and cold draughts.						Installation of a new door has been completed. It is recognised that the Town Hall requires a holistic review of its fabric, insulation, heat and use requirements.	
4	Commission a technical feasibility study for low or zero carbon heating options in the Town Hall. This replace the 20-year-old boiler and would be installed as part of a full building renovation						Town Hall boilers are less than ten years old. Informal scoping of a feasibility study has been undertaken. As the Town Hall operators require structural alterations, a wider feasibility study and options appraisal is to be commissioned (as 3 above).	
5	Renew quotes for double glazing and flat roof insulation at Charnwood Museum and procure the best option.						Initial roof inspections have been completed and a specification of works required on the flat roof has been prepared for tender issue. Glazing works are being procured separately to reduce lead in times. Contractor quotes are to be received.	
6	Complete LED installations in Museum staff areas with person-in-room sensors						Works are ongoing and expected to be completed in Q3 2023.	
7	Continue to replace bulbs when needed with best available LED option across the estate.	 					As per our policy, as traditional units/lamps fail, they are being replaced by LED options, where practicable.	

8	Procure renewable gas						<p>Given wholesale energy market conditions (particularly gas) this is no longer a financially viable project.</p> <p>The green gas premium was in the region of 0.9p/kWh in May 2022. The unit standard gas price in 21/22 was 1.4321 ppkWh and in 22/23 is 2.4788 ppkWh.</p>	
9	Upgrade and switch to electric vehicles in the street management & pest control fleet	 					<p>Fleet procurement across the world is experiencing significant difficulties and this is the same experience here at Charnwood. While trying to action this project, we have experienced vehicle lease providers not being able to commit to any pricing because of the long lead in times for supply and the uncertainties around costs going forwards.</p> <p>This is still being pursued and it's hoped that problems will ease soon, as supply chains return to normal.</p> <p>However, charge points have been installed at the Pest Control unit ready for charging EV vehicles.</p>	
10	Smart bin feasibility study						<p>Prices have been obtained to undertake the smart bin trial. Consideration needs to be given as to whether the trial represents value for money and whether this action is to be pursued.</p>	

11	Cross-service electric pool car and charging feasibility study.						An electric/petrol hybrid has been purchased as part of a wider trail. A sustainable compromise had to be sought because of the vehicle supply chain issues with electric vehicles. This was why a hybrid was chosen rather than full electric (EV).	
12	Cross-service maintenance vehicle feasibility and pilot						A feasibility study and viable project is yet to be started.	
13	Progress tree programme including 13,000 to 14,000 trees at Hathern during Autumn/Winter 2021-2022.						14,000 trees are planted across autumn/winter of 2022/2023.	
14	Embedding Nature P.O.Sitive in the Carbon Neutral Plan						Discussions are progressing with our contractor idVerde.	
15	Site feasibility studies for Solar PV installations on Council owned land, including land purchased for the purpose						A feasibility study has been undertaken and whilst theoretically possible, the National Grid has no ability to receive power from a solar farm. In addition, National Grid has a queue of upgrades to carry out before a potential solar farm can be connected. It is anticipated that this will be revisited after the period of this plan.	
16	Borough-wide feasibility study for land-based solar PV installations, for example at Council owned car parks.						The Car Parks Team are reviewing this topic based upon the car parks directly owned by us.	

17	Feasibility study for rooftop solar PV installations across our built estate.	 					The operational assets (buildings only) are to be assessed and a list devised for inclusion into a holistic feasibility study. The Commercially let council owned property are being assessed on an individual basis.	
18	Site feasibility studies for wind energy generation taking account of Local Plan Opportunity Areas.						There are currently two wind power installations, one at West Beacon Farm and the larger one at the Severn Trent Sewage Treatment Works, Wanlip. Areas have been identified in the Charnwood Local Plan 2021-37 Pre-submission Draft July 2021.	
19	Complete LED installations upgrade at the Town Hall						This upgrade is ongoing	
20	Feasibility waste fleet change from diesel to hydrotreated vegetable oil (HVO)						A feasibility paper has been prepared looking at the technical viability and associated costs of a fuel switch for waste vehicles to HVO. This has the potential to significantly reduce GHG emissions from the waste fleet.	
21	Smart boiler replacement & new radiators at Oak Business Centre						These works were completed in January 2022. This will contribute to a reduction in the natural gas used in meeting the building heating requirements.	

Continuing the journey to net zero

The target of reaching net zero emissions by 2030 is challenging, but we have already shown that we can act decisively and effectively to reduce carbon emissions. As a council we have been reducing our carbon emissions for many years through our Carbon Management Plan and are building on a solid record of success.

We will continue to seek efficiency savings in the use of transport fuel, building energy and water in our everyday activities. We are also looking ahead to where more challenging savings can be made, for example in replacing the fuel used in our refuse collection vehicles and replacing natural gas boilers in our buildings with heat pumps. These changes are not as easy to implement, and typically require considerable additional investment. This means making choices as to when and how we commit that investment, so as not to compromise our day-to-day work.

The Council is not alone in its journey. We work in collaboration with our fellow authorities in Leicestershire as well as the County Council and other key stakeholders such as Loughborough University. In this way we can ensure that our own efforts to reduce GHG emissions are assisted by wider works where these are relevant. This could be, for example, in negotiating with the local grid electricity network operator to enable connection for local renewable energy generation, or in procurement routes for low emission vehicles.

The Council will continue to follow strategic changes in the way we use power, heat and transport systems so as to be able to best use these changes to the benefit of all residents in the Borough.

Sustainable Development Goal alignment

The Sustainable Development Goals (SDGs) are a collection of 17 interrelated goals set by the United Nations. By measuring and reducing our carbon footprint we directly contribute to 9 SDGs:



- 100% of water treated
- Reduction in water consumption



- Our plans are for sustainable infrastructure.



- Reduction in carbon from buildings, transport & water
- Decarbonisation
- Climate Change Strategy.



- 100% of energy demand met by renewable energy



- Measured carbon emissions
- Reduction in carbon from buildings, transport & water



- Reduction in carbon from buildings, transport & water



- Reduction in carbon from buildings, transport & water



- Measured carbon emissions
- Reduction in carbon from buildings, transport & water



- Reduction in carbon from buildings, transport & water
- 14,000 trees are scheduled to be planted in 2022-2023.

Sources

- Information has been abstracted from invoices and internal sources to derive energy related data.
- CO₂e emissions have been calculated using BEIS conversion factors 2023.
- The “Charnwood GHG Accounting Tool” was used to calculate carbon emissions and sequestration figures.
- The “Detailed analysis of actions” was a result of discussions with the members of the Climate Action Board.

Caveats

- Electricity consumption data for Southfield Road has been reduced based upon the area that we occupied in 2022-2023.
- Our 2023 Carbon Footprint has been calculated using the principles in 2020-2021 to ensure a true comparison.
- The total amount of renewable electricity claimed is the total amount of electricity purchased from those buildings that we are responsible for. There may be unit differences in data (particularly totals) where rounding to a decimal place has been applied.
- Waste data was not available for 2022-2023 as there was a change in the company who we transfer our waste to. Waste has been estimated for 2022-2023 based upon the average tCO₂e since 2018-2019.



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