

YORK 2032



York Climate Change Strategy

2022-32

A city fit for the future

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York Climate Change Strategy:

A city fit for
the future

Foreword

The York Climate Change Strategy, “A City Fit for the Future” was developed by the city for the city. It sets out our vision to be net zero and provides a framework to both reduce carbon and be more climate resilient by 2030. This is our strategy to help guide everyone’s actions and decisions over the decade ahead.

Across the city, our beautiful built heritage is energy intensive, and our Roman and Viking roads were not built for modern traffic. Today’s ways of living and working further add to the challenges of reducing our dependence on fossil fuels, cutting carbon emissions, and making us more resilient in the presence of increasingly frequent and severe weather events. Taking action to reach net zero will require a concerted effort across all sectors of our society and economy, yet, we’ve already shown what’s possible. Not taking action will entail large and growing costs to be shouldered by us and future generations, while the benefits of tackling climate change can improve all of our lives.

The pandemic forced us to rethink how to live healthier, happier lives, what it means to be economically viable, and the importance of the natural environment. We have seen our place in history is not defined by how we travel, the holidays we take, or the goods we buy, but instead by our health, the strength of the relationships around us, and how we position our economies and communities to adapt to unprecedented ever-changing circumstances.

We owe it to our city – its heritage, the people living and working in it today and tomorrow, and all those visiting it – to make sure it is fit for the future. We can do that in ways that improve the economy by being a leader on climate action, and create wealth and wellbeing, rather than putting them further at risk.

**Leader of the
Council**

**Executive Member
for Environment
and Climate Change**

**Chair of
York Climate
Commission**

Executive Summary

Climate change is the greatest threat facing our planet¹. In York, we are committed to tackling this threat; in 2019, The City of York Council declared a climate emergency, set an ambition for York to be net zero carbon and established an independent Climate Commission for the city.

Reducing our carbon emissions and adapting to a changing climate are crucial to ensure that York is a city fit for the future.

Since 2005, emissions across York have reduced by 39% due to a combination of increasingly decarbonised electricity supply, reduced energy demand and behaviour change, but there is still more that we can do. The council accounts for less than 4% of total emissions in York but is taking a leading role in tackling climate change through the way it works, the goods it buys and the services it delivers. We will need to work together and mobilise the city's public, private, community, faith, education and academic sectors to successfully deliver our objectives.

“A prosperous, progressive, and sustainable city, giving the highest priority to the wellbeing of its residents, whilst protecting the fabric and culture of this world-famous historic city.”

As part of this Strategy, we have produced a Net Zero Carbon Pathway for York to 2030 that is consistent with our fair contribution to the Paris Agreement. We know that York's greenhouse gas emissions are mostly from buildings (32% residential and 30% commercial) and from transport (28%) and that significant emissions reductions are required to achieve our net zero ambition.

If we do all we can with the currently available options, we will reduce emissions by 77% by 2030²; but we will need to go further. We will need to go further through new scientific endeavour, making the most of emerging technology, lobbying for and embracing policy change, attracting external investment, and working together across the city to take every advantage we can.

There are challenges in getting to where we need to be by 2030; but they are achievable, and have the potential to deliver significant economic, social and environmental benefits beyond our climate change ambition.

¹ <https://www.ipcc.ch/2021/08/09/ar6-wg1-20210809-pr/>

² On 2005 levels

Engagement

- 1.1 Clear communication and information
- 1.2 Increase awareness and understanding
- 1.3 Build strong relationships and networks
- 1.4 Identify best practice

Buildings

- 2.1 Improve energy efficiency of existing buildings
- 2.2 Reduce emissions from new buildings
- 2.3 Move away from fossil fuel heating systems
- 2.4 Switch to more efficient appliances

Transport

- 3.1 Reduce overall travel miles
- 3.2 Increase uptake of active travel and public transport
- 3.3 Switch to electric vehicles
- 3.4 Reduce freight emissions
- 3.5 Futureproof infrastructure

Waste

- 4.1 Reduce amount of waste
- 4.2 Increase reuse, repair and recycling rates
- 4.3 Move towards a circular economy

Commercial & Industrial

- 5.1 Improve process efficiency
- 5.2 Shift away from fossil fuels
- 5.3 Grow the green economy
- 5.4 Increase resilience to climate risks

Natural Environment

- 6.1 Increase tree planting
- 6.2 Increase carbon storage
- 6.3 Promote sustainable land management
- 6.4 Reduce the impacts of extreme weather events and climate risks

Energy

- 7.1 Increase renewable energy generation
- 7.2 Improve energy flexibility and storage
- 7.3 Support increase in local community energy ownership

Governance

- 8.1 Decide responsibility
- 8.2 Track action
- 8.3 Monitor progress
- 8.4 Report annually

This Strategy identifies 32 objectives to help meet our carbon reduction and climate resilience ambition. The objectives cover 8 key themes that have been identified through analysis and consultation.

To deliver our ambition, we will be guided by five principles. You will see these applied throughout the delivery of this Strategy, in the actions we take, the relationships we build and in how we openly share plans and data to help others:

1 We will **increase collaboration and cooperation** by working with partners to encourage changes in the way we live and behave. We will create partnerships among businesses, the public sector, civic organisations and our institutions in higher and further education to ensure that new, action-oriented knowledge is generated and effectively shared to the benefit of all.

2 We will continuously **adapt to change**, taking bold action by trialling new and emerging technologies. We will be pragmatic, focusing on reducing emissions within our immediate control and influence, and prioritising actions that deliver best value. We will publish an annual Climate Change action plan.

3 We will **build fair, inclusive, healthy and sustainable communities** by promoting the positive social and economic benefits of climate action and by supporting individuals who need it the most. With more protected green spaces, less air pollution and greater tree canopy cover we will support the wellbeing of our residents and increase biodiversity.

4 We will **create new employment and investment opportunities**, strengthening the economy through our work with local suppliers to build local “green” skills in sectors such as retrofitting and the bio-economy. We will proactively seek alternative funding streams and attract additional investment, whilst being mindful of reduced budgets.

5 **Good governance** and evidence based planning will guide our actions ahead. Named individuals and organisations will take accountability for delivering actions. We will provide accurate information that allows us to review progress and adapt actions if required. We will regularly review and publish emissions data to track progress against our ambition, updating our action plan in response.

Throughout the decade ahead, we will review this Strategy to understand the difference it has made, how it has contributed to our climate change ambition and whether we need to adapt or strengthen any areas to keep us on track to becoming a net zero and climate resilient city; a city fit for the future.

Section I

Background

The Need for Action

A Climate Emergency

In 2018, the Intergovernmental Panel on Climate Change (IPCC) published a special report on Global Warming³, describing the devastating impact a global temperature rise of 2°C would have on our planet and the importance of limiting warming to 1.5°C. In response, the UK has committed to bring all greenhouse gas emissions to net zero by 2050.

In 2019, the council declared a Climate Emergency and set an ambition for York to be net zero carbon by 2030. York recognises its place as a leader on climate action. Since 2005, emissions across York have reduced by 39%⁴, but there is still more that we can do.

This Strategy is the next stage in our journey to tackling climate change. It sets out our approach to reducing the emissions that are under our direct influence to net zero, and creating a city that is resilient to the impacts of climate change.

While this strategy does not currently include our indirect emissions, they are important to consider. We commit to better understanding the emissions associated with our consumer choices and business supply chains and how we can reduce these in the future.

Adapting to Change

Cutting our carbon emissions to reduce the impact of climate change is critical for people and the planet, but we must also prepare our city for the changes that we are already experiencing.

Globally, the past five years have been the hottest on record since 1850. In the UK, we will experience warmer, wetter winters and hotter, drier summers⁵. Extreme weather events are also predicted to increase.

In our recent history, York has experience of extreme weather events, with flooding being a particular issue. That is why the city's Local Flood Risk Management Strategy⁶ sets out plans for flood protection up to 2039.

We are committed to better understanding the local risks posed by a changing climate and making sure that we are prepared to deal with the anticipated changes.

Working Together

This Climate Change Strategy is for the whole of York. Tackling climate change and achieving the net zero ambition will be the responsibility of everyone; whether you live, work or visit our city. We will need to work with existing partners and

³ <https://www.ipcc.ch/sr15/>

⁴ <https://www.york.gov.uk/downloads/file/699/climate-change-framework#:~:text=The%20Climate%20Change%20Framework%20for,part%20in%20tackling%20climate%20change.>

⁵ <https://www.metoffice.gov.uk/binaries/content/assets/metofficegovuk/pdf/research/ukcp/ukcp-headline-findings-v2.pdf>

⁶ <https://www.york.gov.uk/downloads/file/281/local-flood-risk-management-strategy>

develop new networks that can bring together organisations from the city's public, private, community, faith, education and academic sectors to deliver our objectives.

City of York Council

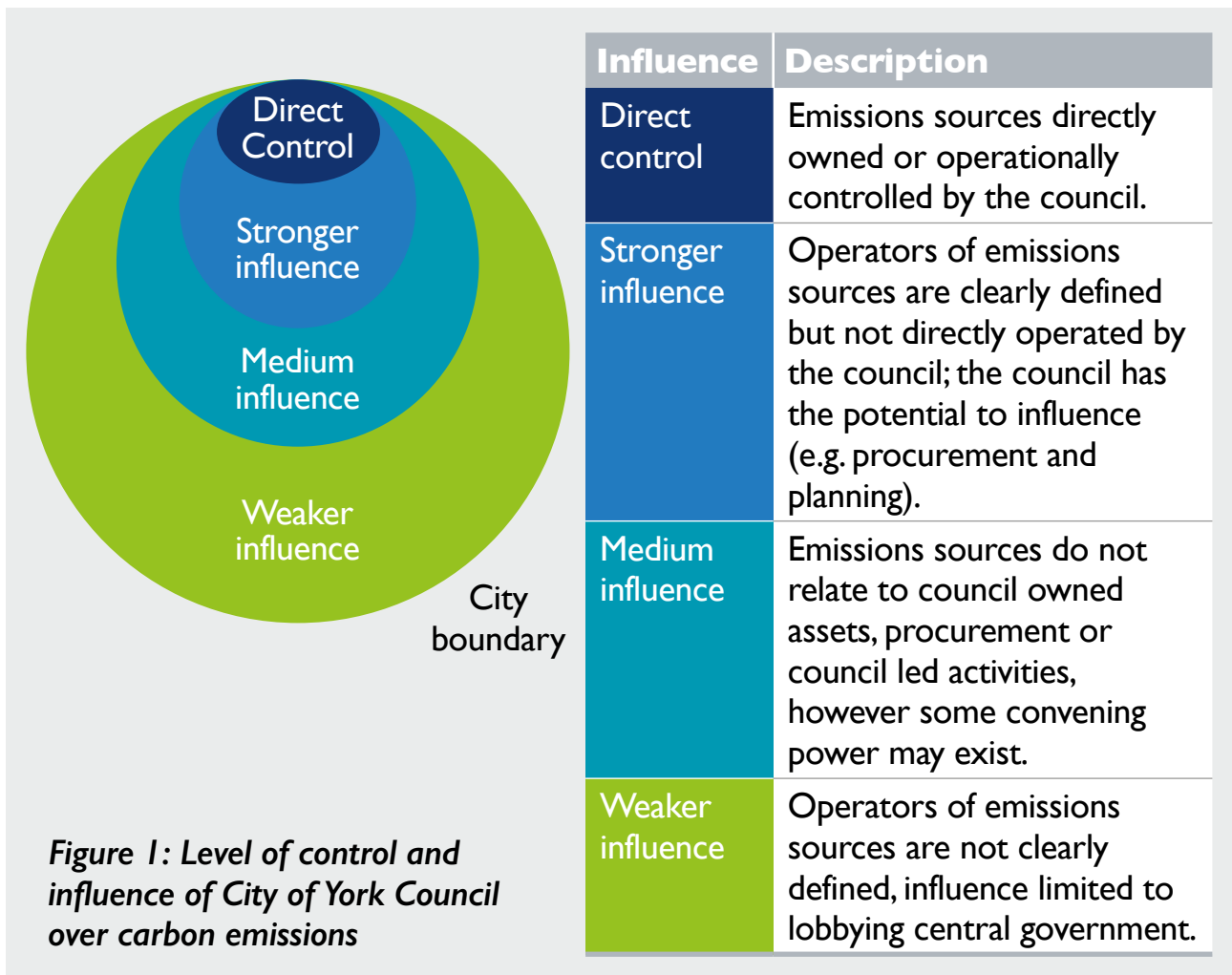
The council is taking a leading role in tackling climate change and will reduce corporate emissions to net zero by 2030; however, the council is directly responsible for less than 4% of the total emissions in York. The council's wider influence can extend far beyond this, through purchasing decisions and local policy, but every aspect of our society will

need to contribute towards achieving our city-wide ambition.

Businesses

With over 7,000 businesses and a Gross Value Added (GVA) of £6.5bn, York is a major driver of growth across the region and beyond. The city is home to a diverse range of enterprising and innovative businesses, many of which are already taking proactive steps to reduce their carbon emissions.

Almost 80% of businesses who responded to the council's Our Big Conversation agree with the ambition for York to



be net zero by 2030, and 20% of firms have considered diversifying into goods and services that are part of the green economy over the next year.

Businesses can take actions that not only reduce carbon emissions but also reduce costs and have a positive impact on society. Steps to reduce energy consumption, influence behaviour change (among employees, customers and networks) and engage local supply chains, supports our net zero ambition, ensures businesses are resilient to climate change and provides opportunities for new local jobs.

The Local Government Association estimates that 3,090 green jobs⁷ will be required in York by 2030 in the low-carbon and renewable energy sector, with the majority of these in bioenergy, low-carbon heat pumps and building insulation. By 2050, this number is expected to be at least 4,902.

Residents

York is home to roughly 210,000 people. We can all make positive changes to how we live and travel around the city, which can help reduce emissions. Making improvements to our homes reduces emissions but also lowers energy bills; residents can shape and create neighbourhoods that meet our daily

needs close to home; and make consumer choices that demonstrate demand for more sustainable products. Encouragingly, 69% of respondents to Our Big Conversation⁸ have made changes to their purchasing habits and a similar proportion (65%) have already made changes to their personal travel.

80% of respondents to Our Big Conversation agree with the ambition for York to be net zero carbon by 2030. Residents have a powerful voice to call for change from their employers, local businesses and local/national governments. By talking about climate change, residents in York can help encourage others to act.

York residents equipped with the right skillset have the potential to benefit from new green jobs. In 2021, 14% of residents⁹ believed they would have to retrain to continue working in York. Helping residents to develop the knowledge and skills suitable for green jobs can reduce the city's carbon emissions alongside helping residents to recover from the COVID-19 pandemic and support our inclusive growth ambitions.

Visitors

York has been a tourist destination for almost 2,000 years, since being founded by the Romans in 71 AD. These days, York welcomes 8.4 million visitors every

⁷ https://lginform.local.gov.uk/reports/view/lga-research/estimated-total-number-of-direct-jobs-in-low-carbon-and-renewable-energy-sector?mod-area=E06000014&mod-group=AllUnitaryLalnCountry_England&mod-type=namedComparisonGroup

⁸

⁹ <https://data.yorkopendata.org/dataset/kpi-tap17a/resource/3098cc94-e106-433b-96b0-1dc0a6da6849>

year, with the sector contributing £909 million to York's economy. One in five of York's visitors stay overnight in one of over 20,000 bed-spaces and the visitor economy supports 25,000 jobs in the city. We also welcome close to 900,000 conference and event delegates every year.

Despite reduced visitor numbers through the pandemic, York remains an attractive visitor destination with a strong regional market. The city's new tourism strategy will take a leap into the future with a bold new plan to rebuild the visitor economy in a more sustainable and integrated way. We want to see York develop as a liveable city, as well as a thriving visitor destination.

Investors

Delivering net zero and adapting to climate change will require significant investment. The city will need to work with the financial sector and attract external investment to help deliver new

infrastructure, financial mechanisms and funding for climate projects. Emissions from buildings account for over 60% of our emissions, investing in retrofit and renewable energy will strengthen the local economy, create new employment opportunities and help meet our climate ambitions.

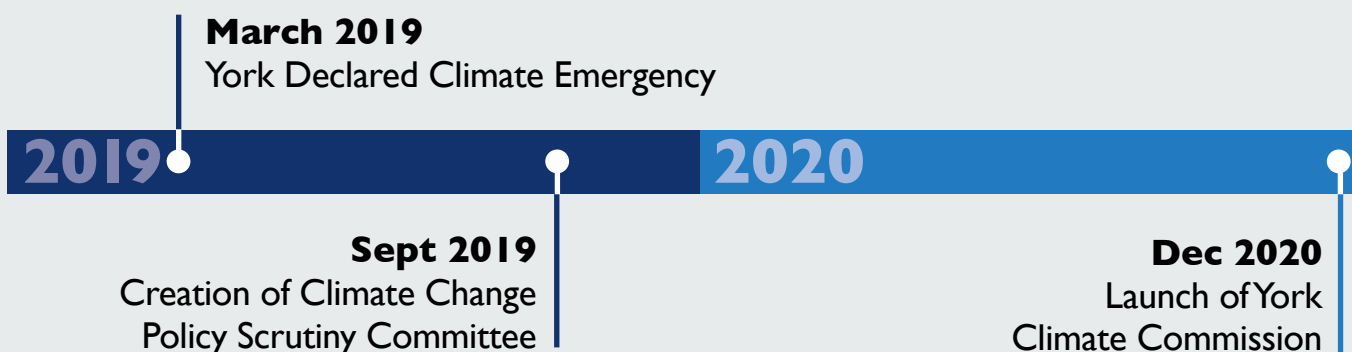
Our commitment to net zero and climate resilience will make York a more attractive prospect for external investment. Organisations are increasingly incorporating environmental and sustainability considerations into their decision making process.

Academic institutions

York has 63 schools, 2 further education colleges and 2 internationally renowned universities. Around 25,000 school-aged children live in York and a sixth of our population are under 18 years of age.

Our academic institutions are crucial for providing new ways of thinking, innovative

Timeline of activity since 2019 Climate Emergency Declaration



solutions, research, funding and talent to help develop new ideas and create a more sustainable York. Extending climate literacy training throughout all educational settings and avenues will be a crucial contribution to tackling climate change together.

York Climate Commission

York Climate Commission is a body representing and reflecting public and private sector representatives from across the City of York to deliver action, strategic oversight and monitoring for the progression of the city's climate change agenda.

Regional ambition and working outside of York

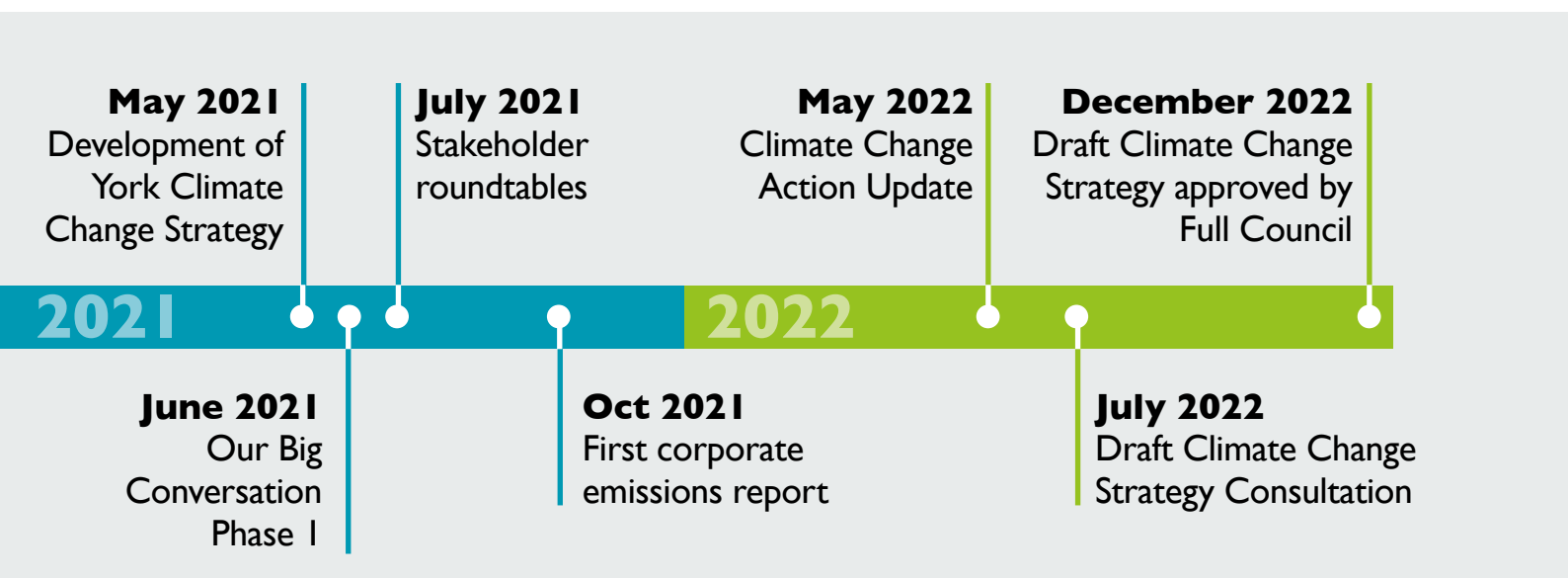
The Yorkshire & Humber Climate Commission represents members of local councils, businesses and third sectors. The Commission aims to reduce the carbon emissions of the region as quickly as possible by enabling engagement, providing evidence and promoting best practice.

The York and North Yorkshire Local Enterprise Partnership aims for the region to be carbon neutral by 2034 and carbon negative by 2040. The Partnership provides support for businesses, assessments of local skillsets and a routemap for York and North Yorkshire becoming England's first carbon negative region.

The UK Government is legally bound to achieving net zero by 2050. The 2021 Net Zero Strategy sets an interim target to reduce emissions by 78% by 2035 and sets the trajectory for phasing out the sale of gas boilers fully decarbonising the power system.

Our Strategy

The council has led on development of this document, but the York Climate Change Strategy is for the city and represents all of us. When developing this Strategy, a wide range of views and perspectives were considered to



ensure that all residents of York were represented in its vision.

Our Big Conversation

Our Big Conversation is a city-wide discussion to help the city tackle challenges around carbon reduction, future transport priorities, and York's economy. Almost 2,000 responses were received, with some of the main themes including:

80%

agreed with York's ambition to become a net zero carbon city by 2030

70%

of residents have already taken action to reduce their carbon footprint

£££

Cost is seen as a major barrier for doing more to reduce carbon emissions

Engagement Workshops

The council hosted three roundtable sessions covering buildings, transport, energy, waste and the natural environment. These sessions gathered the views, experiences and knowledge of key organisations in York to ensure the objectives presented in this strategy are aligned with their perspectives.

Over 35 organisations from across the city were involved, discussing the barriers and opportunities associated with technology, policy, finance, community and delivery for the city in implementing carbon reduction actions. Details of the stakeholder perspectives are provided in the Technical Annex.

Focus Groups

A further round of engagement included focus groups that targeted underrepresented voices from the first Our Big Conversation discussion. These structured discussions have contributed to our understanding and the content of this Strategy.

Through these focus groups, three key themes relating to the Climate Change Strategy were identified¹⁰, covering:

- Greener Choices: Motivating Factors, Barriers to Change, and Perceived Responsibility
- Cost was seen as one of the largest barriers to change, but all participants expressed a desire to make changes where they could. They felt that changes would be more likely to be adopted by a larger number of people if it was more convenient and people were better educated as to their role.
- Respondents felt that there was too much emphasis placed on the actions of individuals in reducing

¹⁰ <https://modgov.york.gov.uk/documents/g13847/Public%20reports%20pack%20Tuesday%2004-Oct-2022%2017.30%20Climate%20Emergency%20Policy%20and%20Scrutiny%20Committee.pdf?T=10>

their impact on the environment and that those least able to make meaningful changes were being made to feel most responsible. Respondents went on to describe that they felt that the Government and large corporations bore the highest-burden of responsibility

- **Zero-carbon by 2030: Ambition and Achievability**
 - Respondents were clear that there was a strong desire for change and improvement, particularly around transport, but that any changes should be equitable and beneficial to everyone.
 - Respondents were strongly in favour of the council taking climate action but there were mixed feelings about the achievability of the strategy as it stands
- **Green Initiatives: Citywide Changes and Implications for Residents**
 - The residential recycling service was perceived to be poor by residents and there was a lack of clarity around what could be recycled and when. Respondents reported a strong appetite for more kerbside recycling to include things like soft plastics and food waste.
- Respondents were generally open to making changes where possible but there was a strong level of feeling from respondents that initiatives such as solar panels, ground source heating pumps etc were beyond the means of most ordinary people, even if subsidies were available.
- Respondents distrusted carbon offsetting as a way of reducing carbon impact, feeling it should be used only after all other carbon reduction activities had been carried out. There was also little faith in how much recycling was actually recycled within the city.

Key definitions¹¹

- **Direct emissions** are those that we are directly responsible for within York and include emissions from consumption of fossil fuels within our boundary (**Scope 1**) and emissions from grid-supplied electricity consumed within our boundary (**Scope 2**).
- **Indirect emissions (or Scope 3 emissions)** relate to our activity, but occur outside of our boundary, such as transport of goods into York and goods produced outside of York that we use locally.
- **Greenhouse gases** are gases released into the atmosphere that contribute to global warming by absorbing and re-emitting heat. These include carbon dioxide, methane, nitrous oxide and F-gases.
- **Carbon emissions** refer to the amount of carbon released into the atmosphere. The burning of fossil fuels and the release of greenhouse gases are contributing actions. Carbon dioxide equivalent (CO₂e) is often used to quantify the amount of different greenhouse gases released.
- **Net zero carbon** refers to a balance of the amount of carbon released into the atmosphere and the amount removed to equal zero overall.

¹¹ A full Glossary of Terms is provided at the end of this Strategy

Section 2

The Ambition

Current Situation

In 2018, York's greenhouse gas emissions totalled 936 ktCO₂e. The majority come from our buildings (61.9%) and transport (27.9%).

We have already made significant progress in reducing emissions in York. Since 2005, city-wide emissions have fallen by 39% due to a combination of increasingly decarbonised electricity supply, structural change in the economy, and the gradual adoption of more efficient buildings, vehicles and businesses.

A Net Zero Carbon Pathway for York

The latest IPCC Report¹³ indicates that the remaining global carbon budget to remain within 1.5°C of global warming is 400 billion tonnes CO₂. We have worked with Leeds University, The Tyndall Institute and the Setting City Area Targets and Trajectories for Emissions Reduction (SCATTER) project to convert this global carbon budget into a Net Zero Carbon Pathway for York, which is consistent with our fair contribution to the Paris Agreement¹⁴ (figure 3).

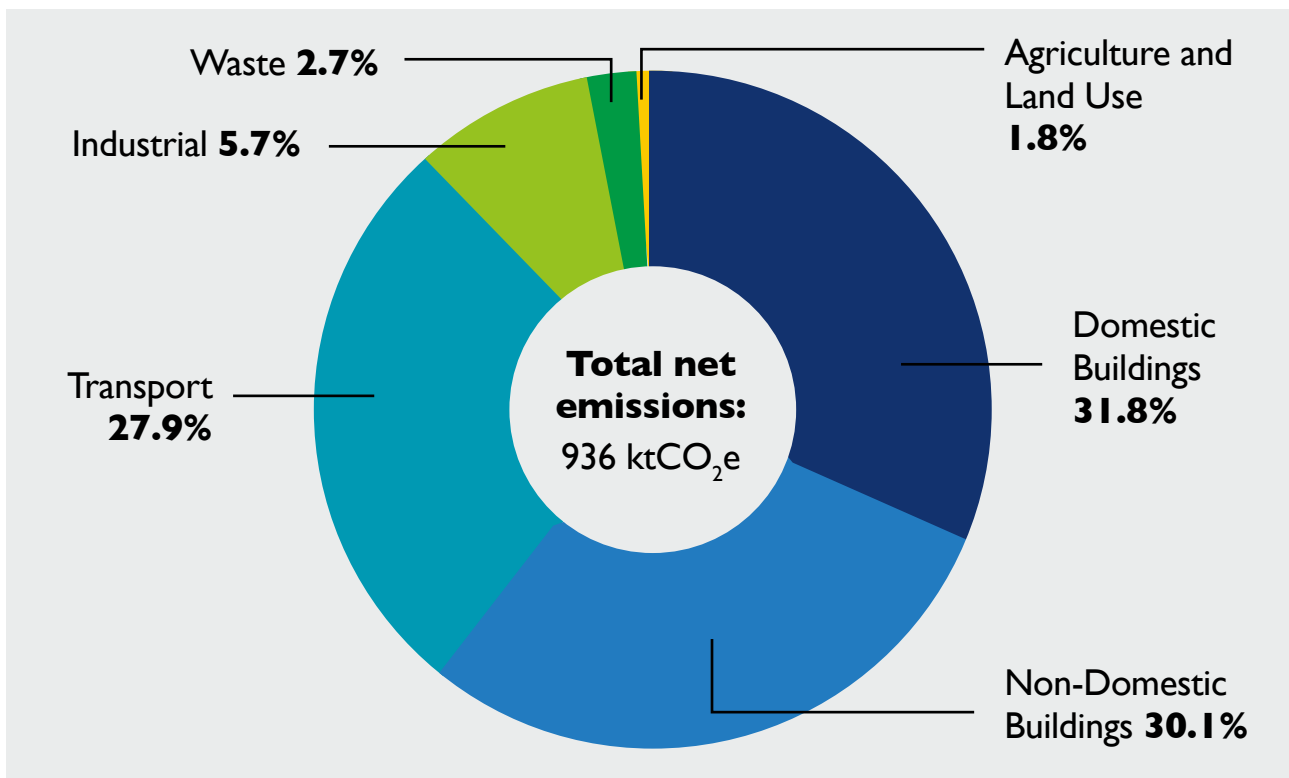


Figure 2: York's emissions inventory (2018)¹²

¹² Source: Setting City Area Targets and Trajectories for Emissions Reduction (SCATTER)

¹³ IPCC Sixth Assessment Report <https://www.ipcc.ch/assessment-report/ar6/>

¹⁴ The Paris Agreement sets out a requirement to limit global temperature rise to well below 2°C and aim for 1.5°C

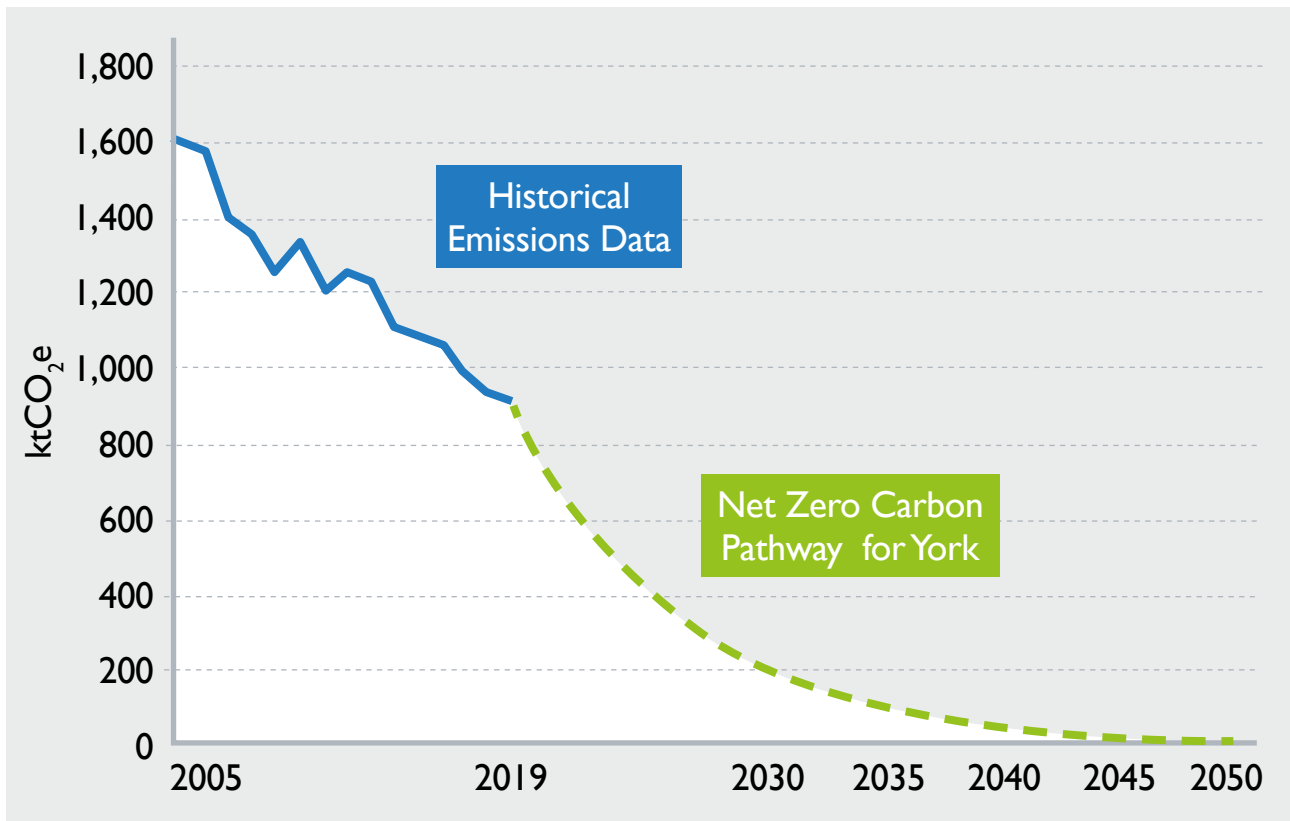


Figure 3: Net Zero Carbon Pathway for York

In accordance with the net zero carbon pathway, emissions in York will have reduced to 196 ktCO₂e by 2030; an 88% reduction on 2005 levels.

A Climate Resilient York

Reducing our carbon emissions is crucial to limiting the potential impacts from climate change, but we are already experiencing changes to our climate and an increase in local extreme weather events. As the world warms, the UK is likely to have hotter, drier summers and warmer, wetter winters. Extreme weather events such as heatwaves and heavy downpours could become more frequent and more intense.

Summers have been getting warmer¹⁵, with 4 of the 10 hottest summers recorded in the past 2 decades. In July 2022, York experienced the hottest day ever recorded at 38°C. This exceeded estimates for the hottest summer day of 35.6°C if global average temperatures increase 2°C above pre-industrial levels, demonstrating the urgency of action.

On the wettest summer day of the past 30 years, 50mm of rain fell in York (July 2005). At a 2°C rise, this could be about 62mm¹⁶ and could also see increased localised short-duration summer storms of 100mm/hr or greater, which can overwhelm drainage systems and are difficult to predict. The increased rainfall

¹⁵

¹⁶

poses a significant risk for our city, which has a long association with flooding. The November 2000 flood was the largest on record for the River Ouse with levels peaking at 5.4m above normal summer levels. The Viking River Level Recorder in York has one of the longest continual set of river level records in the country dating back to the 1880's, however, aside from the 1947 and 1982 floods, the vast majority of significant flood levels have occurred in the city since the year 2000.

Scale of the Challenge

Achieving our Net Zero Pathway will require an average annual emissions reduction in York of 13% up to 2030.

Without intervention, emissions in York are forecast to reduce; mainly as a result of the decarbonisation of the electricity system. If we continue along a current business-as-usual trajectory, emissions in York are projected to be 810 ktCO₂e in 2030 (a 49% reduction on 2005 levels).

The Business as Usual Pathway will not result in the scale of change required. Significant emissions reductions are needed. To assess the potential of additional emissions reduction in York, we have worked with SCATTER to produce a Projected Emissions Reduction Pathway, based on delivering actions that are currently available with the existing supply chain capacity, national policy and technological readiness. This pathway includes the interventions that

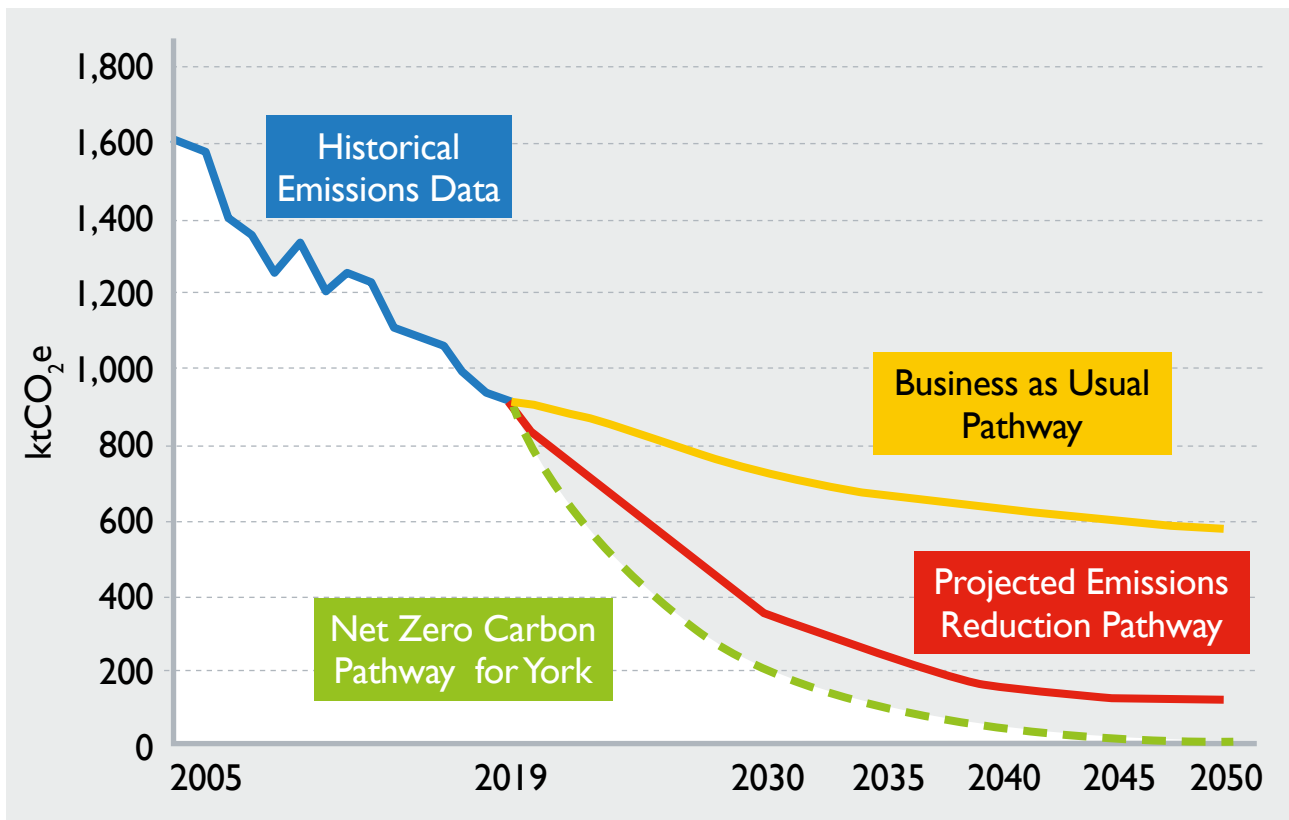


Figure 4: Projected Emissions Reduction Pathway and Business as Usual Pathway for York

are achievable under existing conditions and provides a reference for monitoring our progress against York's Net Zero Carbon Pathway.

By 2030, the Projected Emissions Reduction Pathway will reduce our emissions to **361 ktCO₂e** in 2030 (a 77% reduction on 2005 levels) and **114.8 ktCO₂e** in 2050 (a 93% reduction on 2005 levels).

In 2030, the emissions profile for York is expected to look very different from today. Following the Projected Emissions Reduction Pathway to 2030 would mean emissions from each sector will reduce as shown in Figure 5 below.

Underpinning the emissions reductions across every sector is the decarbonisation of York's energy system. Energy, in the form of heat and power, is used across the city by our residential, commercial and institutional buildings as

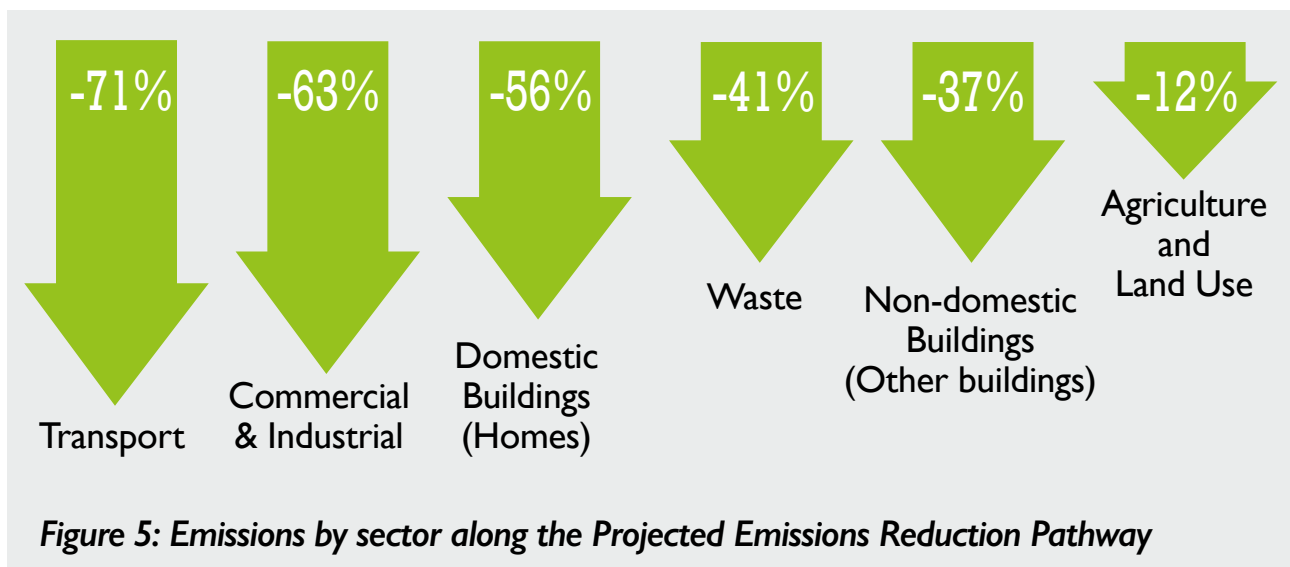
well as in our industrial and agricultural processes. This energy use accounts for 62% of our total carbon emissions.

Since 2005, total energy consumption in York has reduced by 22%; and over the same time-period, carbon emissions associated with energy use has fallen by 36%¹⁷ due to the decarbonisation of the national electricity grid. As the grid approaches full decarbonisation by the UK Government's target date of 2035, it will become more challenging to achieve further emission reductions.

Continuing to reduce our total energy use and increasing local renewable generation across the city will therefore be important aspects of our transition to net zero.

Our Approach

To tackle climate change and achieve net zero carbon by 2030, we will need



¹⁷ <https://www.gov.uk/government/statistical-data-sets/regional-and-local-authority-electricity-consumption-statistics>

to reduce emissions from all sectors and require action for all aspects of society, with particular emphasis on our buildings, transport and energy systems. This Strategy sets out an approach to net zero that consists of four elements:

- 1 Significant emissions reduction along the Projected Emissions Reduction Pathway with actions that can be delivered with currently available technology, deployment rates and policy**
- 2 Going beyond the Projected Emissions Reduction Pathway when new technology, deployment and policy mechanisms allow and attracting new investment**
- 3 Removing remaining emissions from the atmosphere through cost effective nature based and technological solutions**
- 4 Adapting our city to the effects of a changing climate**

Our approach to achieving the Net Zero Carbon Pathway and becoming a climate resilient city

Significant reductions

York will develop an action plan to deliver the emissions reductions associated with the Projected Emissions Reduction Pathway and regularly review and monitor progress in order to identify new opportunities for further emissions reduction.

Going Beyond the Projected Pathway

Maximizing opportunities to accelerate delivery by supporting growth in the supply chain, training and upskilling the workforce and positioning York as a place to pioneer and pilot new projects.

Attracting external investment by lobbying UK government, attracting national and international investment and accessing new sources of finance to deliver the scale of change required across the city.

Capitalize on technological development and falling technology costs to accelerate deployment of decarbonisation measures. No single technology should be relied upon or anticipated so we need to be prepared to take advantage of future opportunities.

Lobby UK Government for policy change that accelerates the rate of decarbonisation nationally and locally. Push for local spending and policy powers that will allow us to go further and faster than the national net zero ambition.

Insetting & Offsetting

Any remaining emissions that we are unable to decarbonise will need to be removed from the atmosphere. This can include nature-based solutions, e.g. tree planting and the restoration of other ecosystems, or other technologies such as carbon capture and storage (CCS) and negative emissions technologies (NETs). Prioritising actions within the city boundary (insetting) to remove carbon dioxide from the atmosphere can provide additional environmental, social and financial benefit for York.

Offsetting will only be considered as a last resort to address residual emissions after all actions have been taken to reduce and avoid direct emissions as much as possible. The cost of offsetting will be a key consideration before employing this solution and it will only be done if financially viable for the city.

At current UK carbon prices, offsetting our residual emissions in 2030 (361,000tCO₂e) would cost an estimated £5.2m/yr.¹⁸

We will produce a separate offset strategy outlining our approach.

Adapting to Change

Our climate is already changing. We will increase our understanding of the local impacts and risks from climate change and take actions that reduce these risks.

This will include continuing to improve our resilience to flooding, protecting and enhancing our local biodiversity and reducing the exposure and impacts from dangerous levels of overheating.

Table 1: Our approach to achieving the Net Zero Carbon Pathway and becoming a climate resilient city

Action Plan

An Action Plan has been produced by City of York Council in consultation with city partners to support delivery of the ambition set out in this Strategy. It contains an indicative list of 160 potential actions, covering the 8 priority themes

¹⁸ <https://www.oecd.org/tax/tax-policy/carbon-pricing-united-kingdom.pdf>

and 31 strategic objectives identified in the Climate Change Strategy. The actions identified are based on the work carried out by Leeds University (Net Zero Roadmap for York), pathway modelling by Anthesis, best practice guidance from the Local Government Association, recommended actions for Local Authorities by Friends of the Earth, stakeholder workshops and officer engagement.

We are already delivering against these actions. 58 are in progress and these are tracked as part of the Climate Action Update¹⁹

The Action Plan provides high-level estimates covering carbon impacts, cost implications, timescales, co-benefits, constraints, level of council influence and current stage of implementation.

Further work will be required to provide a comprehensive and quantified implementation roadmap that considers all of the actions and levers required to achieve net zero. This work will be undertaken as the plan is put in place.

The Action Plan is a live document, which will be formally reviewed annually. It will change over time in response to the reporting and feedback mechanisms that track progress against our ambition, as well as changes in technology and Governmental policy.

¹⁹ https://modgov.york.gov.uk/documents/s158863/Annex%20A_City%20of%20York%20Council_Climate%20Change%20Action%20Update.pdf

Section 3

Objectives and Case Studies

This chapter provides the strategic objectives that we need to work towards to tackle climate change and deliver net zero.

These objectives will act as a reference for all of us, including the council, businesses, residents, visitors, academia and community groups to guide our actions and the decisions we take. We all have a part to play.

Engagement

As a city, we need to be well informed and feel empowered to make decisions and take action that will have a positive impact on carbon emissions and our climate. This Strategy provides a framework for how we can all engage with the topic and each other to create positive change.

Objectives

1.1 Clear communication and information

Providing accurate, timely and relevant information about climate change and its impacts

1.2 Increase awareness and understanding

Empowering our city by making climate change understandable and relatable

1.3 Build strong relationships and networks

Working together to achieve our ambition

1.4 Identifying best practice

Sharing experiences to inspire action

CASE STUDY: York and North Yorkshire Innovative Flood Resilience Project

City of York Council and North Yorkshire County Council have worked with a number of project partners to develop a successful bid for Government funding to develop innovative approaches to flood resilience. The project aims to deliver catchment wide natural flood risk management solutions that provide increased flood resilience to York and North Yorkshire communities and reduce the impacts of existing and future flood events and wider climate resilience benefits.

The five year project works with landowners and those at flood risk across the River Swale, Ure and Nidd catchments upstream of York, and form links to develop an understanding and agreement of how changes to upstream land management can benefit at risk communities downstream. This is an ambitious project that has not previously been carried out on this scale. The project works with the varying catchment partnerships and the good work that has already been carried out to embed catchment-sensitive farming ideas and directly link those who have the means to upstream flood prevention measures with those who benefit from reduced flood risk. The linkage would be both financial and social, providing reward and recognition for the upstream parties and engendering an understanding and sense of ownership of the measures by those who benefit downstream.

The partnership is developing a bespoke and detailed science base to identify storage and natural flood management opportunities down to a local scale, producing a 'shopping list' of potential measures and identifying the downstream locations that would benefit from this work. Engagement of beneficiaries in urban areas will identify ways in which they can support and contribute to the delivery of such measures, and this is expected to be supported through local policy and financial incentives and inform national policy and future programmes of investment. Innovative ways to engage all parties will be developed drawing on past best practice, science and research from a wide range of fields. A number of demonstration sites will be developed throughout the catchment to illustrate the techniques and highlight the benefits.

The project ultimately aims to deliver the means to establish a wide range of natural flood risk management projects across the catchment that will deliver increased flood resilience and support a wider range of multiple benefits across other climate, ecology and biodiversity agendas.

Although City of York Council are the project funding lead, an approach will be developed and agreed between the authority and North Yorkshire County Council to establish joint project principles and outcomes and deliver a joined up approach to flood risk solutions across the whole river catchment.

Buildings

The built environment represents the majority of York's emissions, contributing 61.9% of direct emissions for the city. Buildings are responsible for 580,000tCO₂e a year and is a priority theme for this Strategy and our net zero ambition.

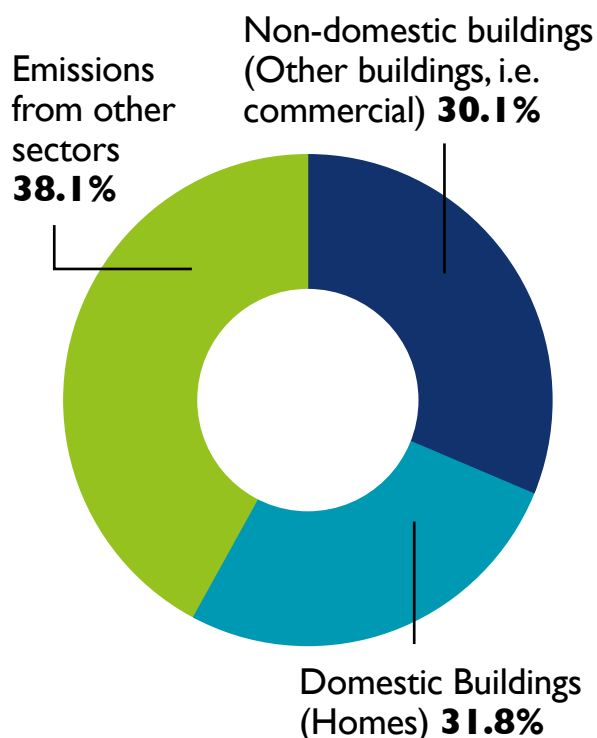


Figure 6: Proportion of emissions from buildings

Objectives

2.1 Improve energy efficiency in existing buildings

Insulating and investing in fabric improvements to reduce energy demand

2.2 Reduce emissions from new buildings

Design and build new developments that minimise energy use and emissions

2.3 Move away from gas heating systems

Increase the uptake of renewable heating systems and improve the efficiency of remaining gas boilers

2.4 Switch to energy efficient appliances and green energy tariffs

Replace our home and business appliances to use less energy and save money; and purchase energy from renewable sources

2.5 Make our buildings climate resilient

Protect our built environment from potential flooding and overheating

Where we are	Where we need to be in 2030
By 2021, 3,627 households in York have improved the energy efficiency of their home under the government's Energy Company Obligation (ECO) Scheme. ²⁰	Every home in York is appropriately insulated – reducing energy demand and making it more affordable to keep warm in the winter.
In 2021, 11,992 (13.5%) of households in York were classed as fuel poor. ²¹	The majority of homes are heated by low-carbon sources, reducing emissions, improving air quality and creating jobs across the region.
In 2021, 44% of EPC-rated domestic properties had ratings indicating low energy efficiency (D or below). ²²	Particular care is taken to minimise utility bills, ensuring homes are appropriately designed and upgraded to accommodate new heating systems.
It is estimated that in 2019, 12% of properties in York were not connected to the gas network ²³	All new houses are built to the highest energy efficiency standards, following the energy hierarchy and incorporating renewable generation as standard.
All new buildings are required to reduce emissions in accordance with latest building regulations.	Public buildings, retail spaces and industrial units have been upgraded to reduce energy demand and are heated by low carbon technologies. Energy bills are lower and the spaces are warmer and healthier places to be.
In 2021, 46% of EPC-rated non-domestic properties in York were rated D or below. ²⁴	Appliances and lighting is of the highest energy efficiency standards.
In the UK, consumption by domestic lighting decreased 25% between 2010 and 2019. ²⁵	

²⁰ <https://www.gov.uk/government/statistics/household-energy-efficiency-statistics-headline-release-may-2021>

²¹ <https://www.gov.uk/government/statistics/sub-regional-fuel-poverty-data-2021>

²² https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/904850/DI_-_Domestic_EPCs.xlsx

²³ <https://www.gov.uk/government/statistics/msoa-estimates-of-households-not-connected-to-the-gas-network>

²⁴ <https://www.gov.uk/government/statistical-data-sets/live-tables-on-energy-performance-of-buildings-certificates>

²⁵ https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/208097/10043_R66141HouseholdElectricitySurveyFinalReportissue4.pdf

Where we are	Where we need to be in 2030
<p>Nationally in 2016, it was estimated that around 45-50% of domestic cooking was electrified.²⁶</p>	<p>More of our cooking is done by electric appliances, which will continue to reduce emissions as the electricity grid decarbonises.</p>
<p>4,917 properties are identified as being in flood zones in the city. However, the vast majority of properties benefit from the city's flood defences or direct property level resilience measures.</p>	<p>Investment in improving catchment scale measures on the Swale, Ure and Nidd.</p> <p>New developments in flood zone built with flood resilience.</p> <p>The flood defence work across the city will better protect more than 3,000 properties and will be completed by 2025.</p>

²⁶ https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/274778/9_Domestic_appliances__cooking_and_cooling_equipment.pdf

CASE STUDY: Zero Carbon Housing Delivery Programme

The City of York Council Housing Delivery programme is creating 600 new homes that will be both zero carbon in use and reduce carbon emissions associated with the construction process.

Construction accounts for around 40% of the total annual carbon emissions in the UK. Through the Housing Delivery Programme, we are taking proactive steps to reduce our environmental impact through such measures as using low cement concrete in foundations, timber frame construction, and recycled newspaper insulation. It is anticipated that through actively choosing lower carbon construction materials, CO₂ emissions will reduce to a fraction of those compared to a typical new build development.

This approach to reducing carbon continues through the life of each home. Space heating, hot water and electrical appliances make housing one of the largest contributors to carbon emissions in the country. The new homes developed through the Housing Delivery Programme will achieve certified Passivhaus status, meaning that they are so well insulated and air tight that very little heating is required, even on the coldest days. The orientation of the homes has been carefully considered to achieve passive solar gain; that is maximising the benefits of the sun to warm the home during the day and then keeping that heat in with high levels of insulation. This approach will save a resident around 70% on fuel bills compared to a typical new build home. The programme goes further

by using renewable technologies, such as solar PV and air source heat pumps, to generate as much power as is needed to heat, light and power the home; reducing net carbon emissions to zero. The total carbon savings of homes delivered through this programme are estimated to prevent around 1,000 tonnes of CO₂ being emitted every year.

The Housing Delivery Programme takes a holistic approach to sustainability by looking at habitat and lifestyle considerations in climate change, which includes heavily constrained car parking spaces (as low as 0.25 spaces per home in more central locations). Sustainable transport choices are encouraged through the provision of four secure cycle parking spaces per family home, which include electric charging points. Communal electric cargo bikes and pool cars are also included on sites to reduce ownership and regular use of cars.

Each site creates new connections between existing roads through new low or zero-car streets where play and activity is encouraged. Biodiversity is significantly enhanced on each site with more trees planted, than houses built. The projects create highly sociable spaces, where residents can interact within semi-private and public spaces including; shared gardens, public open spaces and internal community spaces. Projects incorporate spaces to work, create, grow, play and relax as individuals, families and communities.

Transport

Emissions from transport represent 27.9% of York's emissions profile; a total of 261,000tCO₂e a year. Of this, 88% of emissions come from car travel or public transport, with the remaining 12% from freight.

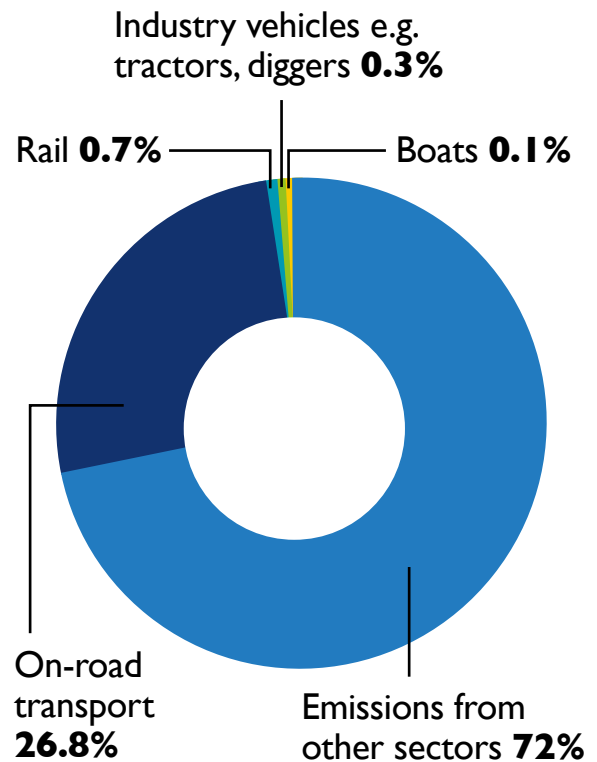


Figure 7: Proportion of emissions from transport

Objectives

3.1 Reduce distances traveled by motorised vehicles

Reduce the overall need for travel by non-sustainable methods

3.2 Increase take-up of active travel

Reduce overall car usage through alternative modes of transport, public transport and car sharing.

3.3 Switch to electric vehicles (EV)

Increase the share of vehicles on the road that are electric or hybrid

3.4 Reduce freight emissions

Decrease the overall distance and fuel usage of freight vehicles

3.5 Futureproof infrastructure

Ensure our transport infrastructure can withstand extreme weather events

Where we are	Where we need to be in 2030
<p>In 2011, the average distance traveled to work in York was 9.8 miles.²⁷ Over half travel less than 3 miles and two-thirds travel less than 6 miles.</p>	<p>Fewer people travel by private motor vehicle, reducing congestion and improving air quality.</p>
<p>In 2011, 54% of commutes to work were by car or van and 29% by active travel (walking and cycling).²⁸</p>	<p>People feel safe and supported to increase walking and wheeling, particularly for shorter journeys across the city.</p>
<p>42% of York residents walk five times per week and 10% cycle five times per week.²⁹</p>	<p>The use of public transport increases and our bus fleet is entirely electric.</p>
<p>Since 2014, 532 charging points have been installed in York under government grant schemes including the Electric Vehicle Homecharge Scheme (EVHS), the Workplace Charging Scheme (WCS) and the On-Street Residential Chargepoint Scheme (ORCS).³⁰</p>	<p>Those vehicles that remain on our roads are electric, with sufficient charging infrastructure across the city to meet the needs of residents.</p>
<p>In 2019, there were approximately 9,200 LGVs and 600 HGVs registered in York.³¹</p>	<p>Deliveries across the city are conducted by low and zero emission vehicles – facilitated by freight hubs and consolidation centers, reducing traffic on our roads.</p>

²⁷ https://www.nomisweb.co.uk/census/2011/QS701EW/view/1946157112?rows=rural_urban&cols=cell

²⁸ https://www.nomisweb.co.uk/census/2011/QS702EW/view/1946157112?rows=rural_urban&cols=cell

²⁹ <https://www.gov.uk/government/statistics/transport-use-during-the-coronavirus-covid-19-pandemic>

³⁰ <https://www.gov.uk/government/statistical-data-sets/walking-and-cycling-statistics-cw>

³¹ <https://www.gov.uk/government/statistics/electric-vehicle-charging-device-grant-scheme-statistics-april-2021>

Where we are	Where we need to be in 2030
<p>Majority of our network benefits from flood defences and remains open in river flood events, but some road closures are experienced and outlying villages can become cut-off</p>	<p>Expanded protection from river flood events and intense storm events.</p> <p>Nature based solutions are being delivered in the catchment areas of the Ouse and Foss giving greater protection to York and economic benefits upstream.</p>
<p>30% of the York taxi fleet has switched to low emission alternatives (petrol hybrid, plug-in hybrid or electric).</p>	<p>Aspire to an ultra-low emission taxi fleet and provide continual emission reduction from licensed vehicles.</p>



CASE STUDY: E-Mobility Trial

York is one of four English cities chosen by the Department of Transport to trial e-scooters. The City of York Council partnered with TIER to launch its first fleet of 50 e-scooters in October 2021. In just over a year, the fleet has grown to over 550 e-scooters, alongside the introduction of 80 e-bikes.

Since the start of the trial, 26,000 riders have completed more than 130,000 journeys, covering around 550,000km. These trips have replaced 16,000 car journeys in the city, amounting to a saving of 6 tonnes of carbon dioxide.

Alongside increasing the number of e-scooters available to people in the city, TIER have also expanded to new routes in recent months, with access to popular tourist destinations, university campuses and York hospital. There are over 90 parking bays around the city to ensure orderly parking.

The success of the scheme has seen the trial extended for a further 8 months with plans to expand to other areas of the city. Its popularity demonstrates the huge potential for micro-mobility in York.



“Transport in York accounts for 27% of city-wide carbon emissions and TIER are committed to reducing emissions and improving air quality across the city. This is why it’s essential we help provide as many different, convenient forms of transport to enable residents, commuters and visitors to get around York sustainably.”

TIER e-scooters and e-bikes have been hugely popular in York since the scheme launched a year ago and are still being embraced by locals and visitors as a greener, more convenient transport option. Our e-scooters and e-bikes have also brought other benefits to York, such as reducing air pollution and easing congestion.”

Jessica Hall,
Regional Manager North of England

CASE STUDY: EV Hyper Hubs

Two new Hyper-Hubs have been created at Monks Cross Park & Ride and Poppleton Bar Park & Ride. The sites provide high quality, high speed electric vehicle charging provision within the city. The project is joint funded with £1m from the European Regional Development Fund (ERDF), £800,000 from Office for Low Emissions Vehicles (OLEV) and a contribution of £400,000 from City of York Council.

The Hyper-Hubs are fitted out with 'Ultra Rapid' and 'Rapid' chargers that will significantly improve the speed of charging in line with latest technologies, and help the region to support the next generation of EVs (which have significantly larger battery capacities and support higher charging speeds).

Each Hyper-Hub has 4 Rapid chargers and 4 Ultra Rapid chargers under a canopy to keep users dry, with 24 hours a day 7 days a week access. Solar canopies and battery storage support the energy grid during peak hours. Each site includes 100 kWp solar PV arrays and 348 kW/507 kWh energy storage.

Each site is estimated to reduce carbon emissions in the city by 83tCO₂ a year by displacing fossil fuels used by combustion engine vehicles. Rapid and Ultra Rapid chargers will cost 25 pence per kWh, making York one of the cheapest places in the UK for Rapid and Ultra Rapid charging.

The Hyper-Hubs are part of a wider push to increase electric vehicle charging capacity across the city. In addition to the EV Hyper-Hubs, the Council are also investing to expand the EV charging infrastructure, as part of their Public EV Charging Strategy, with 350 new Fast charge-points, a minimum of 12 Ultra Rapid chargers and 19 Rapid chargers and replacing the entire existing charging infrastructure.

"York was one of the first cities to introduce a public electric network several years ago which has become really popular. In 2014 there were 1,510 charging sessions, by 2018 that had increased 10 fold to 13,695.

We're a pioneer in the use of innovative green technology. Over recent years, the council has led the way in providing a range of public charging facilities for electric vehicles to help reduce carbon emissions and improve local air quality thanks to EV's eliminating nitrogen oxide emissions at the point of use."



Waste

Waste management represents 2.7% of York's total emissions. The impact of waste is most noticeable at disposal, but consumption choices, product design and material inputs need to be considered when addressing waste.

Moving towards a 'circular' approach means prioritizing a reduction in the amount of waste produced; with an emphasis on reuse, recycling, and repurposing materials as much as possible. A circular approach reduces both direct and indirect emissions but also creates economic opportunities.

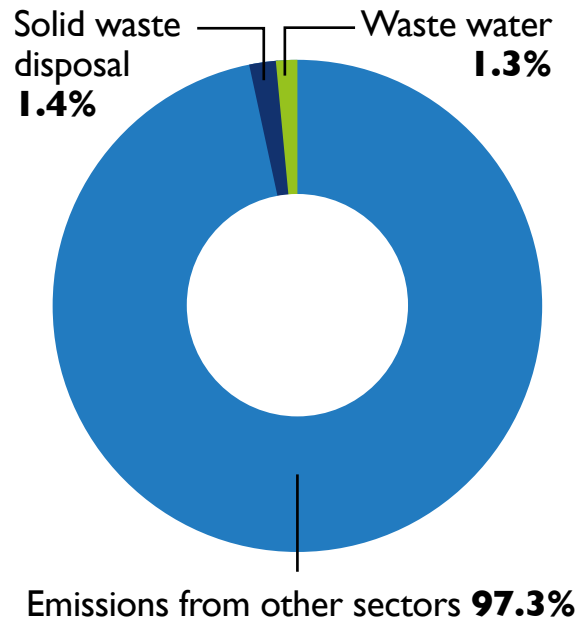


Figure 8: Proportion of emissions from waste

Objectives

1.1 Reduce the amount of waste

Decrease the total volume of waste produced across the city

1.2 Increase recycling rates

Increase the proportion of waste that goes into recycling or re-use

1.3 Move towards a circular economy

Increase the proportion of resources that are reused or repurposed, saving raw material inputs and waste outputs

Where we are	Where we need to be in 2030
<p>81,075 tonnes of household and 15,007 tonnes of non-household waste was collected by the Council in 2019/20.³²</p>	<p>We are following the circular economy principles. Waste is reduced at source with a greater emphasis on reusing and repairing the products that we use.</p> <p>Any waste that is produced is recycled or treated in a way that reduces its environmental impact.</p>
<p>The volume of household waste collected by the Council decreased in 2019-20 by 8% from 2018-19 levels.³³</p>	
<p>The household recycling rate in 2019-20, based on Local Authority collected waste was 48.4%.³⁴</p>	
<p>In 2019, recycled materials made up 16% of the UK's domestic material consumption.³⁵</p>	

³² <https://www.gov.uk/government/statistical-data-sets/env18-local-authority-collected-waste-annual-results-tables>

³³ <https://www.gov.uk/government/statistical-data-sets/env18-local-authority-collected-waste-annual-results-tables>

³⁴ <https://www.gov.uk/government/statistical-data-sets/env24-fly-tipping-incidents-and-actions-taken-in-england>

³⁵ <https://think.ing.com/articles/eu-and-uk-have-to-step-up-to-meet-circularity-goals>

CASE STUDY: Real Junk Food Project

The Real Junk Food Project was founded in 2015 by Adam Smith. The project, originally in Leeds, was established with a mission to make surplus food accessible to all and reduce carbon emissions; and a vision to reduce the environmental and social injustice of food waste by feeding bellies not bins. Since 2015 people all over the world have followed these values and intercepted food to redistribute in hubs and cafes (often on a Pay-As-You-Feel basis to make sure that anyone who needs it can access the food) to stop food going to waste.

Following this initial mission and vision, Planet Food York opened in January 2019 to intercept and redistribute surplus food in York. In the first 3 years, they have intercepted 745.5 tonnes of food, which is equivalent to 1.1 million meals, saving 2,200 tonnes of CO₂.

Food is collected by volunteers from supermarkets, restaurants, hotels and independent shops in partnership with Fareshare Yorkshire and Neighbourly.

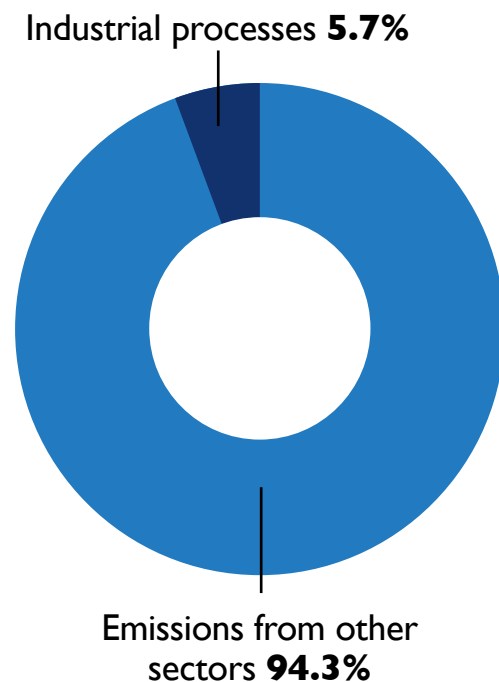
Rescued items are used in their Pay-As-You-Feel café and shop in Southlands Methodist Community Centre, Southbank. Planet Food have a zero food waste policy, so any food that doesn't get eaten is composted locally.

It is estimated that up to 30% of food is wasted globally, meaning that food waste is responsible for between 8 and 10% of CO₂ emissions. In the UK, around 9.5 million tonnes of food is wasted from households and businesses each year, of which 70% is avoidable. Planet Food York are helping to combat this waste through redistributing food into the community. They are not only reducing emissions but also tackling food poverty, social stigma and providing local employment and training through the work of 2 managers and 24 regular volunteers.

Commercial & Industrial

Commercial and industrial process emissions represent a small proportion of York's baseline inventory, with around 6% of emissions arising from industrial processes. York has a diverse and thriving economy. While there is little heavy industry, there is a long history of manufacturing, particularly in the food and drink sector.

Figure 9: Proportion of emissions from commercial & industrial



Objectives

5.1 Improve process efficiency

Reduce energy, water and material usage to reduce emissions and save money.

5.2 Shift away from fossil fuels

Change the fuel input used by industry to electricity and green hydrogen.

5.3 Support growth in the green economy

Create new investment and green jobs through initiatives such as BioYorksire³⁶, sustainable construction and transport.

5.4 Increase business resilience to climate risk

Ensure businesses are not adversely affected by the changing climate and identify new opportunities for growth.

³⁶ <https://www.bioyorkshire.co.uk/>

Where we are	Where we need to be in 2030
<p>In the UK, 35% of energy consumed by the industrial sector in 2019 was electric.³⁷</p>	<p>Industries are more resource efficient, using less materials, water and energy to deliver the same output.</p>
<p>Industrial carbon emissions in the UK including those from energy-intensive industries have halved since 1990, which has mainly been due to efficiency gains, fuel switching, a change to industrial structure of the UK and re-location of production overseas.³⁸</p>	<p>Industrial processes are less reliant on fossil fuels and incorporate carbon capture technology when required,</p>
<p>Since 1990, the food and drink manufacturing industry in the UK has improved its energy efficiency by 42%.³⁹</p>	<p>The low carbon and renewable energy sectors could create up to 3,000 jobs in York.</p>
<p>In 2014, the UK's food and drink manufacturing industry emitted approximately 1% of the UK's total annual emissions.⁴⁰</p>	

³⁷ https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/840015/DUKES_2019_MASTER_COPY.pdf

³⁸ https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/652109/oil-refining-decarbonisation-action-plan.pdf

³⁹ Industrial Decarbonisation and Energy Efficiency Roadmap Action Plan

⁴⁰ Industrial Decarbonisation and Energy Efficiency Roadmap Action Plan

CASE STUDY: York Gin sustainability actions

York Gin is an independent company making and selling award winning gin based in York. The first bottles of York Gin appeared on 1 March 2018 after a couple of years of preparation and gin has since won national and international awards. The company operates a distillery and two shops in York and is owned and run by locals.

Quality, sustainability, localism and York are at the heart of the company. They operate ethically and do the utmost to be responsible and sustainable.

Energy

From the beginning, York Gin has been powered by 100% renewable energy from Green Energy. The distillery is powered by electricity, rather than more commonly used gas because it uses less energy and as a lower carbon impact. Out of four company cars, three are electric and one is hybrid (the hybrid is for longer journeys when recharging may prove problematic.)

Waste

All bottles and gift sets are designed to be 100% plastic free and customers are encouraged to donate their old bottles for other customers to reuse as lights, containers or candle holders. Working with local upcycler PurePallets, they have turned old pallets, railway sleepers and other used wood into fittings and signage for the shops as well as keyrings, gin racks, fridge magnets and other products.

Local First

A local first approach ensures that the spirit is made in Yorkshire from grain grown on Yorkshire farms. All York Gin bottles are made in Leeds, by Allied Glass, using 40% less glass than their original method and the miniatures are made from a significant proportion of recycled glass. Allied Glass is itself a sustainable company doing a great deal to reduce its carbon footprint. Packaging and labels are also made in Yorkshire. A local supply chain reduces emissions from travel and supports jobs in the area.

Natural Environment

York's natural environment contributes 1.8% of the city's overall emissions, with our agricultural areas on the front line of climate change being the first to feel its impacts. Livestock contribute 2.6% of the city's emissions; however, land use practices in York absorb the equivalent of 0.8% of the city's emissions, which reduces the sector's overall figure to 1.8%.

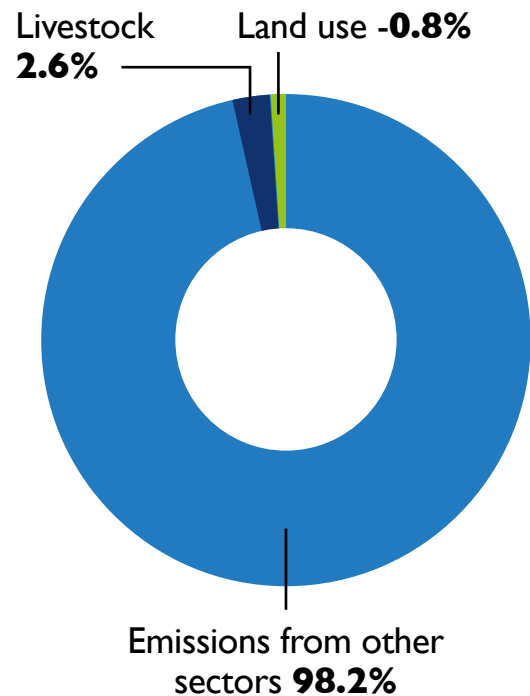


Figure 10: Proportion of emissions from natural environment

Objectives

6.1 Increase tree planting

Plant more trees to increase the canopy cover across the city

6.2 Increase carbon storage

Make better use of land to absorb carbon from the atmosphere

6.3 Promote sustainable land management

Diversify and innovate within the agricultural sector

6.4 Reduce the impacts of extreme weather events

Use our natural environment to reduce the risks and impacts of flooding and overheating

Where we are	Where we need to be in 2030
<p>Trees currently cover 10.8% of York.⁴¹</p> <p>Tree planting outside woodlands is currently reported at around 1,900 hectares across York.⁴²</p>	<p>Tree canopy cover to increase to 13%.</p> <p>Tree planting outside woodlands increases by 42% from 2020 coverage to 2,700 hectares.</p> <p>York has thousands of new street trees with a huge increase in canopy cover across the city.</p> <p>New parks and woodlands provide green, biodiverse spaces for people and nature to enjoy.</p>
<p>In 2018, there was approximately 249 ha of rough grassland in York.⁴³</p> <p>65.4% of land in York is classed as agricultural with 7,348 ha of York's land designated under cereal farming.⁴⁴</p>	<p>Our non-urban land is improved to sequester carbon, improving the soil quality and reducing flood risk.</p>



⁴¹ https://democracy.york.gov.uk/documents/s/4939/1/EMDS_Tree%20Canopy%20Expans

⁴² Per SCATTER analysis

⁴³ https://democracy.york.gov.uk/documents/s/4939/1/EMDS_Tree%20Canopy%20Expans

⁴⁴ <https://www.gov.uk/government/statistical-data-sets/structure-of-the-agricultural-industry-in-the-uk-at-june>

CASE STUDY: York Community Woodland

York Community Woodland⁴⁵ is an extensive, new community woodland where over 210,000 new trees and shrubs will enable carbon capture, increase open green space, improve health and wellbeing, increase biodiversity, and create enhanced active travel networks, new green jobs, skills and volunteering opportunities.

This represents City of York Council's first venture into creating large-scale community woodland and seeks to be an exemplar for other landowners and local authorities to replicate.

Climate change is a serious concern among residents and the project provides an outlet for a passionate, inspired community keen to join us in this special opportunity.

We work with over 500 members of the public, and an Advisory Group of businesses, landowners, members and experts, including; the White Rose Forest, Forestry Commission, the Woodmeadow Trust and the Woodland Trust.

York Community Woodland is a woodland for the city and its people.



The name itself was decided by a public vote and embodies a collective ownership behind its creation.

The woodland masterplan was created through a community co-design process with over 800 residents contributing to the final design. The woodland will feature nature ponds, wild-flower meadows, extensive broad-leaf woodland, areas for quiet contemplation, an extensive trail network for walking, wheeling and horse riding, and a forestry school.

Jim Lee, Head of Woodland Creation, Forestry England has said;

"We are delighted to have been selected as the preferred delivery partner for York Community Woodland... working closely with City of York Council and the local community as the project moves through the next stages."

"The partnership... is particularly special to us."

⁴⁵ <https://www.forestryengland.uk/article/york-community-woodland>

Energy Supply

Electricity is the preferred source of energy as it can be produced from sources that do not release any carbon emissions. The UK has a target to remove carbon-based sources of energy from the UK's energy grid by 2035⁴⁶, removing carbon emissions from the country's energy supply.

Objectives

7.1 Increase renewable generation capacity

More of our energy is produced locally from renewable technologies

7.2 Improve energy flexibility and storage

Develop projects that reduce peaks in energy demand and increase local energy storage

7.3 Support local community energy systems

Empower communities to own and manage local clean energy generation

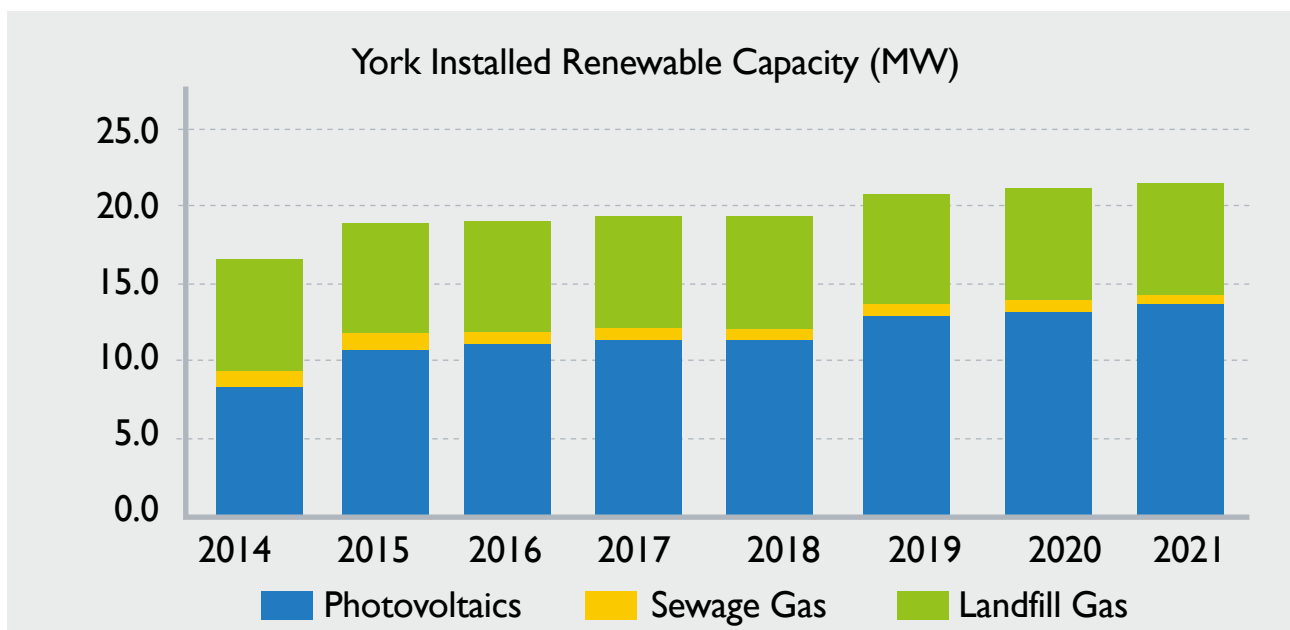


Figure 11: Renewable capacity installed in York

⁴⁶ <https://www.gov.uk/government/news/plans-unveiled-to-decarbonise-uk-power-system-by-2035>

Where we are	Where we need to be in 2030
<p>In 2021, York had 3,626 installations with a capacity of 21.5MW.⁴⁷</p>	<p>Low carbon, locally owned renewable energy is being generated across the city, reducing emissions, lowering bills and producing an income for communities in York.</p> <p>Generation is supported by suitably sized and located storage to provide energy security and resilience to our energy network.</p>
<p>1.6GW of new grid flexibility was added to electricity networks across the UK in 2021, to assist during peak periods.⁴⁸</p>	
<p>There are currently 232 community energy organisations in the UK dedicated to renewable electricity generation.⁴⁹</p>	

⁴⁷ <https://www.gov.uk/government/statistics/regional-renewable-statistics>

⁴⁸ <https://www.energynetworks.org/industry-hub/resource-library/?search=ON21-WSIA-Flexibility+Figures+2021+Full+Update+%2830+Jul+2021%29&id=267>

⁴⁹ <https://communityenergyengland.org/pages/state-of-the-sector>

CASE STUDY: University of York

With over 20,000 students, The University of York plays an important part in our city's community. The Russell Group University has over 30 academic departments dedicated to encouraging their students to think critically and change the world through social, economic and environmental knowledge, skills and innovation.

As the institute strives to be a university for public good, 2021 saw the publication of The University of York Sustainability Plan 2021 – 2030. The plan sets out how the university intends to tackle the current and future challenges faced by the local, national, and international community as they play a part in creating a more sustainable world.

The plan embeds sustainability into the university's core functions of teaching and research, whilst also setting ambitious goals for carbon neutrality, building partnerships, reducing consumption and for improving health and wellbeing.

In line with the city-wide target, The University of York has set out a commitment for achieving carbon neutrality by 2030. Guided by the UN Sustainable Development Goals, the university aims to achieve their ambitious goal through ensuring their

direct emissions and the management of their campus are environmentally sustainable, whilst simultaneously embedding the principles of sustainability within their teaching.

The University of York is already delivering on a variety of carbon reduction projects. It has secured more than 5,500 cycle spaces across campus, making it as a UK Gold Cycle Friendly Employer, they've also installed electric vehicle charging points and provide a free bus service between the East and West campuses

The University has been awarded the Green Flag Award for their open campus grounds, which include a variety of interactive nature trails and a YorActive trail with exercise equipment on route. This excellent green space not only supports the wellbeing of the students but has also become home to rare orchids, otters and wildflower meadows.

An awareness initiative has been set-up by staff and students that awards credits for sustainable behaviours, which can be used on rewards at the end of the year. The Green Impact Sustainability scheme has saved an estimated £92,000 and 289 tCO₂ in 2020/21.

Governance

The Governance framework will provide guidance and management of our climate change objectives. City of York Council will take a lead in developing the governance structure but will require support from across the city in tracking and monitoring progress towards our collective ambition.

Objectives

8.1 Deciding responsibility

Each objective and action will have a named stakeholder responsible for the activity

8.2 Tracking actions

A city inventory of which actions are underway and who is responsible for them

8.3 Monitoring progress

Provide indicators to measure and record progress towards our targets

8.4 Reporting annually

The results of the monitoring and evaluation reporting are published annually

Deciding Responsibility

While delivering on the objectives within this strategy should be everyone's responsibility, some organisations will naturally take a lead in certain areas. To determine who is responsible for each objective, we will build a strong partnership between public and private sector organisations. We will use and strengthen existing relationships and channels of communication within York e.g. the York Climate Commission.

Tracking Action

The responsibility for achieving our objectives is shared between the council, businesses, residents, visitors and other organisations.

An "owner" for each area will contribute to the monitoring and reporting framework. Owners lead and coordinate activity, identify and engage with stakeholders and report on progress.

Tracking action from all stakeholders delivering against the strategy will enable the benefits to be felt across the city.

Monitoring Progress

Reporting on progress is an important feature of this framework. Regular reporting will track the impact of our work and enable reflection and correction if required.

The impact of delivery will be analysed alongside progress. But emissions data alone will not be sufficient for this analysis:

1. Emissions data is published two years in arrears, which means that there is a time lag between project delivery and analysis of its impact
2. Emissions data is not provided at the action level, meaning monitoring the impacts of a specific project in this way is difficult, particularly if several projects contribute to emissions reductions in the same area

Instead, Key performance indicators (KPIs) that publish recent-year data can be used for measuring progress. KPIs can allow year-on-year progress to be tracked. National datasets and city-wide reporting will also be used.

We have identified suitable KPIs for the targets in our strategy. Any changes in these KPIs can inform the city's climate action. A list of these indicators and sources can be found in Technical Annex.

Reporting Annually

The final piece of the monitoring and evaluation framework is the sharing of reporting on progress in an accessible and transparent way. It is crucial for public, city-wide support that the council reports its progress publicly and transparently.

The council will report annually and make it publicly available through public meetings (Council, Executive and Scrutiny) and the York Open Data Platform. The council will also report via CDP and the Global Covenant of Mayors for Climate and Energy (GCoM).

Table 2: Our Governance Framework Section 4

Section 4

Co- benefits

Co-benefits

As a city, we need to make sure that how we live today doesn't adversely affect future generations, and where possible, benefits them. This means recognising the significant interdependencies between the natural environment, health and wellbeing and economic prosperity:

- The environment – protecting the environment so future generations enjoy living in safe and clean spaces.
- Health and wellbeing – supporting everyone live long, independent healthy lives.
- The economy – developing sustainable, inclusive, fair economies that protect and create livelihoods that actively reduce poverty and inequality.

To develop York so that it is fit for the future, we have published a set of three sustainable strategies, together with a 10-year plan. These strategies set out the areas we will focus on over the decade ahead so our city is fit for the future.

The 10- year plan 2022-2032 describes the priorities partners will deliver on behalf of the city to realise the ambitions described in our city strategies.

Together, with the Climate Change Strategy 2022-2030, we will be better placed to live happier and healthier lives now, whilst preparing the city to be fit for our future children and grandchildren.

By tackling climate change, York will benefit from economic, social and environmental improvements, creating a prosperous, progressive and sustainable city.

Economic, social and environmental co-benefits of delivering our climate change ambition

Economic	Social	Environmental
If households invested in energy efficiency and low carbon options, residents could save £20m a year in energy bills ⁵⁰ , the equivalent of £222/yr for every household – and likely much higher given recent energy price increases	Increasing walking and cycling leads to happier and healthier communities, reducing the pressure on local health services	Integrating green infrastructure into new developments increases biodiversity and access to nature
The low carbon and renewable energy sectors could create 3,000 jobs in York ⁵¹	Lower emissions leads to better air quality , improving everyone's health ⁵²	Increasing recycling rates reduces pollution and incidents of fly-tipping ⁵³
Improving energy efficiency reduces the cost of energy. Around 12,000 households across York are classified as being in fuel poverty ⁵⁴	Community energy schemes give control to local communities and can generate money which can be invested locally	Trees and vegetation help cool cities, reduce flood risk and increase biodiversity, supporting nature throughout the region ⁵⁵
Investing in profitable energy efficiency measures for schools, hospitals, offices, shops and restaurants, could save the city £11m a year in energy bills ⁵⁶	Better insulated homes improve wellbeing and reduce the risk of health conditions	Well located solar panels can help to create a micro-climate that supports increased biodiversity

⁵⁰ <https://pcancities.org.uk/energy-and-carbon/york>

⁵¹ <https://www.local.gov.uk/local-green-jobs-accelerating-sustainable-economic-recovery>

⁵² <https://www.centreforcities.org/reader/cities-outlook-2020/air-quality-cities/>

⁵³ https://wwf.panda.org/discover/knowledge_hub/teacher_resources/project_ideas/recycling_glass/

⁵⁴ <https://www.gov.uk/government/collections/fuel-poverty-sub-regional-statistics>

⁵⁵ <https://www.woodlandtrust.org.uk/media/1702/benefits-of-trees-outside-woods.pdf>

⁵⁶ <https://pcancities.org.uk/energy-and-carbon/york>

Economic, social and environmental co-benefits of delivering our climate change ambition		
Economic	Social	Environmental
Electric vehicles are cheaper to run and maintain, costing £2-4 to charge for 100 miles, saving £10 per 100 miles over diesel cars ⁵⁷	A reduction in vehicle exhaust fumes improves air quality and reduces negative effects on people's health ⁵⁸	Trees and green spaces can create habitats, support species and increase biodiversity
If everyone had access to sufficient green space, the benefits associated with increased physical activity could save the health system £2.1bn per year ⁵⁹	Increased physical activity due to active travel will help to reduce obesity figures. It is estimated that 55.2% of adults and 16.1% of 10–11-year-olds in York are classed as overweight or obese ⁶⁰	
Community energy schemes have the potential to reduce utility bills and generate a long-term source of income for local people ⁶¹	Working towards zero waste helps to mitigate food poverty and hunger by enabling edible surplus food to be recovered and shared through food banks and charities in local areas. ⁶²	

Table 3: Economic, social and environmental co-benefits of delivering our climate change ambition

⁵⁷ <https://energysavingtrust.org.uk/transport/electric-cars-and-vehicles/electric-vehicles>

⁵⁸ <https://www.eea.europa.eu/signals/signals-2020/articles/improving-air-quality-improves-people2019s>

⁵⁹ https://ashden.org/wp-content/uploads/2020/09/CAC-Chapters-all_new-brand.pdf%20

⁶⁰ 55.2% of adults and 16.1% of 10–11-year-olds in York

⁶¹ https://ashden.org/wp-content/uploads/2020/09/CAC-Chapters-all_new-brand.pdf%20

⁶² https://www.c40knowledgehub.org/s/article/Why-cities-need-to-advance-towards-zero-waste?language=en_US

Section 5

Next steps

The scale of the challenge is considerable, but through the principles and objectives within this Strategy, we can achieve our ambition for a net zero and climate resilient York by 2030. As a priority, we will need to focus on the following next steps:

Deliver on Projected Emissions Reduction Pathway

Prioritise the objectives in this strategy as the evidence base behind them ensures that improvements can be achieved most quickly and reliably. Develop an action plan that is clear in its resourcing, responsibilities and timescales while demonstrating progress, transparency and accountability.

Go Further

Consider a variety of funding streams to support financing local carbon reduction initiatives including community investment schemes and government grants. Combine efforts across the city to

maximise available government funding to decarbonise buildings and other assets.

Holistic Approach

When making the case for climate action, consider the impacts of climate action holistically. Climate actions offer co-benefits to the local economy, communities and environment. Many offer a return on investment or operational cost savings. There are also opportunities for a “Green Recovery” as we bounce back from the COVID-19 pandemic and develop a sustainable approach to tourism that can be a regenerative resource for York.

Build Networks and Partnerships

Working together with other stakeholders, develop a climate change partnership and/or charter, which encourages collaboration, builds understanding, and shares expertise. Key external stakeholders include businesses, third-sector organisations, other non-profit groups, and our residents.

Glossary of Terms

AFOLU: Agriculture, forestry & land use.

BEIS: UK Government Department for Business, Energy and Industrial Strategy, the successor to the Department for Energy & Climate Change (DECC).

Carbon budget: a carbon budget is a fixed limit of cumulative emissions that are allowed over a given time in order to keep global temperatures within a certain threshold.

Carbon dioxide equivalent (CO₂e): the standard unit of measurement for greenhouse gases. One tonne of CO₂ is roughly equivalent to six months of commuting daily by car. "Equivalent" means that other greenhouse gases have been included in the calculations.

Carbon Neutral/ Net Zero: these two terms typically mean the same thing in the context of CO₂-only emissions. Whilst emissions are reduced overall, those that remain are then offset by removing carbon dioxide from the atmosphere. This removal may occur through technology such as carbon capture and storage (CCS) technologies, or through natural stores by rewilding or afforestation.

Carbon offset: a reduction in emissions of carbon dioxide or other greenhouse gases made in order to compensate emissions made elsewhere.

Carbon sink: a process or natural feature that removes carbon from the local atmosphere (e.g. trees or wetlands). The carbon is said to be sequestered from the atmosphere.

Climate Emergency: a situation in which urgent action is required to reduce or halt climate change and avoid potentially irreversible environmental damage resulting from it.

Decarbonisation: the process of moving towards a society with lower emissions of carbon dioxide.

Deep/Medium Retrofit: building improvements that reduce energy demand and carbon emissions. For example, wall/roof insulation, solar PV, double/triple-glazing, more efficient or low carbon heating systems. Medium retrofit represents a 66% reduction in energy demand and a deep retrofit represents an 83% reduction.

Energy system: the generation, transmission and consumption of energy across the city for buildings, transport and industry.

Greenhouse gases: gases released into the atmosphere that contribute to global warming by absorbing and re-emitting heat. These include carbon dioxide, methane, and nitrous oxide.

Gross emissions: the emissions total before accounting for local carbon sinks.

Gross Value Added (GVA): the measure of the value of goods and services produced.

IPCC: Intergovernmental Panel for Climate Change.

Indirect emissions: Greenhouse gas emissions occurring from the use of grid-supplied electricity, heat and/or cooling within the city.

Insetting: This is an alternative to traditional offsetting that stores carbon within York's boundary.


LULUCF: Land use, land use change & forestry.

Offsetting: the action of compensating for carbon emissions in York by saving carbon dioxide elsewhere.



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