Bioregional

One Planet Oxfordshire

A review of progress towards One Planet Living

June 2021

One Planet Living®
A framework by Bioregional

Foreword by Oxfordshire County Council

A sustainable, inclusive future for Oxfordshire

Oxfordshire is a thriving place to live and work. As well as being the most rural county in the South East, we are a centre for research and technological innovation. We also face serious challenges, particularly the accelerating climate and ecological emergencies, along with related issues of equity and social justice, and we still have areas of deprivation. Above all, we recognise the scientific imperatives of halving climate emissions in this decade and of decoupling growth from resource use by accelerating the drive to a circular economy, whilst ensuring a 'just transition' for sunset industries.

There is much still to do to create and protect the future we all want for Oxfordshire, but as this report shows, we have terrific organisations, plans and energy to drive forward the changes we need.

Support for One Planet Oxfordshire

Oxfordshire County Council has supported the One Planet Oxfordshire initiative since its inception in 2018, taking part in the co-creation of the vision for a One Planet Oxfordshire. We welcome this first, independent review of progress towards that vision. Undertaking such a wide-ranging review is a significant task and there is a clear need for more monitoring and data collection. We look forward to working with Bioregional to develop and improve future annual progress reviews.

What the County Council is doing

Oxfordshire County Council declared a climate emergency in April 2019, pledging to be carbon neutral by 2030 for its own operations and estate, and committing to a zero-carbon Oxfordshire by 2050. The Council also voted to support the Climate and Ecological Emergency Bill in December 2020. We have created our strategy for 'Climate Action for a Thriving Oxfordshire' and followed this up with our 'Climate Action Framework' to inform the Council's approach to climate action.

We recognise there is a lot more to do, and that we need a step change in pace and scale, because there is such a thing as achieving critical goals too late. We are strongly committed to partnership working on policy and programmes and also in setting unequivocal, science-based targets. We are pleased to be joining with all those across Oxfordshire who are working towards achieving the One Planet Oxfordshire vision.

Councillor Pete Sudbury
Oxfordshire County Council Cabinet Member for Climate Change Delivery and Environment

Executive summary

Sustainability charity Bioregional has written this report on how the county of Oxfordshire has come together to create a happier, healthier and greener future for Oxfordshire. Our One Planet Living sustainability framework has been used to structure a shared vision and actions for participants in the One Planet Oxfordshire programme.

One Planet Living has a simple message: we can't keep living as if we have more than one planet's worth of resources. The framework has ten principles, from zero waste to health and happiness. Anyone can use the framework to take sustainable action, and it has been used all over the world for the past 20 years.

As part of our desire to see One Planet Living scaled up, Bioregional undertook a three-year pilot using One Planet Living at the city-region level in 5 different regions, including Oxfordshire. Each region brought together stakeholders across all sectors to co-create a shared vision for improving their area and to take action to achieving it. The aim of One Planet Oxfordshire is to bring together all those working towards the vision to encourage collaboration and joined-up working to make changes we need, faster.

This is the first review in what will be an annual process to examine the progress the county is making towards Oxfordshire's One Planet Living Shared Vision.

Bioregional manages One Planet Oxfordshire, supported by the County Council. This high-level review is the first of its kind for Oxfordshire, attempting to capture all the action taking place in our county across the ten One Planet Living principles, and monitoring progress towards our aims against selected indicators.

How the report is structured

The report begins with an explanation of One Planet Living and One Planet Oxfordshire's beginnings. We then summarise progress towards our One Planet Oxfordshire vision. The report then provides statistical evidence for progress against each indicator for each of the ten principles, showing how far Oxfordshire has come and how far we need to go. Examples of regionally significant action are given for each indicator.

Key findings of the report

Overall, progress has been made against each of the ten One Planet Living principles. Of the 20 outcomes that comprise the Oxfordshire Shared Vision, there has been some or good progress against half of them. For 8 outcomes there has been mixed progress with a few negative impacts, such as increasing car use.

Where we are doing well

Oxfordshire remains a powerhouse of research, ingenuity and thought leadership. From our zero-carbon projects (Zero Emissions Zone, Energy Superhub Oxford, Park and Charge) to UK-leading recycling and composting rates, to the largest network of community action groups in the UK, Oxfordshire has much to be proud of.

(Continued overleaf)

Areas to improve on

The built environment is a key area for more action, with an urgent need to make every new building zero carbon and also for energy-efficient retrofitting at scale. While Oxfordshire has some exemplary developments, they are few and far between.

More also needs to be done to encourage sustainable food choices, including a move to more plant-based diets.

We live in a water-stressed region, which will only be aggravated by the changing climate, and so more progress on water efficiency and adaptation programmes are needed.

The more people and organisations we bring on board to collaborate, the more progress we can make against our vision, and fix the 'gaps' identified by this report.

Getting involved in One Planet Oxfordshire

If you, or your organisation, would like to get involved with One Planet Oxfordshire or develop your own One Planet Action Plan, there are plenty of resources available to help you.

One Planet Oxfordshire

- Find out all about it and read inspiring case studies
- Sign up to our mailing list for quarterly updates and invitations to events
- Join our Facebook group
- Contact the One Planet Oxfordshire team

One Planet Living Action Planning

- See our Goals and Guidance documents – these are all available for free for anyone to use. They are tailored to particular sectors such as building developments, schools and businesses.
- Take our CPD-certified training course to help you develop your action plan. We also offer a streamlined 1- 1 coaching process for small and medium-sized businesses.
- Become a certified 'One Planet Living Associate' to help other organisations develop action plans.

Bioregional

The CAG Project COMMUNITY ACTION GROUPS

Cherwell DISTRICT COUNCIL NORTH OXFORDSHIRE

Vale of White Horse District Council

www.oxford.gov.uk OXFORD CITY COUNCIL

toe Trust for Oxfordshire's Environment

OXFORDSHIRE COUNTY COUNCIL

South Oxfordshire District Council

Table of contents

1. Introduction 6
1.1 About One Planet Living 6
1.2 One Planet Oxfordshire 6
1.3 About this review 7
1.4 Future reviews 7
2. In summary - have we made progress towards our vision? 8
2.1. What are we doing well? 8
2.2 Suspected, but unconfirmed, progress; requests for feedback 9
2.3 Increased action and activism in civil society, but still gaps 9
2.4 Areas where we could be doing more 10
2.5 Positives and negatives of the Covid-19 pandemic 11
2.6 Improvements to this reporting process 11
3. Detailed assessment of progress 13
3.1 Health and happiness 14
3.1.1 Clean air for all 15
3.1.2 Active healthy people 19
3.1.3 Mental health and wellbeing 21
3.2 Equity and local economy 22
3.2.1 Outcome: thriving local, independent enterprises 23
3.2.2 Outcome: empowered citizens affecting planning 30
3.2.3 Outcome: truly affordable homes 32
3.3 Culture and community 35
3.3.1 Progress against overall goal 36
3.3.2 Outcome: civic society and communities all understand the climate and ecological emergency and are working hard towards a rapid transition 37
3.3.3 Outcome: solving global environmental challenges 40
3.4 Land and nature 41
3.4.1 Outcome: rapid positive biodiversity trends 42
3.4.2 Outcome: showcase sustainable agriculture and landscape scale biodiversity 47
3.5 Sustainable water 49
3.5.1 Outcome: better water efficiency 50
3.5.2 Outcome: reduced flood risk 52
3.6 Local and sustainable food 54
3.6.1 Outcome: reduced food impacts 55
3.7 Travel and transport 59
3.7.1 Outcome: affordable, low carbon transport 60
3.7.2 Outcome: citizens understand the impact of air travel 66
3.8 Materials and products 67
3.8.1 Outcome: thriving circular economy 68
3.9 Zero waste 72
3.9.1 Outcome: all waste is minimised and goes to its optimum use 73
3.10 Zero carbon energy 76
3.10.1 Outcome: zero carbon or better by 2050 77
3.10.2 Outcome: energy efficiency programmes in all organisations 82
3.10.3 Outcome: rapid increase in renewables 84

1. Introduction

1.1 About One Planet Living

Created by Bioregional, One Planet Living® is a vision that everyone, everywhere, lives happy healthy lives within the natural limits of our one planet. If everyone lived like the average European, we would need the resources of three planets to sustain us. We know that action must be taken to mitigate the climate and ecological crisis and secure a safer future for humanity.

One Planet Living is also a framework to achieve the vision. It consists of 10 simple principles to target each aspect of sustainable living, ranging from zero carbon energy, local and sustainable food, to health and happiness and equity and local economy. These principles map onto the United Nations' Sustainable Development Goals and allow for a holistic approach that helps people work and live healthier, happier, fairer, and greener lives.

- Health and happiness
- Equity and local economy
- Culture and community
- Land and nature
- Sustainable water
- Local and sustainable food
- Travel and transport
- Materials and products
- Zero waste
- Zero carbon energy

1.2 One Planet Oxfordshire

The aim of One Planet Oxfordshire is to bring together diverse organisations in the county with interests in sustainability, and to create connections that help us all move towards a sustainable Oxfordshire.

Originally funded by the Danish KR Foundation as part of the One Planet Cities Programme, One Planet Oxfordshire is now being taken forward by Bioregional with support from Oxfordshire County Council.

The initiative began with Bioregional undertaking ecological and carbon footprinting of the county to create a baseline of information. In November 2018, 100 stakeholders from across the county, from universities to local councils and businesses to community groups, gathered at a workshop to provide their insights and expertise.

At the workshop, we used the 10 principles to craft outcomes – statements that describe the situation we want to see in Oxfordshire, and therefore the goals we want to achieve. We fed these back to stakeholders in December 2018, asking for comments and suggesting improvements. A refined list of 20 key outcomes was produced to represent the co-created One Planet Living Vision for Oxfordshire.

To achieve this vision, responsibility should not just fall to our local authorities or a few large organisations. Action is needed from a wide range of organisations across the county, as well as individuals playing their part.

Bioregional has been working with individual organisations to develop their own One Planet action plans, all feeding into the overarching vision. In addition, there are many organisations and individuals taking action that plays an important part in achieving the shared vision for Oxfordshire, not just those using the One Planet Living framework. In July 2020, Bioregional produced an action scan mapping some of the most significant and innovative activity.

1.3 About this review

This review is an initial attempt to capture, assess and celebrate progress towards the One Planet Living vision for Oxfordshire to date. This is an ambitious endeavour that has not been attempted before. The objective of this review is to stimulate comment and to inspire further action and collaboration. We welcome feedback on ways to improve how we measure and present progress.

The report is structured using the 10 One Planet Living principles. In the One Planet Living framework, each principle has an overarching goal. We report progress against the Oxfordshire-specific key outcomes for each principle that were agreed as part of the One Planet Oxfordshire vision workshops. We then present the most important, regionally significant actions that are taking place regarding progress towards each outcome.

When assessing progress against the expansive One Planet Oxfordshire vision, we have had to limit the scope of the assessment in the following ways:

- We only assess progress relating to the 20 key outcomes of the One Planet Oxfordshire vision; we appreciate there are many more outcomes that we desire for the future
- The assessment of progress is based on desktop research using data that is publicly available and easy to use; detailed analytical research was out of scope for this project
- In general, we have selected only one quantitative indicator for each outcome statement. In a few cases, we have not yet been able to identify a suitable indicator

For some areas, the data we have been able to obtain in the timeframe is limited. For example, using snapshots rather than regular monitoring (as seen regarding the state of Oxfordshire’s land and nature) therefore limits our ability to judge true progress

The Covid-19 pandemic will have affected progress towards a number of outcomes such as economic development and mental health goals. We are beginning to see the impact of this now but, in many areas, data lags behind and is still being collected and analysed. Because of this, we are not yet able to report on the true impact of the pandemic on achieving the One Planet Living vision for Oxfordshire.

1.4 Future reviews

Bioregional aims to review progress annually. We look forward to working in partnership with Oxfordshire County Council and other key stakeholders to identify and improve indicators and data sets, and provide an ever-more robust assessment of progress towards our vision for Oxfordshire.

2. In summary – have we made progress toward our vision?

Overall, progress has been made against each of the 10 One Planet Living principles. Of the 20 outcomes that comprise the Oxfordshire shared vision, there has been some or good progress against half of them. For 8 outcomes there has been mixed progress with a few negative impacts, such as increasing car use. For 2 of the 20 outcomes, it was not possible to make any assessment based on either data or anecdotal evidence - the extent to which Oxfordshire citizens are flying and how many organisations have energy efficiency programmes in place.

The overall picture is that we are doing some amazing, globally significant research and pilot projects. Oxfordshire is a hotbed of innovation, thought leadership, aspiration, and action. However, all this ground-breaking activity is not yet revealing a measurable impact on the county-wide indicators. We have ambitious targets, but it is difficult to tell if we have all the necessary measures in place to meet them.

There is a range of good strategies and plans, either in place or under development. These will hopefully deliver significant movement in the right direction for county-level indicators, but this will take a while. These plans need to be implemented before we can know how substantial and at what pace progress will be. There remains concern that we are not doing enough, quickly enough, to avoid seeing the damaging impacts of the climate and ecological crisis across the county and achieve the positive future we want for Oxfordshire.

2.1 What are we doing well?

Regarding our desired outcome for 'Solving global environmental 'challenges', Oxfordshire remains a powerhouse of research, ingenuity and thought leadership. From plans for central Oxford to be the world’s first Zero Emissions Zone, to rethinking the existing economic model at the Doughnut Economics Action Lab, to the university spin-outs providing new technologies for use around the world, we have much to be proud of.

In relation to the 'zero carbon energy' principle, our local authorities have set ambitious carbon reduction targets. The county council’s aim is for the whole county to be net zero by 2050. Oxford City Council is aiming for the city to be a net-zero carbon city by 2040. The District Councils of Cherwell, South Oxfordshire and Vale of White Horse have even more ambitious targets, aiming for the districts to be net zero by 2030.

These big ambitions are supported by ambitious projects such as the Energy Superhub Oxford (ESO), the world's biggest hybrid battery and first transmission network-connected system in the UK. The ESO project will provide a model for cities around the world to cut carbon and improve air quality.

A raft of further new travel and transport initiatives will also reduce carbon emissions, improve air quality, and cut road congestion, from pilot Low Traffic Neighbourhoods in Oxford to the Park and Charge project in Cherwell providing on-street charging capability for electric vehicles.

Regarding zero waste, the county remains a leader amongst UK local authorities for our recycling and composting rates. In 2017/18 Oxfordshire’s recycling rate was 57.2%, the top ranked county council waste disposal authority in the country. Waste being sent to landfill is down to 5% due to residual waste being sent to the Ardley Energy Recovery Facility.

2.2 Suspected, but unconfirmed, progress; requests for feedback

There are three areas where progress is likely being made but, with the scope and resource limitations detailed in section 1.3, we do not yet have the evidence to assess progress.

Regarding 'materials and products', we suspect Oxfordshire businesses are developing some true circular economy business models (as opposed to just improving the recyclability of products) and we are particularly keen to hear from companies about these.

For the outcome of 'Energy efficiency programmes in all 'organisations', we are sure many organisations already have, or are putting in place, environmental action plans to make their buildings, travel and operations more sustainable. We are keen to understand how many organisations in the county have made a net-zero commitment and how they are progressing towards that goal.

The energy from waste facility at Ardley generates enough electricity to power the equivalent of almost 60,000 homes. We understand there was an issue with grid connection and would welcome feedback and confirmation that this electricity is being fed into the grid and reaching its electricity consumers.

2.3 Increased action and activism in civil society, but still gaps

A 'culture and community' outcome in the vision is 'Civic society and communities all understand the climate and ecological emergency and are working hard towards a rapid transition'. Since the One Planet Oxfordshire vision was created, there has been an increase in environmental action and activism. The campaigning tactics of Extinction Rebellion and a stronger youth voice, for example through Schools Strike for Climate, raised the profile of the climate and ecological emergency, helping to create a greater sense of urgency in the population and institutions.

All the local authorities in Oxfordshire have declared climate emergencies and have expanded their previous plans. The work of Community Action Groups (CAGs) across Oxfordshire has continued even during the pandemic, as we saw surplus food being redistributed to those in need and socially distanced tree-planting days. Across the county, groups were involved in collecting and refurbishing laptops and digital devices to provide to children, enabling them to participate in online schooling.

Over the past few years, we have seen the cooling towers of Didcot power station dismantled, while the Low Carbon Hub's renewable Community Energy share offer (launched in November 2020) was so popular that the funding target was extended not once, but twice, raising a total of £3m.

Regarding the outcome 'Empowered citizens affecting planning', we highlight a report from the group 'Planning Oxfordshire's Environment and Transport Sustainably' (POETS) called 'Democratic Deficit 2021 - Who decides Oxfordshire's Future?'. The report warns that local people and politicians are increasingly being side-lined from decisions about Oxfordshire's future. They have strong concerns about unelected bodies having too much influence and feel that there has been very little public engagement in key consultations such as the Oxfordshire 2050 Growth Board plan and the development of the Oxford-Cambridge Arc.

(Continued overleaf)

Despite the increase in activism and participation by the public in environmental action, there is insufficient progress towards achieving the inclusive society the 'equity and local economy' principle champions. Sustainability activity takes place largely in a 'green bubble' in Oxfordshire, and the players in this bubble remain distinctly white and middle-class in composition. Many organisations across the county, such as Bioregional working with partner Aspire, are seeking to make the environmental space in the county more welcoming and inclusive to all. The importance of inclusion and social justice in solving sustainability and social problems have been highlighted, for example, by the Oxford City Citizens Assembly and the Oxfordshire COP26 Alliance conference in April 2021. There are no easy answers on how to achieve this and it is an area that needs much more attention and effort.

2.4 Areas where we could be doing more

To see significant progress against the indicators, we need to be doing more of the proven 'everyday' actions available to organisations and individuals. While in many subject areas, progress is dependent upon factors outside the county, policy from central government, and wider societal trends, there are still a good number of issues that can be tackled by Oxfordshire players and in which more substantial progress can, and should, be made.

The Oxford Friends of the Earth’s (OxFoE) recent report on how our local authorities are dealing with the climate emergency makes it clear that progress towards the county’s net-zero target of 2050 is far too slow compared with what is needed. The Tyndall Centre for climate research has calculated that cuts of between 12 - 14% in carbon emissions in our districts are needed each year if we are to reach the 2050 target. OxFoE’s report calls for all districts to create carbon budgets in line with the Tyndall recommendations and report progress against these annually.

Local planning regulations can now require that new buildings are zero carbon in construction and operation, therefore preventing new homes being locked-in to future carbon emissions.

More businesses need to make net-zero commitments in line with limiting global heating to 1.5°C. Actions to support these commitments include improving the energy efficiency of their premises, creating green travel plans for staff, and converting their fleets to electric vehicles. Companies can join initiatives such as the Science Based Targets initiative to align their plans with the 1.5°C limit.

A number of initiatives, such as the Oxfordshire Cosy Homes programme and Energy Services Oxfordshire supporting SMEs, have been working hard to push forward retrofitting of our homes and businesses to improve energy efficiency and move to renewable options. This effort has possibly been hampered most by a lack of skilled installers willing to engage with the programme. Academic institutions and business support organisations need to work together to increase the county’s talent pool of green retrofit skills, which will also boost employment opportunities for Oxfordshire’s citizens.

Local authorities and any organisation serving food could do more to promote the benefits of plant-based diets to the health of individuals and the planet. Hospitality and food service organisations can do much to encourage citizens to eat less meat by providing delicious vegetarian and vegan food.

Local authorities, civic society groups and individuals, with the support of the water companies, could all do more to improve the efficiency with which we use water in our water-stressed region.

While the right policies, infrastructure and systems are essential to enable citizens to make sustainable choices, we all know we can do more as individuals. Making simple changes, such as the way we travel or what we eat, combined with educating our young people and using our voices to clamour for faster change in our institutions, all add up and will help to speed up progress towards our shared vision for Oxfordshire.

2.5 Positives and negatives of the Covid-19 pandemic

There have been serious negative impacts of the Covid-19 virus and repeated lockdowns. The county has suffered 1073 deaths (by 16/04/21). The full effect of the wider impacts of the pandemic, such as long Covid, mental health issues, unemployment, and the impact on children's education, has yet to be seen.

Similarly, we cannot yet know how Oxfordshire's economy will move forward. Although businesses that have survived the pandemic may be set to see a rapid economic bounce back, many will not have survived or will struggle with the level of debt they took on to get them through the worst.

We have, however, seen some anecdotal positives come out of the pandemic. As in the rest of the country, some Oxfordshire residents have come to appreciate their local green spaces and gardens much more. More people are cycling, as demonstrated by the increased demand and scarcity of supply for bicycles. There has been a realisation that the daily commute is not, in many instances, an essential requirement for a successful business, and many companies will be making hybrid working from home and office the norm as we get back to normal.

There have been significant calls to 'build back better' after the pandemic, with more focus and energy dedicated towards sustainability and social justice, both within the county and at central government level. It is yet to be seen how this sentiment translates, or not, into real action. Any investment in our recovery should be examined with a sustainability lens to ensure the future really is 'better'. The One Planet Living framework can be a useful checklist to ensure that progress against one principle does not impinge on any other principles of a happy, healthy, sustainable future.

2.6 Improvements to this reporting process

Adding an outcome for diversity and inclusion

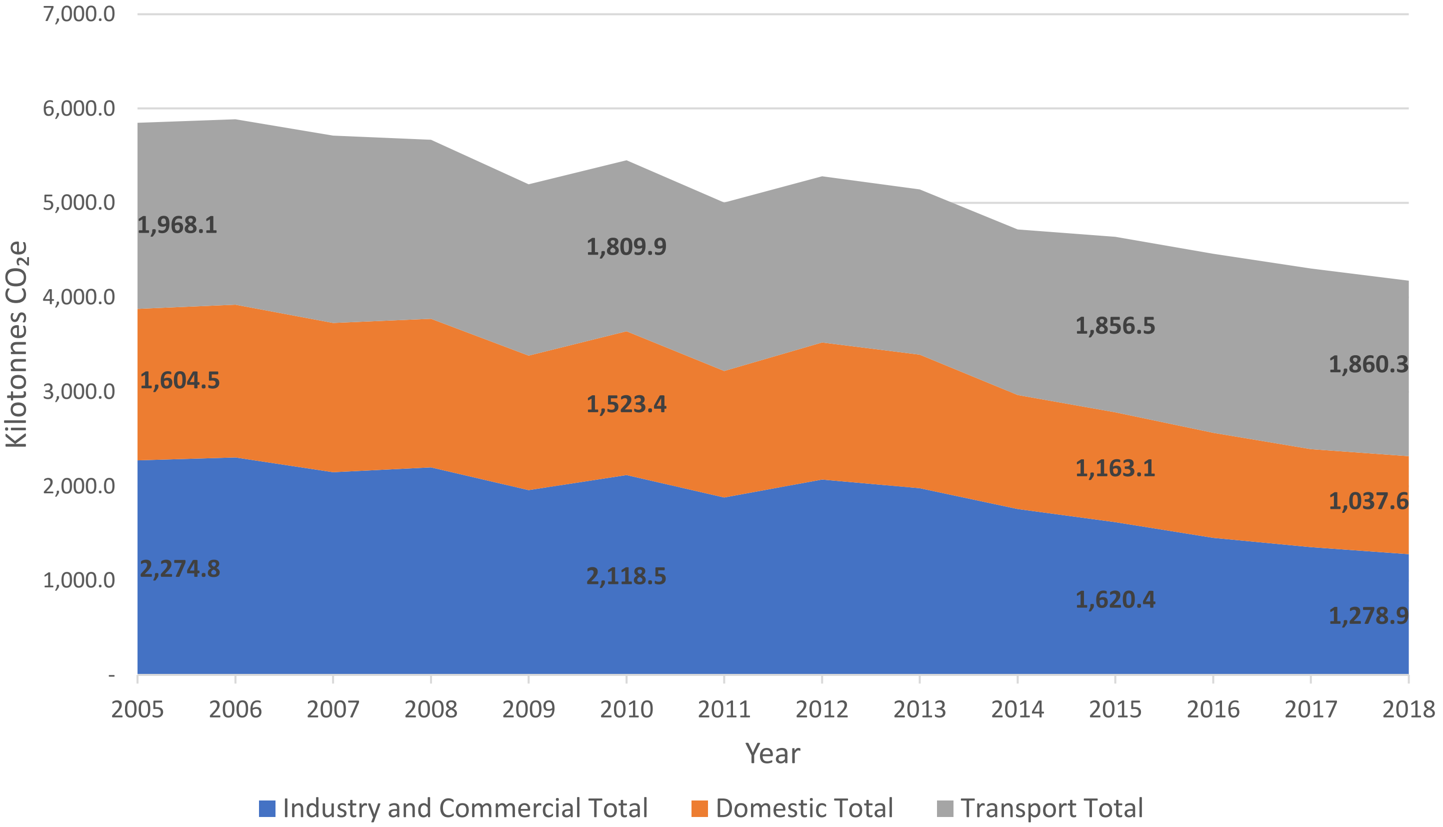
In the long list of 88 outcomes that form the full vision for a One Planet Oxfordshire, there are none to address the need for a more diverse and representative mix of people and organisations in the county's sustainability action, such as ethnic minority groups, those on lower incomes and people with disabilities. Bioregional will consult with stakeholders and develop a suitable outcome and indicator to include in next year's report.

Gaps in data and monitoring

In developing this report, it has become apparent that more monitoring and data collection is needed to improve the reporting of progress against each of the 10 One Planet Living principles. Detailed research has been carried out, such as the 2017 State of Nature report led by Wild Oxfordshire and Bioregional's ecological footprinting work as part of the preparation for developing the One Planet Vision for the county. However, these only provide occasional snapshots.

Bioregional will be working with the county council to identify further suitable indicators and see where other regular research and monitoring is possible. There is also a strong need for carbon budgets to be set by our local authorities and reported against annually. This improved reporting will enable everyone in the county to better understand what is happening in order to take further action, or change plans as required, to ensure we will reach our goals.

Below: Oxfordshire greenhouse gas emissions (kilotonnes CO_2e) from industrial and commercial, domestic, and transport sectors 2005-2018



3. Detailed assessment of progress

A simple summary scale is used in the following chapters to illustrate progress against the overall One Planet Living goals and the Oxfordshire-specific outcomes:

- Not possible to assess progress
- Negative progress – actions contrary to the outcome have occurred
- No progress
- Mixed progress – some progress but also some negative progress
- Some progress
- Good progress
- Outcome achieved

Following the assessment of progress, we provide information on action towards the outcome that is significant at the county level. There are a myriad of further initiatives happening across the county; we could not capture all, so we have focused on only the most significant ones across the region or given an example representative of wider action.

3.1 Health and happiness

Overall goal: encouraging active, social, meaningful lives to promote good health and wellbeing

Headline findings

Progress against overall goal	There continues to be improvement in air quality in Oxford and across the county, but levels in Oxford are still breaching UK legal limits. The Zero Emissions Zone should significantly improve this. The picture of progress on health and wellbeing is mixed and the full impacts of the Covid-19 pandemic are not yet known.
Key areas of concern	Could more action be taken on air pollution levels outside of Oxford City? We are only now beginning to see the longer-term impacts of Covid-19 in areas such as increased anxiety, depression and long-term health problems. Health outcomes for men, even before the pandemic, appear to have backtracked.

Key outcomes

Key outcome	Detail	Progress
Clean air for all (3.1.1)	Safe, clean and legal air quality for the whole county. All new developments to demonstrate no negative impact on air quality	Some progress
Active, healthy people (3.1.2)	Increased number of children and adults who are physically active and a healthy weight. Everyone can lead healthy, active lifestyles, no matter their socio-economic status	Mixed progress
Mental health and wellbeing (3.1.3)	High levels of good mental health and wellbeing with readily available support when necessary. Self-care (physical and mental) is taught, understood, and practised, including promoting and teaching mindfulness techniques in schools and the workplace. Everyone has access to human contact.	Mixed progress

3.1.1 Clean air for all

Indicators: average level of nitrogen dioxide and particulate matter (PM10 and PM2.5) μg/ m^3 (micro gram per meter cubed)

Nitrogen dioxide

The UK legal limits on nitrogen dioxide (NO_2) are 40μg/m^3 (annual mean) and 200 μg/m^3 (hourly mean).

Within Oxford, nitrogen dioxide levels have been declining steadily however, as of 2019, still exceed or equal the legal limit of 40μg/m^3 (annual mean).

The council's 2019 report[1] shows that the NO_2 annual mean was 43μg/m^3 at the St Aldates roadside monitoring site. The decline in NO_2 annual mean is demonstrated by Figure 1 below:

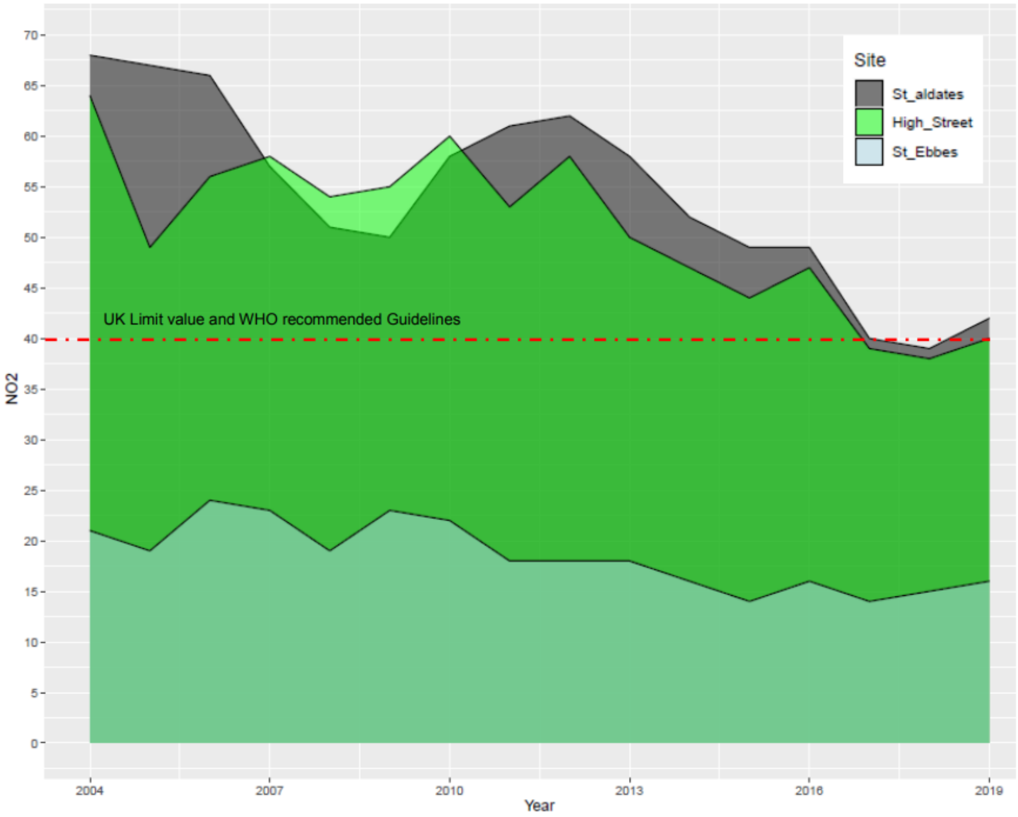


Figure 1. Long term trends of annual mean NO_2 ($\mu g/m^3$) at Oxford's continuous monitoring stations, 2004-2019. Source: Oxford City Council Local Air Quality Monitoring Annual Status Report 2019

Regarding the rest of the county, data on nitrogen oxides (NO_x), and particularly nitrogen dioxide (NO_2) levels, are reported daily from eight monitoring stations through the Oxfordshire Air Quality platform, established and managed by Oxfordshire's local authorities. Data was extracted from the platform from 1 January 2017 to 31 December 2020, and descriptive statistics were calculated to summarise the data annually for Oxfordshire.

Continuous data was available over the period for five of the monitoring stations, including Wallingford, two stations in Oxford centre, Watlington, and Henley. Data was not available for this period for Oxford St Ebbes, Abingdon, Witney or Chipping Norton, which would have given greater geographical spread of data. Nevertheless, general trends in air pollution over time across Oxfordshire can be seen from this

---

[1] Local Air Quality Monitoring Annual Status Report 2019, page 3

Figure 2a. shows a gradual decrease in annual mean NO_2 levels since 2018 from around 35µg/m³ to 23.3µg/ m³ in 2020. This indicates that the county has been making progress towards reducing concentrations of this key air pollutant of concern. However, reduced travel during the Covid-19 pandemic will have contributed towards this decrease, with the potential for air pollution to rebound during the recovery period.

Figure 2b presents the average number of hours that the legal limit of NO_2 was exceeded across each of the monitoring stations. This remained relatively stable between 2017-2018, with a significant decrease in 2020 to an average of 1451 hours, still higher than the UK limit to protect human health. While the county's levels appear to be reducing, it is a cause of concern that the limit is occasionally being exceeded.

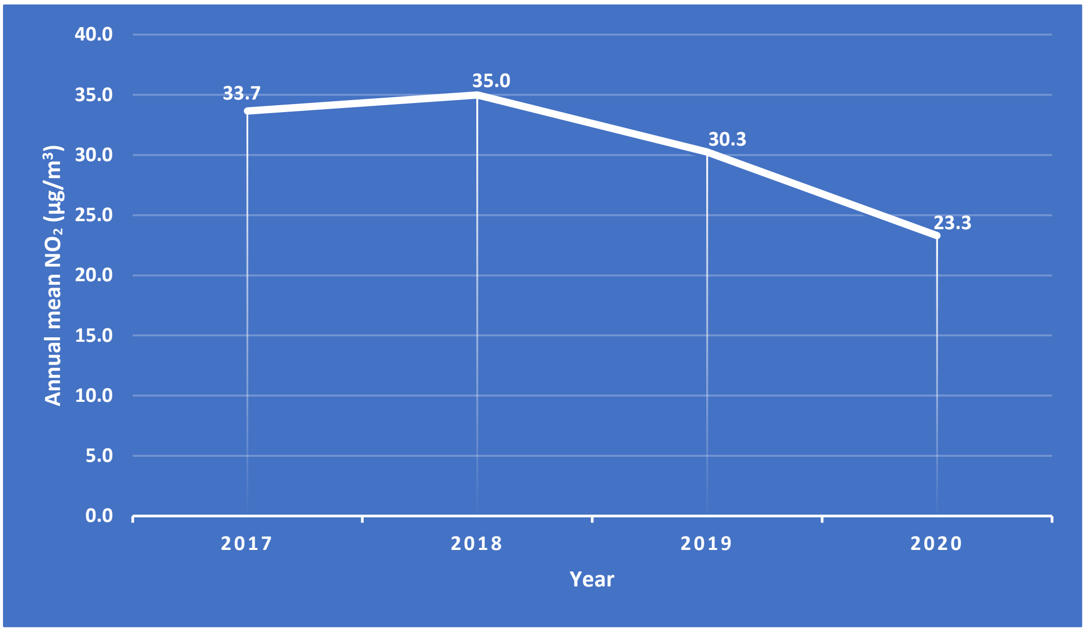


Figure 2a: Oxford annual mean NO_2 (µg/m³) based on hourly data from five continuous monitoring sites, 2017-2020.

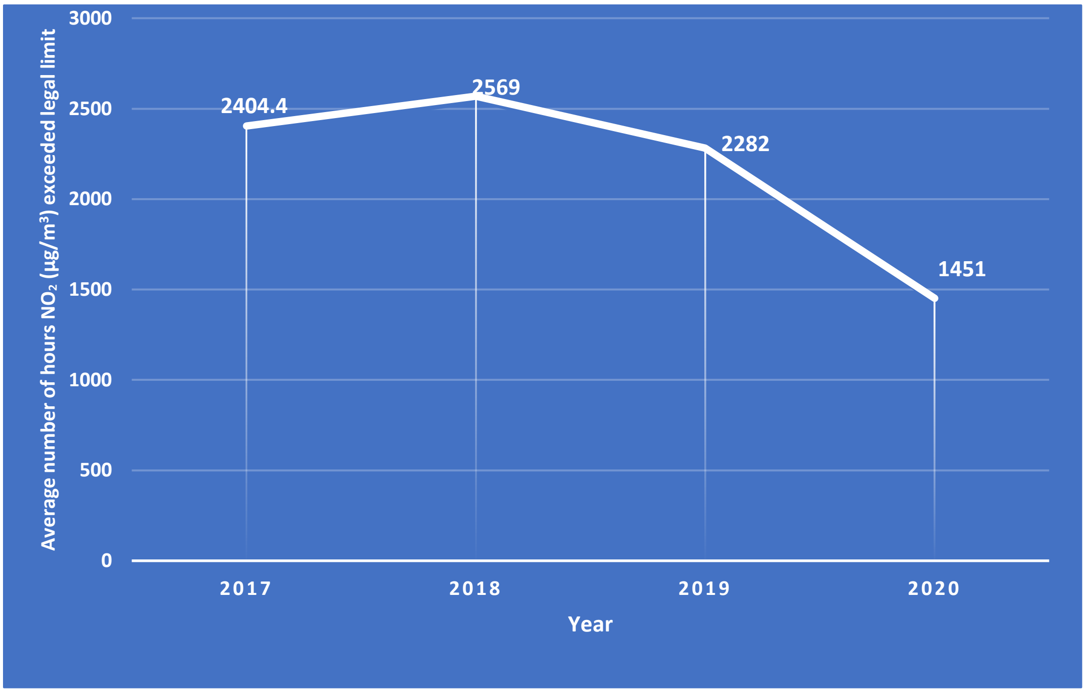


Figure 2b: Number of hours that NO_2 (µg/m³) exceeded legal limit (40µg/ m³) in Oxfordshire, 2017-2020.

Airborne particulate matter – PM 10 and PM 2.5

Adverse health impacts, including respiratory and cardiovascular diseases, can occur due to inhalation of particulate matter air pollutants from combustion. These particulates range from solids and liquid particles suspended in the air and vary in size, with those grouped as PM10 and PM2.5 having diameters less than or equal to 10 microns (coarse particulate matter) or 2.5 microns (fine particulate matter) respectively. Common components are ammonia, sodium chloride, nitrates, black carbon, water, and mineral dust. PM10 and PM2.5 particles can penetrate deep inside lungs, and PM2.5 can enter the blood system through the lung barrier. WHO guidelines state that annual mean levels of PM10 and PM2.5 should not exceed 20μg/m^3 and 10μg/m^3.

The Defra UK Air Information Resource provides hourly data on these key pollutant types from monitoring stations around the country, with one station, Oxford St Ebbes, recording continuous data which has been processed and analysed to provide insight on changes between 2017-2021. While data is not available from other monitoring stations across the county to give transparency on changes in these pollutants, the data from St Ebbes offers a sample from central Oxford. Figure 3a and 3b show the mean recorded for both particulate matter groups and show that Oxford has been below the WHO limits for PM10 over the period. PM2.5 levels exceeded safe limits in 2017 but have since been below the 10μg/m^3 threshold and were in decline until end of 2020. Nevertheless, in the first three and a half months of 2021, there has been a slight increase in both particulate types, showing how the county must continue to bring down air pollution levels to protect people's health.

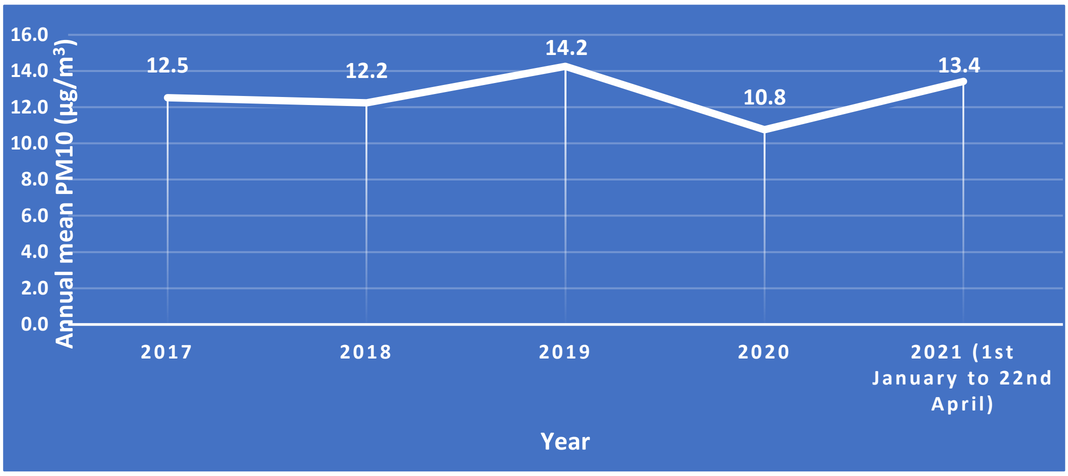


Figure 3a: Oxford annual mean PM10 (µg/ m^3) based on hourly data from St Ebbes monitoring station, 01/01/2017 – 22/04/2021.

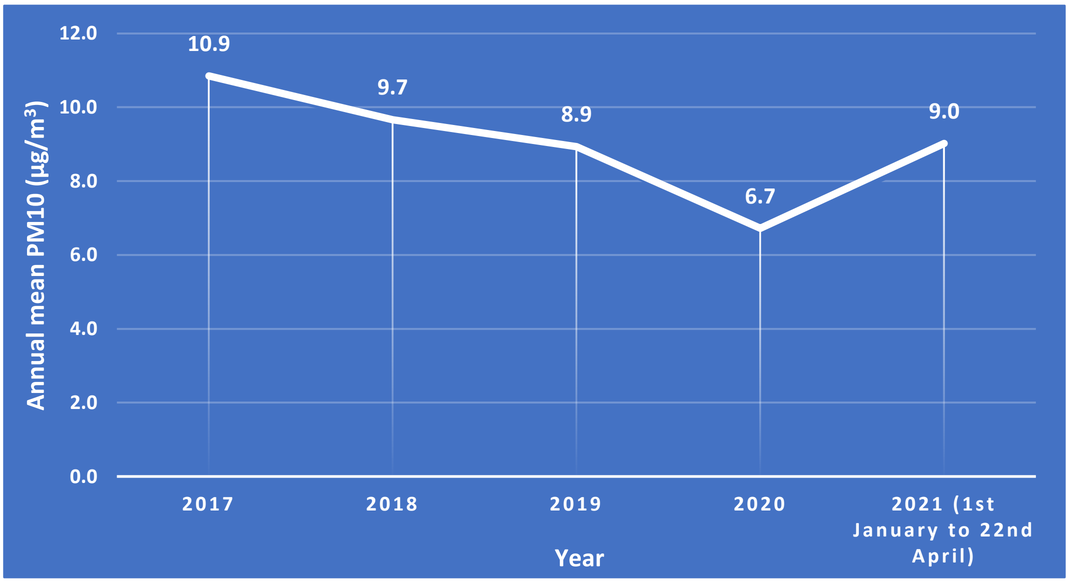


Figure 3b: Oxford annual mean PM2.5 (µg/ m^3) based on hourly data from St Ebbes monitoring station, 01/01/2017 – 22/04/2021.

Key regionally significant actions

Action	Detail
Oxford City Council's Air Quality Action Plan 2021-2025	In the Air Quality Action Plan, there are 30 actions that the council and its partners will take to improve air quality in Oxford City. In January 2020, the council also approved a plan for its own voluntary target to be 30µg/m^3 of NO$_2$ to be achieved by 2025 at the latest: '30 by 25'. This is ambitious as it is significantly lower than the current legal limit of 40 µg/m^3.
Zero Emission Zone (ZEZ) Oxford City	Oxford is aiming to be the world's first Zero Emission Zone. Planning for the ZEZ pilot was well underway before the final consultation was due to take place in March 2020 but was delayed due to Covid-19. The final consultation took place November 2020 - January 2021 and the small initial zone is due to come into being in August 2021. Consultation on the larger ZEZ covering the rest of the city centre is planned for 2021, with implementation in 2022.
New Oxfordshire Air Quality website	Over £160,000 has been secured for a new Oxfordshire Air Quality website, to be jointly developed by the six Oxfordshire councils. The innovative new site will be used as an important tool to communicate and raise awareness of air pollution with visitors and residents across Oxfordshire.
Reducing pollution near schools	March 2021 saw the start of a pilot scheme which clos roads during drop-off and pick-up times outside schools in Oxford. Run by Oxfordshire County Council and Sustrans.
Groups campaigning for clean air action and promoting walking and cycling	Friends of the Earth Oxford's 'Clean Air Charter' launched in 2018. Oxfordshire Schools Clean Air Network (OxSCAN) - Oxford Friends of the Earth programme set up the group in 2019 to promote clean air and healthy means of transport for schools. Run in cooperation with the city and county council staff who are working with schools on transport and pollution. The Coalition for Healthy Streets and Active Travel (CoHSAT) – 8 partners now grown to 10. Anti-idling campaigns have been run across the county, for example in Oxford City, South Oxfordshire, and Vale of White Horse districts.
Action to support low carbon travel in the County	Action regarding travel strategy, promoting active travel and supporting the move to electric vehicles is covered in section 4.7 Travel and transport.

3.1.2 Active healthy people

Indicator: life expectancy at birth

Data from the Office of National Statistics and Public Health England (up to 2019) shows that life expectancy is longer in Oxfordshire than the national average (Figure 4). Considering changes over time by gender, women women's life expectancy has fluctuated but improved overall between 2012-2019 to a peak of 71.7 years, with a decrease in 2017-2019 to 69.4 years (average for England: 63.5). For men, it has fluctuated and slightly decreased since 2012-14 from 68.7 to 67.5 years in 2017-19 (average for England: 63.2).

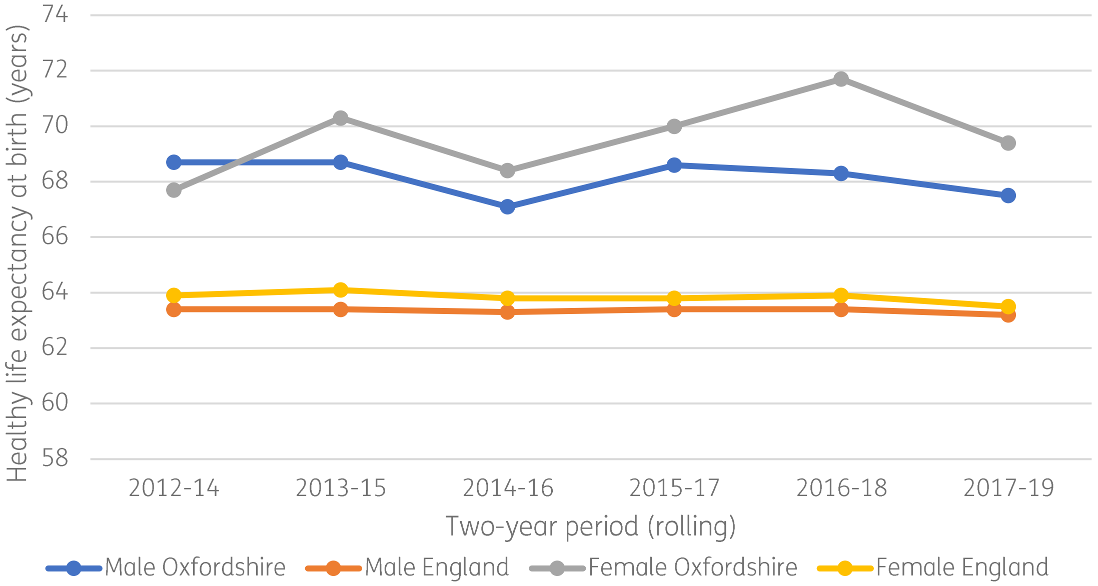


Figure 4: Healthy life expectancy at birth (years). Source: Public Health England.

Key regionally significant actions

Action	Detail
GO Active Programme	A programme for helping people live happy, healthy, and active lives. It brings together a large variety of opportunities for physical activity and includes a database to help people find an activity that suits them. Couch to 5k running programme, 'Health Walks', staying active at home, Get Cycling, and Better Health are all currently being promoted. It operates across all Oxfordshire districts.
Green Gyms	These are free outdoor sessions in which participants take part in physically active conservation projects such as tree planting, meadow sowing, and helping create wildlife ponds, with warm-up and cool-down exercises integrated into the sessions too. Run by The Conservation Volunteers (TVC), it is a national scheme with substantial presence and impact in Oxfordshire. Weekly sessions are being run, and Zoom events were organised during Covid. There has been considerable turn out, with upwards of 15 attendees depending on the week.
Support programmes to help people lose weight	Oxfordshire Weight Loss and Lifestyle Service (OWLS) is a comprehensive weight management service, run by NHS. A year-long, group-based programme, with additional dietetic and psychological support. Delivered in 12 venues including Oxford, Didcot, Banbury, Benson, Bicester, Witney, Drayton, Kidlington and Wantage.

3.1.2 Active healthy people

Indicators: mental health diagnosis, happiness survey

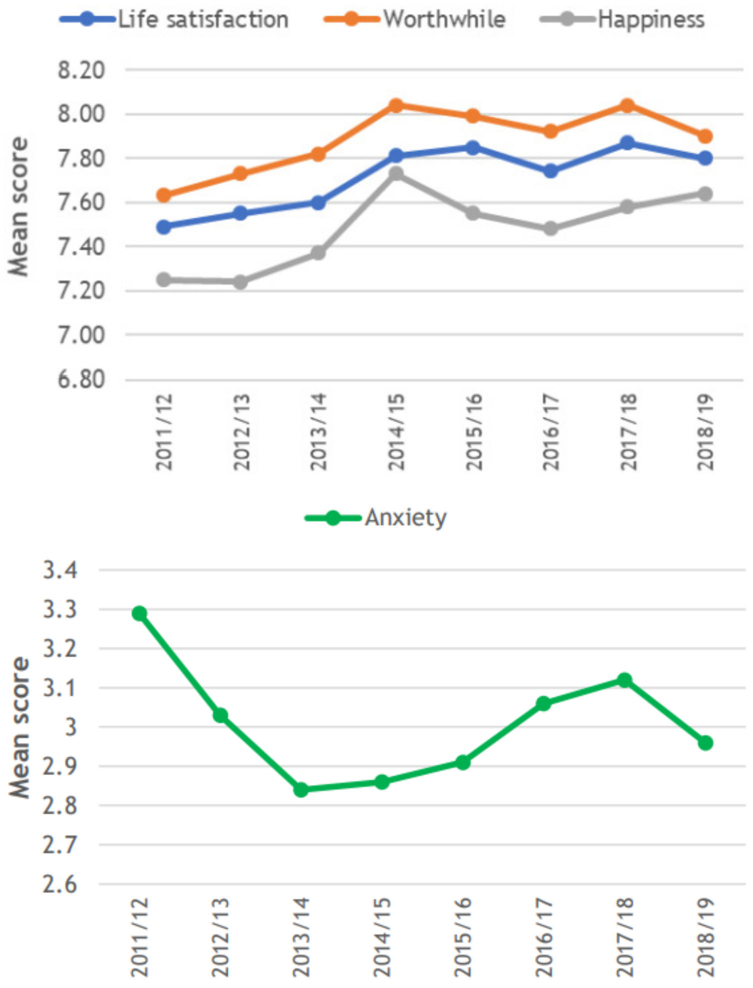
Our research has shown that there was a mixed picture on progress towards our goal of high levels of good mental health prior to the Covid-19 pandemic. Full data is not yet available to show how the pandemic has impacted residents' mental health, but there is likely to have been a significant decline due to the multiple pressures caused by Covid-19 amongst both adults and children.

Data from Oxfordshire's 2019/2020 Joint Strategic Needs Assessment shows that the number of people diagnosed with depression has increased from 61,874 in 2017-18 (rate of 10.36), to 67,557 in 2018-19 (a rate of 11.06). The rate for England in 2018-19 was 10.74, meaning Oxfordshire's figures are slightly higher than average which is a concern.

Data from surveys of personal wellbeing in Oxfordshire up to 2019-20 from the Office of National Statistics found the following:

- Happiness has increased slightly between 2018-19, but a sense that life is worthwhile, and life satisfaction, decreased slightly
- There has been a decrease in anxiety since 2012, with a significant decrease between 2017-18 and 2018-19

These mixed results emphasise the need for continual and increased support to achieve the One Planet Oxfordshire objective of high levels of mental wellbeing, particularly following the Covid-19 pandemic.



Figures 5 and 6: Trend in average wellbeing scores in Oxfordshire, 2011-2019. Source: Oxfordshire JSNA 2020 report

Key regionally significant actions

Action	Detail
The Oxfordshire Mental Health Partnership	This partnership brings together six mental health organisations from the charity sector and NHS. This includes Connection Floating Support, Elmore Community Services, Oxford Health NHS Foundation Trust, Oxfordshire Mind, Response, and Restore. A key service is the Recovery College, which supports mental health recovery through education and empowerment, run by people with lived experience of such problems and supported by a team of trained professionals.
Oxford Community Action	An organisation promoting community development, social inclusion and social justice for diverse, multi-ethnic BAME communities. In January 2021, it published 'We Will Swallow Our Words Back Down' report on the wellbeing views of Oxford's new and emerging communities, co-produced with Healthwatch Oxfordshire and hundreds of community volunteers.
Age UK Oxfordshire	Age UK Oxfordshire is a charity that offers support and services to older people. It provides a wide range of activities, groups and events such as lunch clubs and exercise classes, giving older people the opportunity to keep fit, socialise, or learn a new skill. Currently supports over 900 older people to stay independent in their own homes. It also has phone home support for the elderly during the pandemic.
Oxford Together	Volunteer programme supporting people in need during lockdown alongside Oxford City Council. Food shopping and delivery, prescription collection, regular social phone calls to those who are isolated, and a Street Champion movement to empower local people to support each other. 14 individuals working and 850 volunteers in the last year. Excellent progress in supporting the community.

Flo's
The Place in the Park
www.flosoxford.org.uk
goodgym
goodgym

Spotlight

GoodGym runners combining an evening run with doing some gardening at Flo's - The Place in the Park demonstrating the Health and Happiness principle.

Credit: David Brugman

3.2 Equity and local economy

Overall goal: creating safe, equitable places to live and work which support local prosperity and international fair trade

Headline findings

Progress against overall goal	The good progress achieved in developing the local economy has been reversed due to the severe economic impacts of the pandemic. Local campaigners have warned about a lack of democracy in planning decisions. Oxfordshire remains an expensive place to live and work.
Key areas of concern	Support programmes and innovative approaches are being used to help rebuild the economy but there will still be a considerable negative impact. Unaffordable housing and residents' lack of empowerment regarding planning decisions remain key concerns.

Key outcomes

Key outcome	Detail	Progress
Thriving local, independent enterprises (4.2.1)	A diversity of local, independent shops and enterprises providing jobs and livelihoods for communities, and where a significant proportion of money is spent locally	Mixed progress
Empowered citizens affecting planning (4.2.2)	A responsive local government culture that can influence local development and transport schemes on behalf of citizens	Negative progress
Truly affordable homes (4.2.3)	Access to truly affordable homes for all in Oxfordshire	Mixed progress

THANK YOU
for shopping
LOCAL

3.2.1 Thriving local, independent enterprises

Indicator: number of registered businesses per 10,000 people in Oxfordshire's working age population

To measure progress against this outcome, we firstly look at the number of registered businesses in Oxfordshire. However, the latest data collected was on 13 March 2020 and, as such it does not reflect the economic impacts of the Covid-19 pandemic. We therefore also summarise the key findings of OxLEP's recent report on the impact of the pandemic and its recovery plan.

The total number of registered businesses in the county increased from 36,365 in 2017 to 36,995 in 2019, and 37,560 in 2020. As well as considering the number of businesses, it is important to consider how many there are per 10,000 people in Oxfordshire's working age population (16-64), as this shows business growth relative to those working, seeking, or eligible for jobs, and thus provides insight on the local economy. Figure 7 shows this data for 2017-2019 for Oxfordshire and broken down by local authority area. The latest data on the number of businesses was collected on 13 March 2020, and as such does not reflect the economic impacts of the Covid-19 pandemic, which will be visible in future reporting. Working age population data is available up to 2019. Figure 7 shows the data broken down by local authority area, with the total for Oxfordshire increasing slightly from 4,315 in 2017 to 4,365 businesses per 10,000 people of working age in 2019. Cherwell, Oxford and West Oxfordshire recorded slight increases, while South Oxfordshire stayed relatively the same (decrease of 2), and the Vale of White Horse saw a decrease of 10.

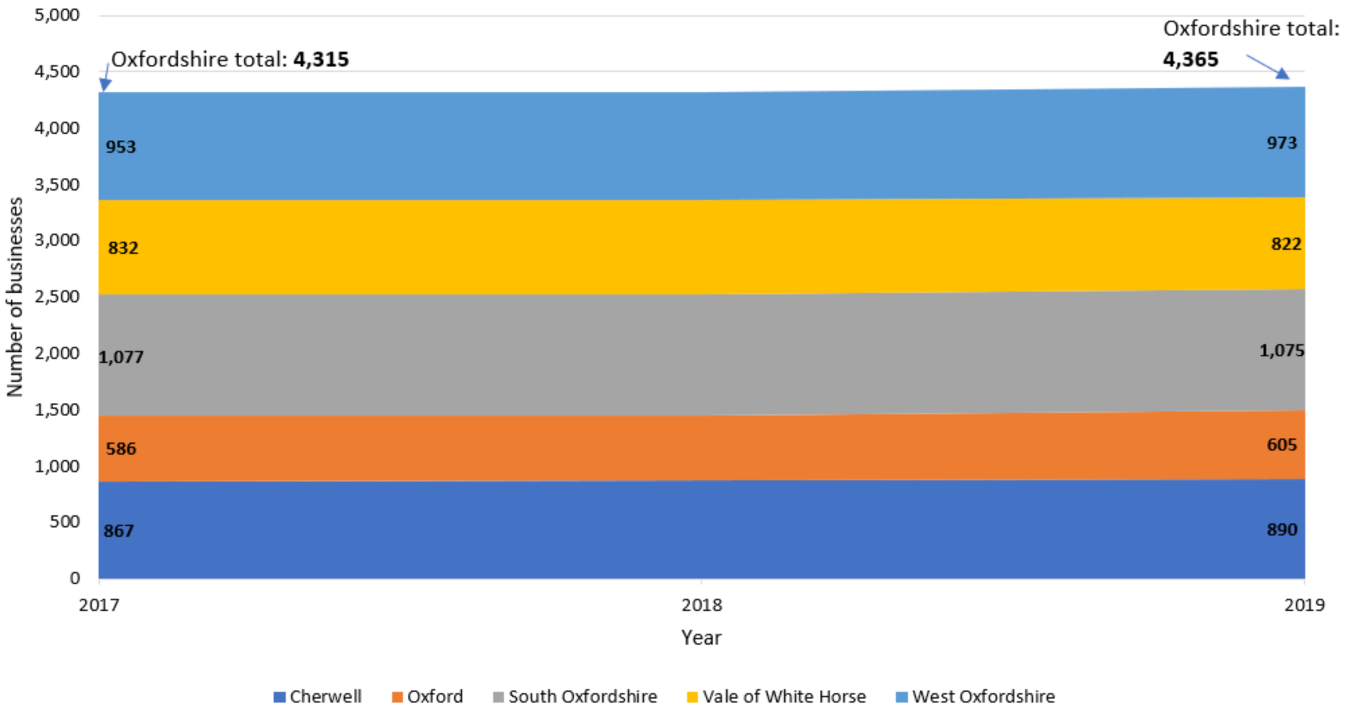


Figure 7: Number of VAT or PAYE registered businesses per 10,000 working age population in Oxfordshire by district, 2017-2019.

3.2.1 Thriving local, independent enterprises

The change in the number of businesses by size, based on the number of employees (micro, small, medium, and large), gives an indication of the business landscape and economic profile. As Table 1 and Figure 8 shows, most businesses in the county are small and medium-sized enterprises (SMEs), particularly micro and small, including shops and hospitality venues. The number of micro, small and medium-sized businesses has been increasing gradually since 2017, indicating the county's progress towards having a thriving local economy.

Table 1. Comparison of business size by employee band for Oxfordshire 2017-2020.

		Number of employees (business size)			
		0-9 (micro)	10-49 (small)	50-249 (medium)	250+ (large)
Year	2020	31460	4955	995	150
	2019	30970	4890	980	155
	2018	30575	4775	965	150
	2017	30505	4750	970	140

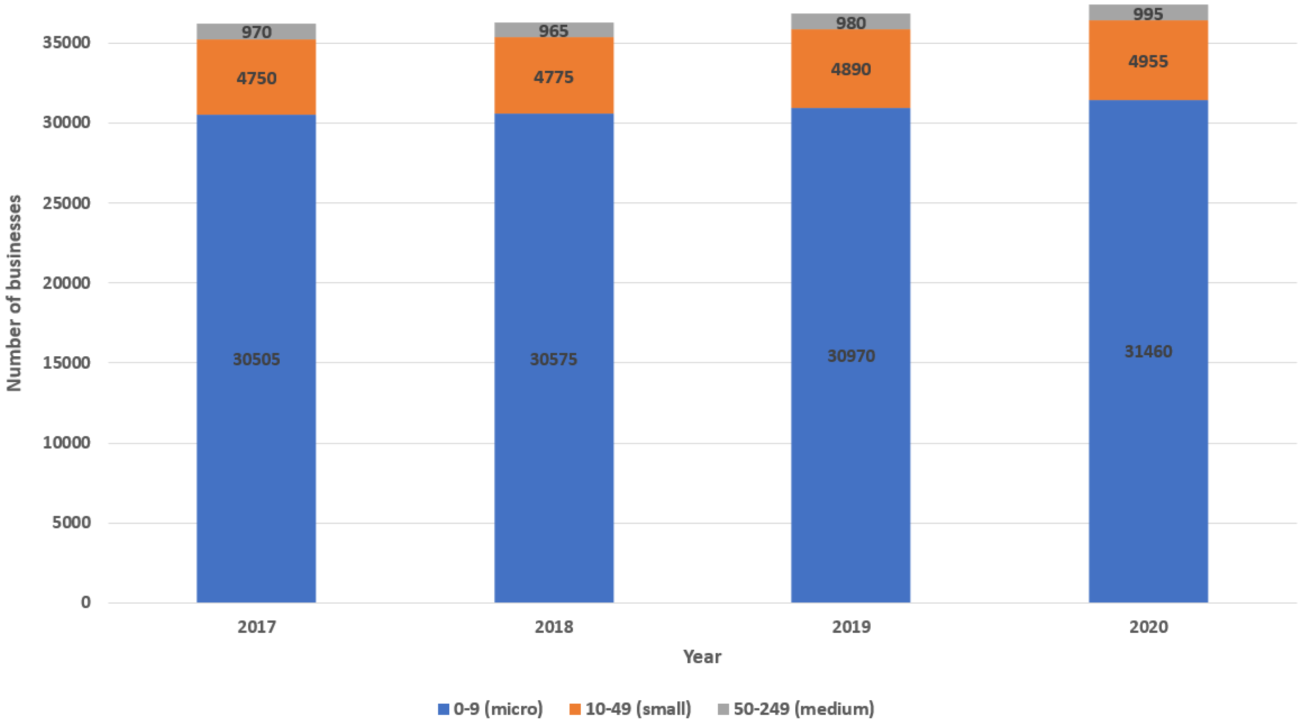


Figure 8. Comparison of business size by employee band for Oxfordshire 2017-20200, showing SMEs (fewer than 250 employees) and large businesses.

3.2.1 Thriving local, independent enterprises

Post-pandemic situation and recovery plan

In July 2020, Oxfordshire partners convened a senior stakeholder task group. It comprised of OxLEP and chief officers from Oxfordshire's six local authorities, senior representatives from the University of Oxford, Oxford Brookes University and the Oxfordshire Growth Board, to oversee the development of a county-wide Covid-19 Economic Renewal Plan (ERP).

Analysis of key socio-economic indicators and econometric modelling was used to project the impact that Covid-19 will have on the Oxfordshire's economy in relation to the rest of the UK. Overall, Oxfordshire's economy has been hit less hard by the pandemic than the wider UK, due to its underlying strengths and sectoral mix. The county's economic recovery will outperform the UK average, resulting in a smaller relative shortfall in 'lost growth'. However, Covid has still exposed key challenges.

To counter these challenges, support will focus on three strategic themes:

- People – relating to the jobs, skills, mental and physical health of Oxfordshire's residents
- Businesses – across the spectrum of our firms' respective sizes and their sectoral specialisms
- Places – reviving and reimagining Oxfordshire's city, towns, villages, and rural areas

Underpinning the above themes is 'Rebuilding: Connectivity' – highlighting the key infrastructure activities and requirements for the county to adjust and adapt to Covid-19 impacts, which are vital to the priorities set out under the ERP Action Plan.

This ERP Action Plan takes in some 70 activities, with an aggregate project value of approximately £1.4b. Against this total, around £1b of allocated funding is in place, leaving an 'investment ask' of partners to progress this action plan of £437m.

aspire
01865 244989
ops@aspireoxford.co.uk

Spotlight

Aspire supports homeless and disadvantaged people in Oxfordshire to find employment through work experience on our social enterprise businesses.

Credit: David Brugman

Key regionally significant actions

Action	Detail
Growth Board Vision for Oxfordshire	The Oxfordshire Growth Board, formed of all six district councils and other key stakeholders, have agreed a new Strategic Vision for Long-Term Development in the County. The vision states: 'We want Oxfordshire to thrive so that the lives of current and future generations are improved. To achieve this will require bold, collaborative, and inclusive thinking to deliver real and lasting change in ways that build resilience and enhance environmental, social, and economic wellbeing. We will draw on our world-class economy, our spirit of discovery and Oxfordshire's global reputation to power this change through the adoption of clean and sustainable technology.' This demonstrates that climate action is now part of mainstream economic planning and those in influence are steering Oxfordshire towards a sustainable, transformational future.
Scale-up the low-carbon economy	The Oxfordshire Energy Strategy, launched November 2019 by OxLEP, sets out a framework to enable the county to be at the forefront of energy innovation to foster clean growth. The strategy will demonstrate how we can consume energy more efficiently and harness it for future generations. Its aim is to bring significant investment and jobs to the county and deliver emissions reduction targets in line with local and national targets. There are three guiding principles behind the strategy: 1. Securing a smart, modern, clean energy infrastructure through increased electricity grid capacity, supporting planned housing, industrial and commercial growth, and changing energy requirements. 2. Reducing countywide emissions by 50% by 2030 (compared with 2008 levels) and setting a pathway to achieve zero-carbon growth by 2050. Realising the economic benefits of a low-carbon transition by supporting: a) ambitious and innovative clean generation projects across the county and b) projects that reduce energy demand and increase energy efficiency for domestic, industrial, commercial buildings and transport. 3. Enhancing energy networking and partnership working to focus on the low-carbon energy challenges, galvanising pioneers in clean growth to support the scaling-up of future solutions and accelerate delivery towards a net-zero carbon county. The Energy Pathfinders 2050 (EP:50) competition from OxLEP will support vibrant and dynamic Oxfordshire projects in the built environment, communities, transport, infrastructure, energy efficiency and demand reduction. The EP:50 is open to projects and organisations of all sizes, from small and large businesses to start-ups and community-based initiatives. As well as energy and carbon savings, the judges seek projects which place high value on diversity, inclusion and have a wider social value. Winning projects will be showcased locally, nationally and internationally.

Scale-up the low-carbon economy (continued)	OxFutures is a project to boost low-carbon economic development in Oxfordshire. It has delivered energy audits to over 130 businesses and funded 28 of them, improving their competitiveness and reducing their energy bills and CO_2 emissions. A further 14 innovation companies have received funding to boost Oxfordshire's development as a UK leader in the new low-carbon economy. It also established the low-carbon business network Oxfordshire Greentech. OxFutures has been extended for another three years, allowing it to support the delivery of 45 additional energy efficiency grants for SMEs. New feasibility and implementation grants to support innovative business, product and service ideas will also be supported through the extension of the programme as SMEs and start-ups develop new technologies. Oxfordshire Greentech is a business network supporting the growth of the low-carbon sector in Oxfordshire. Established in 2019, membership has remained stable during the pandemic. During 2020-2021, the network held over 20 events to help companies network, learn, and access finance and other support. Oxfordshire County Council, South Oxfordshire and Vale of White Horse District Councils have joined founder member Cherwell Council as strategic partners, greatly boosting the reach and impact of the network. Low Carbon Hub (LCH) is a social enterprise that develops community-owned renewable energy installations across Oxfordshire. The installations produce income which is reinvested in further carbon cutting projects. LCH helps local organisations become more energy-efficient, fund green innovation, and back further community energy projects. Its impact in March 2021: • 47 renewable energy installations • 1,259 tonnes of CO_2 saved every year • 4.5GWh of potential clean energy generation a year • £1.7m lifetime anticipated savings on electricity bills by hosts • £2.6m lifetime anticipated community benefit donation to Oxfordshire communities
Putting empty premises to good 'meanwhile' use	Meanwhile in Oxfordshire is a £1.9m project to transform vacant, high street retail units across the county into independent shops, cultural venues, creative studios and co-working spaces. It is a collaboration between Oxford City, district councils and OxLEP, and will be undertaken by Makespace and a consortium of local organisations and national experts. The aim is to provide affordable premises to accommodate more than 100 organisations, which will create or secure at least 300 jobs across Oxfordshire.

Develop the Oxfordshire economy and social enterprise	Oxfordshire Local Enterprise Partnership (OxLEP) is responsible for developing the Oxfordshire economy. It establishes effective relationships between businesses, academia and the public sector, creating programmes to support business growth and skills development (such as apprenticeships). OxLEP has supported the creation of around 48,000 new jobs between 2011 and 2019 – representing over half of a 2031 target of 85,600 new jobs. Its eScalate programme supports developing social enterprises with grants of up to £25,000. New hubs for this programme include the CAG Network and Makespace in Oxford. Its 'Oxfordshire's Economic Recovery Plan' was published in December 2020. OSEP CIC is a social enterprise set up to support social entrepreneurs, social enterprises, enterprising charities and purposeful business across Oxfordshire. It manages the eScalate programme. The Scale Up Network was setup by Oxford Brookes Business School to enhance and develop the managerial and leadership capacity of local organisations, with businesses supporting each other, and receiving guidance and knowledge from the Business School. The Plunkett Foundation is a national charity that supports communities in rural areas to tackle issues through community businesses – enterprises owned and run by members of the community, for the community. This includes shops, pubs, farms and woodlands. The Skoll Centre for Social Entrepreneurship, based at Oxford University's Saïd Business School, supports and enables students to tackle global issues through social entrepreneurship, including in areas such as education, poverty, healthcare, and the climate and ecological crisis. It delivers support through a range of programmes, events, and opportunities for financial support, funding and collaboration. Between 2012-2020, the centre has invested £250,000 in 15 ventures led by University of Oxford students, staff, and alumni.
Pay a living wage	There are over 100 real living wage employers in Oxfordshire, including OXFAM, Aspire, Emmaus Oxford, Oxford City Council, Pedal and Post, Ethical Property, and Oxford Innovation. A further Oxford University college, Merton, adopted the Oxford Living Wage in April 2020. Nov 2020: Oxford City Council announced the new annual level of the Oxford Living Wage. The Oxford Living Wage is an hourly rate minimum pay that promotes liveable earnings for all workers and recognises the high cost of living in Oxford. With the start of Living Wage Week, the Council can announce that the new Oxford Living Wage rate will be £10.31 an hour, which will apply from April 2021. In April 2021, the Oxford Living wage was increased to £10.31 an hour. 44 companies were listed as Oxford Living Wage employers on the Oxford City website in March 2021.

3.2.1 Thriving local, independent enterprises

Increase co-operatively run enterprises	Co-ops are important for increasing democratic governance structures in enterprise. They also solve the general economic problem of under or over-production, business uncertainty, and excessive costs. There are a growing number of co-operative enterprises across the county. These include Midcounties Co-op supermarkets, housing co-ops, childcare groups, community centres and cafes (such as Flo's in the Park), pubs (such as those in Risinghurst, Beckley, Great Milton, and Marsh Baldon) and a publishing company. The Community Action Group project became a community interest company (CIC) in 2020. The Solidarity Economy Association undertook a mapping exercise of the 'solidarity economy' in Oxford in 2019.
Promote and create outlets for fairly traded products	Oxford Brookes was the first Fairtrade University in the world. Oxfordshire also has the following: Oxford, a Fairtrade city; Bicester and Banbury Abingdon, which are Fairtrade towns; and the Witney area which has a Fairtrade action group. Headington Fairtrade is run as a community co-operative gift shop. There are a number of Fairtrade shops across the county.

3.2.2 Empowered citizens affecting planning

Indicator: none

It would require significant effort to research how citizens have affected planning decisions, which is out of scope of this report. The campaigning group 'Planning Oxfordshire's Environment and Transport Sustainably' (POETS) published a report in 2020, and an update in February 2021 called 'Democratic Deficit 2021 - Who decides Oxfordshire's Future?'. These reports warn that local people and politicians are increasingly being side-lined from decisions about Oxfordshire's future. They have strong concerns that unelected bodies have too much influence and feel that there has been very little public engagement in key consultations, such as the Oxfordshire 2050 Growth Board plan and the development of the Oxford-Cambridge Arc.

The report highlights a particular example of citizens being disempowered regarding planning decisions when Secretary of State Robert Jenrick intervened in South Oxfordshire. He instructed the recently elected Liberal Democrat/Green administration to stand away from planning policy matters and required its officers, under instruction of his government department, to push through the local plan. The Oxford Times described it as 'an extraordinary affront to local democracy'.

Key regionally significant actions

Action	Detail
Campaigning charities and pressure groups	Planning Oxfordshire's Environment and Transport Sustainably (POETS) is a group of senior planning, environment and transport professional and academics focussed on planning and transport in Oxfordshire. Their work involves influencing current policy makers whose decisions affect environmental, spatial and transport planning in Oxfordshire. Oxfordshire Zero Carbon Homes Initiative (OZCHI) is a campaigning partnership set up by Oxford Friends of the Earth in 2021, with the aim that all new homes built in Oxfordshire will be designed to zero-carbon standards. OZCHI is calling for all councils in Oxfordshire, the Oxfordshire Growth Board and the Local Enterprise Partnership to cooperate to 'develop, set and implement a new common standard that will deliver net-zero carbon homes' and work with the government and other agencies to make Oxfordshire a 'Zero Carbon Homes Innovation Zone'. CPRE Oxfordshire is an environmental charity. It campaigns and gives input on issues like the Oxford-Cambridge Growth arc, the Oxfordshire 2050 Plan, the Ox-Camb Expressway, and saving Oxford Green Belt in South Cherwell. Its campaigning was instrumental in creating Oxford's Green Belt, helping to preserve the city's unique character and prevent urban sprawl, and it has influenced countless planning decisions that have helped preserved the character of the Oxfordshire countryside. Oxford Civic Society is a registered charity dedicated to the continuous improvement of Oxford as a city in which to live, work, study and relax. It advocates on a number of issues, including transport, planning, and housing. Preserving the best of the past, it also campaigns for best practice in the sustainable development and management of new, evolving buildings and spaces. Need not Greed Oxon is a campaign dedicated to protecting Oxfordshire's rural environment, while recognising the development and infrastructure needs of our residents. It promotes an alternative vision for Oxfordshire – one that is not based on forced economic growth but focuses on meeting local people's real needs.
Other campaigns/ initiatives	Project LEO aims to test how to unlock opportunities from the transition to a smarter, flexible electricity system, with a focus on renewable and low-carbon energy. The Smart and Fair Neighbourhoods programme will explore how to do this in an equitable and fair way so that everyone in Oxfordshire can enjoy the opportunities and benefits it will bring.

3.2.3 Truly affordable homes

Indicator: median housing affordability ratio

Outside of London, Oxford is the least affordable place to live in the UK, according to a Halifax study in 2020, with a similar trend in the wider county.

Affordability of housing in Oxfordshire has decreased over time, as indicated by the median housing affordability ratio from the Office for National Statistics (ONS) (Figure 9). However, there was a slight increase in affordability between 2018 and 2019. This is a ratio of the median price paid for residential property to the median workplace-based gross annual earnings for full-time workers. The larger the ratio, the less affordable residential properties are. This reflects national housing issues and highlights the need for greater provision of affordable housing.

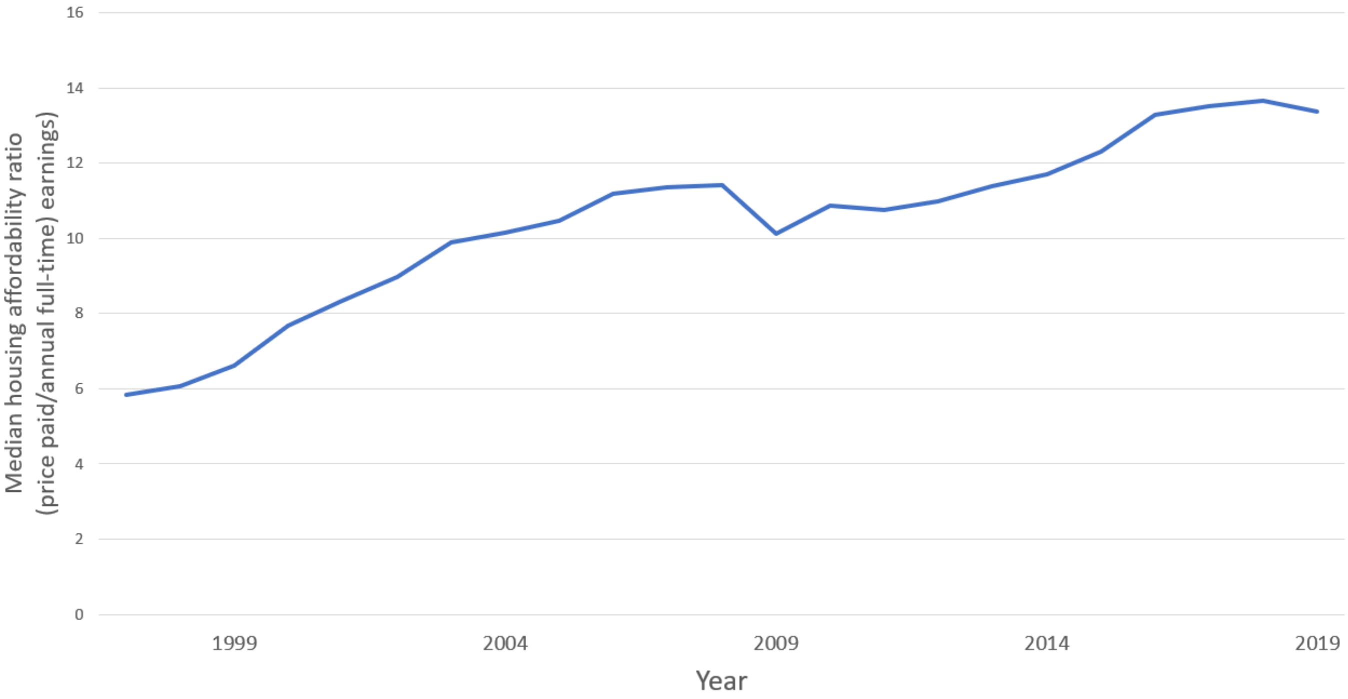


Figure 9: Annual median housing affordability ratio – Oxfordshire average.

3.2.3 Truly affordable homes

Key regionally significant actions

Action	Detail
Planned affordable homes through local authorities and Housing and Growth Deals	The Oxfordshire Growth Board has secured £215m of government investment for new homes and infrastructure across Oxfordshire, as of November 2017. The Oxfordshire Housing and Growth Deal will provide £60m for affordable housing to support a bespoke Oxfordshire-wide affordable housing delivery programme. The programme will support the delivery of at least 1,320 affordable homes across a range of tenures to start on site by 2021. This will support the ambition of building 100,000 new homes across Oxfordshire between 2011 and 2031 to address the county's severe housing shortage and expected economic growth. However, a lot of planned housing is allocated to Green Belt land, which raises questions about biodiversity loss, urban sprawl, and reducing the county's carbon sinks. In the city where unaffordable housing is a huge concern, since 2013 the city council has required all housing developments of four or more homes to contribute 15% from the sale price – after the houses had been sold – to the public purse. The money has been ring-fenced to build new council housing in Oxford. This policy was scrapped, however, when rules changed in the new version of the government's National Planning Policy Framework (NPPF). The changes mean that only developments of 10 or more homes should include affordable housing or have to make a financial contribution to the public purse to build new affordable housing in the area. 1596 affordable homes are planned to be delivered in Oxford from 2020 to 2023, according to the council's 'Housing and Homelessness Strategy, 2018-2021'.
Support for people vulnerably housed and homeless	Organisations providing support for the homeless and vulnerably housed in Oxfordshire include Crisis, Open House, City Council Housing Needs Team, and Oxfordshire Homelessness Prevention Trailblazer Programme. The Oxford Winter Nightshelter Programme is run by 12 Oxford churches. During lockdown, the city council (along with St Mungo's outreach team) provided self-contained hotel or student accommodation for rough sleepers, with food from Pembroke College's catering team. The Porch has offered a mobile lockdown food delivery service and a takeaway service while other activities were suspended. An estimated over 50 individuals accessed beds over the winter months. It is also estimated that half of the people who get access to housing support do not return to rough sleeping conditions.

3.2.3 Truly affordable homes

Develop various options for sustainable and affordable housing	There are a number of housing associations and trusts in Oxfordshire working with local authorities to provide affordable housing. Examples of locally based housing associations include: SOHA housing. It is a successful, award-winning, community-based housing association working in South Oxfordshire. It provides more than 6,500 affordable homes in and around South Oxfordshire and currently has more than 10,000 residents. Oxfordshire Community Land Trust. Founded in 2004, it has recently acquired land to build affordable housing for local residents. Oxford Co-housing. A group of people from various backgrounds are working to create a co-housing neighbourhood in the Oxford area, but have not yet successfully secured land.

4 1
RAJ
4 2
RAJ
MIDAS

3.3 Culture and community

Overall goal: nurturing local identity and heritage, empowering communities and promoting a culture of sustainability

Headline findings

Progress against overall goal (4.3.1)	There has been some progress, with a relatively better average score in the community needs index than the average for England. But there is disparity in needs across the county's communities. Oxfordshire has a strong sustainability culture with increasing awareness raising activities and community, government, and business action on the climate crisis. Oxford continues to be at the forefront of innovation and bringing sustainability solutions to the fore.
Key areas of concern	A lack of annual or regular data updates on community needs creates a challenge in monitoring progress and priority action areas.

Key outcomes

Key outcome	Detail	Progress
Civic society and communities all understand the climate and ecological emergency (4.3.2)	Citizens and organisations are working hard towards a rapid transition	Good progress
Solving global environmental challenges (4.3.3)	Oxfordshire's capabilities and actions support solutions to global environmental challenges	Good progress

THERE IS NO PLANET B

3.3.1 Progress against overall goal

Indicator: Community Needs Index

Considering the overarching goal of 'culture and community', the Community Needs Index provides insight on the state of the county. This index was developed by Oxford Consultants for Social Inclusion (OCSI) and the National Trust with the aim of identifying areas experiencing poor community and civic infrastructure, relative isolation and low levels of participation in community life. The index was created by combining a series of 19 indicators, conceptualised under three domains: Civic Assets, Connectedness, and Active and Engaged Community. A higher score indicates that an area has higher levels of community need. This index research was first conducted in 2019, providing a snapshot of the status of Oxfordshire’s communities, and areas of community life in need of improvement.

The average index score for Oxfordshire is 46.42 which, compared to England's average of 68.40, indicates that the county’s communities are experiencing relatively better community and civic infrastructure, lower levels of isolation and greater participation in community life. Yet community needs vary substantially across Oxfordshire (Figure 10), with the lowest needs for Oxford (26.38), and the greatest needs in the Vale of White Horse. As such, the disparity in the status of communities across Oxfordshire is a cause for concern, highlighting the continued need to improve community life.

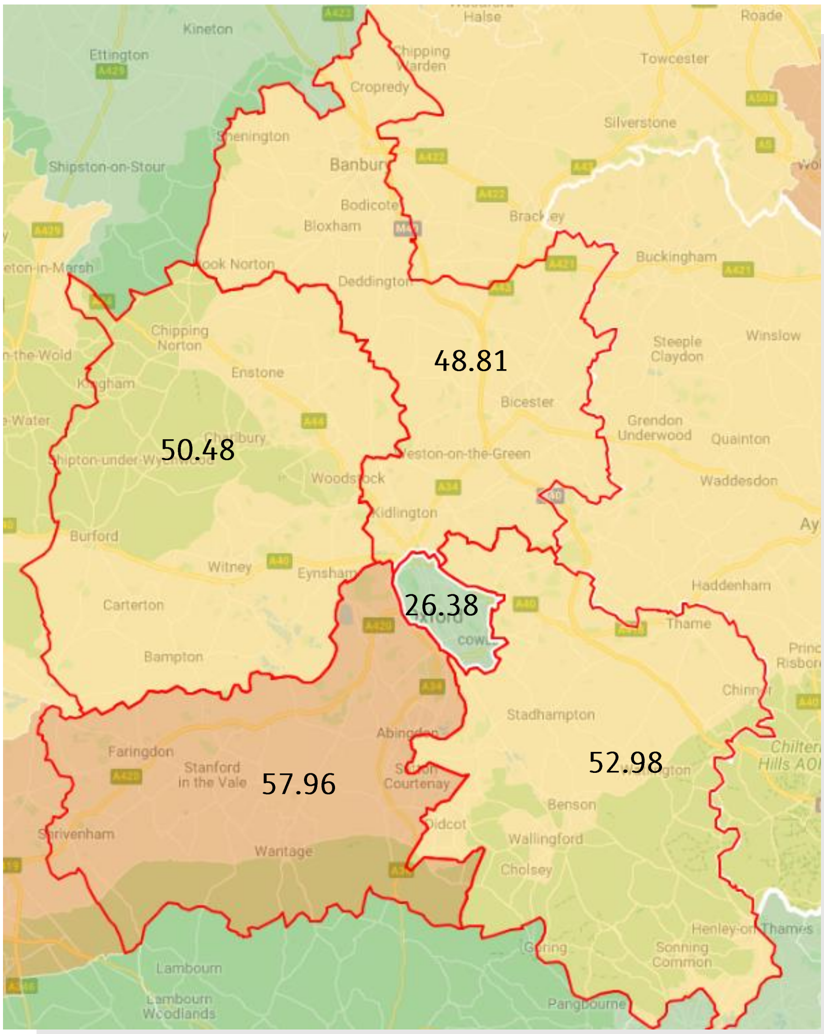


Figure 10: Community Needs Index, Oxfordshire. Source: OCSI

3.3.2 Civil understanding of (and action to prevent) climate emergency

Indicator: none, no data available

Enormous survey work would be needed to track progress against this outcome, which is out of scope for this report. Anecdotal evidence and a recent report from Friends of the Earth Oxford (OxFoE) examining the climate commitments and actions of all Oxfordshire councils have been used in this analysis.

An increase in campaigning activity over recent years, namely the Extinction Rebellion and youth protests, and the 'build back better' ethos that has developed during the pandemic, has raised awareness of the urgent need to act on the climate crisis.

The One Planet Oxfordshire programme and the One Planet Living concept, have become more widely known through the launch of regular email updates, events, One Planet Action Plan training for organisations, and the development of a cadre of One Planet Living Community Champions. Some 12 organisations in Oxfordshire have a One Planet Living Action Plan, with a further 9 organisations currently developing their plans.

Below we list the declarations of climate and biodiversity emergencies made by all of the county's local authorities. Friends of the Earth Oxford has surveyed each council and has written a report reviewing the commitments made and the plans for achieving those commitments. Although the report finds that councils are not yet doing enough to meet their ambitious carbon targets, Oxfordshire councils are, in many ways, leading the way for the UK. There is still work to be done, and some of OxFoE's key recommendations for councils are:

- To focus on achieving significant emission reduction over the next four years. The sooner that levels start to fall, the lower the total emissions on the route to net zero, and the easier it will be to reach the 1.5C target.
- To develop a county-wide route map with year-on-year targets with clear measurable goals that link district and city-level responsibilities with county-level issues such as transport. Common targets across the councils will make joint action and sharing of good practice more feasible and effective. In particular, they call on West Oxfordshire District Council to set a carbon reduction commitment for the district.

GLOBAL WARMING IS UNCOOL
PARTY STARTED!
KEEP OUR PLANET LUSCIOUS
Save our World

Spotlight

School pupils help each other design posters for an Oxford climate march, with encouragement from a local business.

Credit: Ian Curtis

3.3.2 Civil understanding of (and action to prevent) climate emergency

Key regionally significant actions

Action	Detail
Council declarations of climate change and biodiversity emergencies	Local authorities across Oxfordshire have declared climate emergencies alongside hundreds of others across the UK. Such declarations are a public acknowledgement of the urgency of tackling the climate crisis, a recognition of responsibility to act, and commitment to rapidly taking action as local authorities to reduce council carbon emissions, as well as those within jurisdictions. These net-zero carbon target commitments all vary slightly: • Oxfordshire County Council: as a council by 2030; as a county by 2050 • Oxford City Council: as a council by 2020; as a city by 2040 • Cherwell District Council: as a council by 2030; as a district by 2030 • South Oxfordshire District Council: as a council by 2025; as a district by 2030. SODC has also declared an Ecological Emergency following their Climate Emergency Declaration • Vale of White Horse District Council: as a council by 2030; as a district by 2045 (with an aim if 75% by 2030) • West Oxfordshire District Council: as a council by 2030; no district commitment
Public awareness and activism on climate and ecological emergency	There has been a wave of student and Extinction Rebellion protests since 2018, demonstrating the public awareness and dedication to drive action on the climate and ecological emergency. In 2021, Friends of the Earth established the Oxfordshire COP26 Climate Alliance, bringing together a wide array of organisations to ensure that Oxfordshire makes the strongest possible contribution to the success of the COP26 climate conference in November 2021.
Consult citizens about climate emergency	Oxford ran the first UK Citizens Assembly on Climate Change. Its report emphasised the importance of the burden for change not being placed exclusively on individuals, but to seek systemic change.
Engage local people with sustainability issues	The Community Action Group (CAG) Project, core funded by the county council since its inception in 2001, is a pioneering model of supporting, measuring, empowering and connecting grassroots environmental initiatives. CAG started in 2001 and the network is now the largest of its kind in the UK – in 2020, it became a CIC to enable its work to expand. Oxfordshire has 80 CAGs run by volunteers who organise events and initiatives to highlight issues such as reducing waste, promoting energy efficiency and tackling the climate crisis. CAG member groups run over 4000 events a year, attended by around 80,000 local residents, alongside 50,000 hours of volunteering a year across the county.

3.3.2 Civil understanding of (and action to prevent) climate emergency

Engage local people with sustainability issues (continued)	During the pandemic, CAG has enabled video-conferencing and shared information about emergency funding with the member groups. Many members have risen to the challenge by distributing surplus food to vulnerable people via a 'community fridge' (Sustainable Wantage), repairing and distributing bikes for key workers (Broken Spoke), creating a 'walking shop' to deliver to people isolated at home (Sandford Talking Shop), and watering new trees while socially distancing (Rose Hill and Iffley Low Carbon).
Consult citizens about climate emergency	Oxford ran the first UK Citizens Assembly on Climate Change. Its report emphasised the importance of the burden for change not being placed exclusively on individuals, but to seek systemic change.
Engage local people with sustainability issues	The Community Action Group (CAG) Project, core funded by the county council since its inception in 2001, is a pioneering model of supporting, measuring, empowering and connecting grassroots environmental initiatives. CAG started in 2001 and the network is now the largest of its kind in the UK – in 2020, it became a CIC to enable its work to expand. Oxfordshire has 80 CAGs run by volunteers who organise events and initiatives to highlight issues such as reducing waste, promoting energy efficiency and tackling the climate crisis. CAG member groups run over 4000 events a year, attended by around 80,000 local residents, alongside 50,000 hours of volunteering a year across the county. During the pandemic, CAG has enabled video-conferencing and shared information about emergency funding with the member groups. Many members have risen to the challenge by distributing surplus food to vulnerable people via a 'community fridge' (Sustainable Wantage), repairing and distributing bikes for key workers (Broken Spoke), creating a 'walking shop' to deliver to people isolated at home (Sandford Talking Shop), and watering new trees while socially distancing (Rose Hill and Iffley Low Carbon).
Develop programmes and educational materials to inform and inspire about climate change	Low Carbon West Oxford has worked to develop an ACT NOW programme for local people, materials to support parents and teachers talking to young children about the climate crisis, and to seek out key pressure points to ensure maximum change. It has also developed KidsCAN (Kids Climate Action Network) with a suite of resources for young people about the climate crisis. Low Carbon North Oxford has run Climate Cafes where people can share their feelings about the climate and ecological crisis. In November 2020, Oxford City Council held a Youth Climate Summit, run by Deputy Leader Councillor Tom Hayes, to provide a platform for young people to learn about the climate crisis, what society can do to take action, and the council's plans on climate action.
Zero carbon energy initiatives	*See section 3.10 Zero carbon energy for further actions*

3.3.3 Solving global environmental challenges

Indicator: none

Oxfordshire continues to be a key centre for the development of environmental solutions through its universities and research centres. Oxfordshire boasts high-tech economic clusters in space and satellite applications, life sciences and advanced engineering, and has nationally recognised strength in car manufacture, building technologies and renewable energy. New technologies and approaches are often trialled in the county such the Project Leo smart grid trial (see 'zero carbon energy' principle).

Key regionally significant actions

Action	Detail
Research by universities, companies, councils	Oxford University's Oxford Net Zero initiative, launched in November 2020, draws on the university's world-leading expertise in climate science and policy, addressing the critical issue of how to reach global 'net zero' – limiting greenhouse gases – in time to halt global heating. Leading academics from across the university's disciplines, including Geography, Physics, Economics, Biology, Law and Earth Sciences, will come together to focus on the long-term questions necessary to achieve equitable, science-based solutions. Oxford University's Environmental Change Institute is a world leading department for understanding the nature, causes and impacts of environmental change, and 'to contribute to the development of management strategies for coping with future environmental change'. EiE (the Environmental Information Exchange) is a not-for-profit organisation based at Oxford Brookes University providing UK organisations with support to reduce their energy, water, and waste. Global Accelerated Ventures, LLC, the University of Oxford, and Oxford University Innovation launched the World's first Conservation Venture Studio with a mission to accelerate novel technologies and innovative solutions addressing the world's most pressing environmental problems. County Council Innovation Hub (iHUB) supports the development of new solutions for Oxfordshire and beyond. Develops links between business and academia, as well as securing external funding for projects for the county. Provides a 'Living Lab' approach to help new ideas come to market more quickly. WRAP (the Waste and Resources Programme) based in Banbury, works with governments, businesses and communities to deliver practical solutions to improve resource efficiency around the world. They focus on food and drink, plastic packaging, clothing and textiles, and waste collections and reprocessing.

3.4 Land and nature

Overall goal: protecting and restoring land for the benefit of people and wildlife

Headline findings

Progress against overall goal	Without regular monitoring of biodiversity, it is very difficult to have a clear picture of progress. Although woodland cover has improved over the last 30 years it remains well below the national average. Rivers are cleaner than 30 years ago which has helped some species recover such as otters and voles. There has been an improvement in the condition of nature reserves managed for wildlife in the region. However, in general, the long-term decline in farmland and woodland biodiversity continues. Some species are at risk of extinction, such as the turtle dove.
Key areas of concern	Insufficient regular monitoring. Continued fragmentation across landscapes negatively effects the viability of habitats and species.

Key outcomes

Key outcome	Detail	Progress
Rapid positive biodiversity trends (3.4.1)	Rapid positive recovery trends for identified and prioritised habitats and species in Oxfordshire. Conservation Target Areas inform priorities for biodiversity enhancement	Mixed progress
Showcase sustainable agriculture and landscape-scale biodiversity (3.4.2)	Oxfordshire is a showcase for truly sustainable agricultural systems. Landscape-scale biodiversity and conservation on farms. Funding is available for sustainable land management	Some progress

Assessing progress for our land and nature is one of the key areas where we need to work on identifying suitable data sources and indicators to better understand the current situation and trends. A variety of data sources are available but require detailed analysis which is out of scope of this project.

Indicator: **1.** Snapshot of land use analysis, **2.** Berkshire, Buckinghamshire and Oxfordshire Wildlife Trust (BBOWT) assessment of the biodiversity condition of their nature reserves, **3.** 2017 snapshot from State of Nature report

1. Land use analysis

In the absence of data on changing land use, we can look at the following excerpt from the 'Pathways to a Zero Carbon Oxfordshire 2021' report to be published in June 2021. Oxfordshire is dominated by intensive agriculture (Figure 11). Farmland occupies 70% of the county: 43% arable and 27% improved grassland (fertilised pasture). There is only 9% woodland, well below the UK average of 13% and slightly less than the English average of 10%, and most of this is plantation rather than semi-natural woodland. Almost 6% is sealed surfaces (buildings, roads, car parks etc) and a further 7.5% is domestic gardens and other forms of urban green space such as playing fields and allotments. Only 7% is semi-natural habitats other than woodland: this is mainly semi-natural grassland such as floodplain meadows and chalk grassland, and parkland with scattered trees, with very small areas of wetland, scrub and heath. However, there is around 17,000 km of hedgerows and lines of trees along field boundaries in Oxfordshire, plus an unknown number of individual street trees and field trees, which also store and sequester significant amounts of carbon.

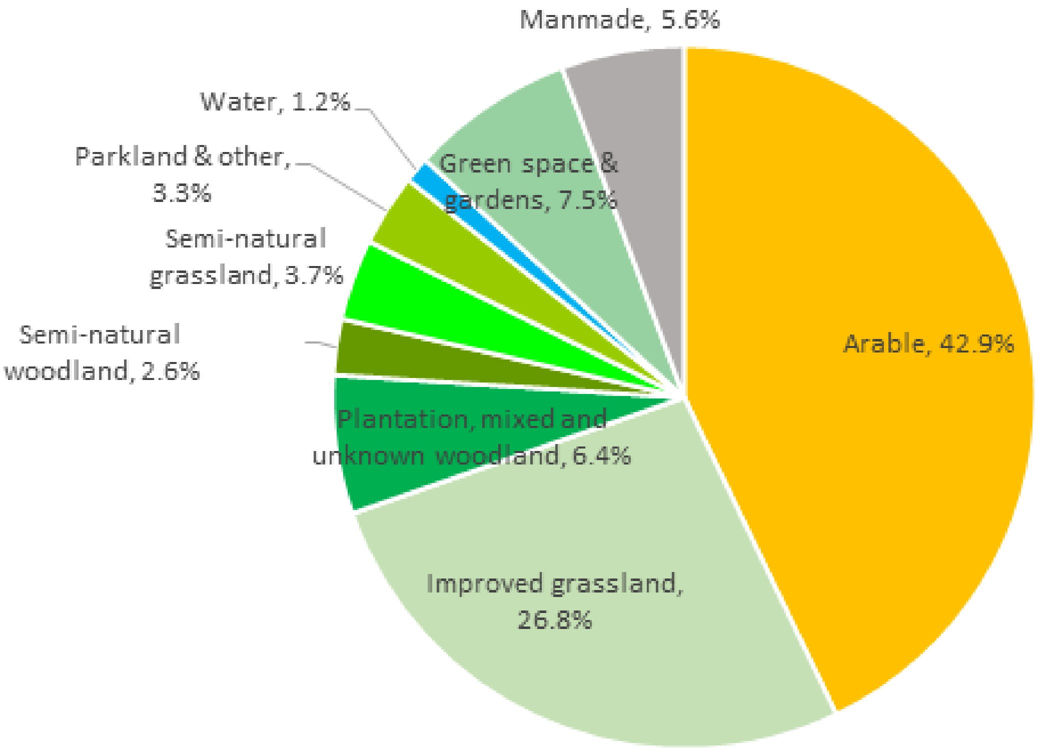


Figure 11: Oxfordshire land use mix, from 'Pathways to a Zero Carbon Oxfordshire'

2. BBOWT assessment of the biodiversity condition of their nature reserves

Data is not available to give us an indication of the biodiversity of the county. As a limited proxy, we can look at an assessment of the state of the 86 nature reserves, covering 2,644 hectares, that are managed by the Berkshire, Buckinghamshire and Oxfordshire Wildlife Trust (BBOWT).

BBOWT conduct around 330 biological surveys in their nature reserves each year and evaluate the biodiversity condition of their reserves. A key way in which this is done is by evaluating the condition of 'features', which are synonymous with a habitat such as woodland and scrub, to support wildlife. The feature condition is classified by one of eight categories (Table 2). Changes over time are evaluated through two methods. The first compares the condition of all of BBOWT's nature reserves over time, regardless of changes in the land area of the reserves in their portfolio (Figures 12a and 12b). The second, complementary method is a comparison of changes in the condition of core 'indicator' nature reserves that BBOWT is very likely to continue to manage for the foreseeable future (Figure 13). Together these methods create as balanced an assessment as possible of habitat quality across their nature reserves.

Table 2: Condition categories (from BBOWT report)

Favourable – maintained	Feature in good condition for wildlife and was in previous assessment
Favourable – recovered	Feature in good condition for wildlife and was unfavourable previous assessment
Favourable – vulnerable	Feature in good condition for wildlife but under serious threat, so that unless this is address the feature is likely to be out of condition in the near future
Unfavourable – improving	Feature in 'middle' condition for wildlife, management has significantly pushed it towards being favourable since last assessment
Unfavourable – recovering	Feature in 'middle' condition for wildlife, management has slightly pushed it towards being favourable since last assessment
Unfavourable – no change	Feature in poor condition and was poor in previous assessment
Unfavourable – declining	Feature in poor condition and has got worse since previous assessment
Unknown	Condition status is not known

Results show that between 2009-2018, there has been an improvement in the condition of BBOWT managed habitats for wildlife, with a proportionally greater increase in areas evaluated to have favourable conditions than unfavourable conditions. While this data also includes the wider region of Berkshire and Buckinghamshire, this shows how one of the key stakeholders in Oxfordshire's wildlife management has been having a positive impact on land and nature.

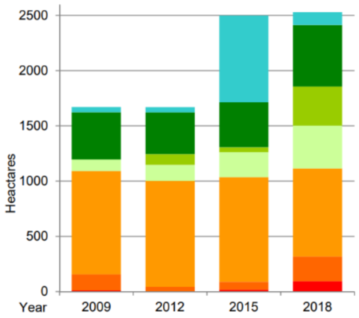


Figure 12a: Condition of all nature reserves, by total number of hectares
(from BBOWT report)

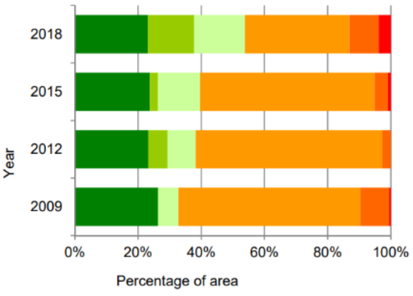


Figure 12b: Condition of features on nature reserves, where known, as a percentage of the total area
(from BBOWT report)

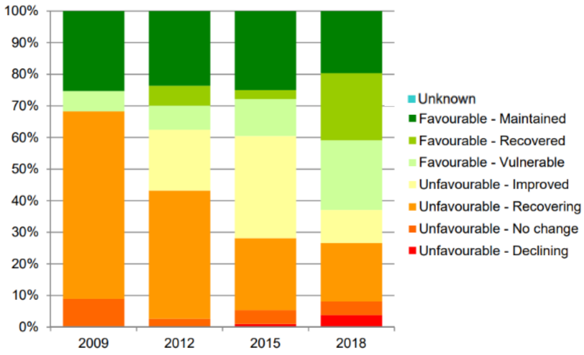
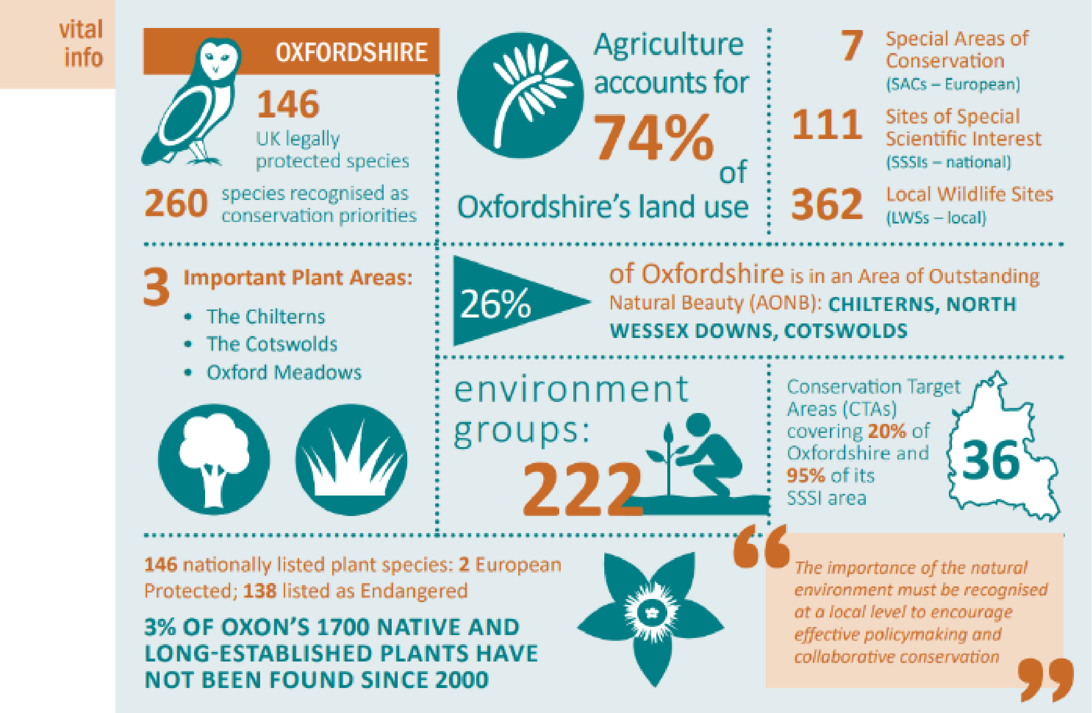


Figure 13: The change in condition of BBOWT 'indicator' nature reserves over time
(from BBOWT report)

3. Snapshot – State of nature report

The most comprehensive study on the condition of Oxfordshire's natural environment is the State of Nature report published in 2017. It was led by Wild Oxfordshire with input from over 40 environmental organisations, providing crucial baseline data, key findings and recommended actions from leading experts.



vital info

OXFORDSHIRE

146 UK legally protected species

260 species recognised as conservation priorities

Agriculture accounts for **74%** of Oxfordshire's land use

7 Special Areas of Conservation (SACs – European)

111 Sites of Special Scientific Interest (SSSIs – national)

362 Local Wildlife Sites (LWSs – local)

3 **Important Plant Areas:**

- The Chilterns
- The Cotswolds
- Oxford Meadows

26% of Oxfordshire is in an Area of Outstanding Natural Beauty (AONB): **CHILTERNS, NORTH WESSEX DOWNS, COTSWOLDS**

environment groups: **222**

Conservation Target Areas (CTAs) covering **20%** of Oxfordshire and **95%** of its SSSI area **36**

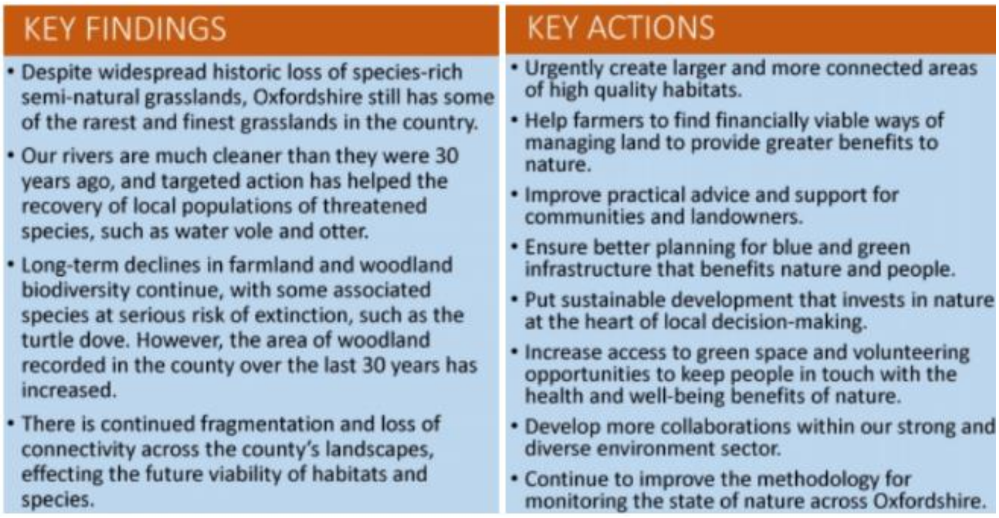
146 nationally listed plant species: **2** European Protected; **138** listed as Endangered

3% OF OXON'S 1700 NATIVE AND LONG-ESTABLISHED PLANTS HAVE NOT BEEN FOUND SINCE 2000

"The importance of the natural environment must be recognised at a local level to encourage effective policymaking and collaborative conservation"

Figure 14. Extract from Wild Oxfordshire's State of Nature report 2017, showing infographic of the county's natural assets

Table 3. Extract from Wild Oxfordshire's State of Nature report 2017, summarising key findings and recommended actions by county-wide experts



KEY FINDINGS	KEY ACTIONS
• Despite widespread historic loss of species-rich semi-natural grasslands, Oxfordshire still has some of the rarest and finest grasslands in the country. • Our rivers are much cleaner than they were 30 years ago, and targeted action has helped the recovery of local populations of threatened species, such as water vole and otter. • Long-term declines in farmland and woodland biodiversity continue, with some associated species at serious risk of extinction, such as the turtle dove. However, the area of woodland recorded in the county over the last 30 years has increased. • There is continued fragmentation and loss of connectivity across the county's landscapes, effecting the future viability of habitats and species.	• Urgently create larger and more connected areas of high quality habitats. • Help farmers to find financially viable ways of managing land to provide greater benefits to nature. • Improve practical advice and support for communities and landowners. • Ensure better planning for blue and green infrastructure that benefits nature and people. • Put sustainable development that invests in nature at the heart of local decision-making. • Increase access to green space and volunteering opportunities to keep people in touch with the health and well-being benefits of nature. • Develop more collaborations within our strong and diverse environment sector. • Continue to improve the methodology for monitoring the state of nature across Oxfordshire.

Key regionally significant actions

Action	Detail
Create, preserve and extend landscape-scale areas of biodiversity	The Berkshire, Buckinghamshire and Oxfordshire Wildlife Trust (BBOWT) owns and manages several Living Landscape reserves, aiming to create linked areas for wildlife. These include Chimney Meadows where they run demonstrations for farmers, land managers and schools. Another example is the River Ray catchment managed by BBOWT and other partners, including the Environment Agency, RSPB, National Farmers' Union, Thames Water, Thames Rivers Restoration Trust and the Country Land and Business Association.
Ox-Cam Arc Local Natural Capital pilot project	The Oxford to Cambridge (OxCam) Arc is the name given to a cross-government initiative that supports planning for the future of Oxfordshire, Bedfordshire, Buckinghamshire, Cambridgeshire and Northamptonshire up until 2050. The Arc aims to deliver improved connectivity, productivity and place-making, whilst ensuring pioneering environmental standards and enhancements are delivered. Because of the commitments to green growth, its governance and scale, the Arc represents a unique opportunity to put the Government's 25 Year Environment Plan into action. The creation of a Local Natural Capital Plan for the Arc is an essential first step to ensure a natural capital baseline and framework is provided that helps to monitor environmental change and de-risk growth. It is a Defra Group-led project (cross-Defra, Natural England, Forestry Commission and Environment Agency), with a team hosted by the Environment Agency. The project will map natural assets, ecosystem services, values and benefits, and develop an investment toolkit across the Arc. It is hoped the pilot will provide a scalable and replicable framework for local natural capital plans elsewhere.
Tree strategies	Oxfordshire Trees for the Future is working to double tree cover across Oxfordshire. Oxford Friends of the Earth and the Community Action Group (CAG) network are encouraging community groups, our councils, and local landowners to plant more trees and to support others in doing this, and are developing a GIS mapping project to demonstrate where and how tree cover can be significantly increased. (Continued overleaf)

Tree strategies (Continued)	In 2016, Oxfordshire's Sylva Foundation published its 'In a Nutshell' vision, –for managing the county's woodland to get the most benefit for everyone. Currently, our woodland removes approximately 400 tonnes of air pollutants from the county's air per year, worth £6.5m through avoided healthcare costs. Carbon removed from the atmosphere is estimated to be 175,000 tonnes per year, with an estimated value of £6m. The report estimates that managing our woodland properly could generate £5.5m in woodfuel and £25m for the joinery and furniture sectors. Now the challenge is to get the amount of managed woods from 54% up to the DEFRA target of 66% and then, ultimately, 100%. Tree planting is also taking place across the county by a variety of community action groups, e.g., Rose Hill and Iffley Low Carbon group and Abingdon Carbon Cutters. Funding for trees is not an issue but there are issues in getting approval for suitable places to plant. Each town, district and county council has its own policies and contacts, which require groups to employ different approaches when requesting permission to plant on their sites. A unified tree strategy for the county could help speed up the planting of trees. South Oxfordshire District Council is developing a Tree Strategy for the district, which will go some way towards this.
Tiny Forests	Tiny Forests is an initiative led by the charity Earthwatch Institute, which seeks to grow forested areas on patches of land to provide habitat and increase biodiversity. It also aims to connect people to nature, raise awareness about environmental issues, reduce heat stress and flooding, and soak up carbon dioxide. The first-ever tiny forest in the UK was planted in March 2020 in Witney, Oxfordshire, through a partnership between Earthwatch Europe and Witney Town Council, and two tiny forests are being planted in Oxford, one at Foxwell Drive and another at Meadow Lane Nature Reserve. These tennis court-sized plots will be densely packed with 600 trees. Scientific modelling shows that just four years after planting, a single Tiny Forest will: • Grow up to 5x faster compared to traditional monoculture tree-planting schemes • Absorb up to 30x more carbon compared to traditional planting schemes • Attract more than 500 species of animals and plants, in addition to those planted • Process 30,000 litres of rainfall • Improve air quality through dust reduction • Provide up to 30x better noise reduction compared to traditional planting schemes • Help with thermal comfort

3.4.2 Showcase sustainable agriculture and landscape-scale biodiversity

Indicators: **1.** LULUCF net carbon sink change, **2.** Number of organic farms, **3.** Natural Capital value

1. Land Use, Land-Use Change and Forestry (LULUCF) net carbon sink change

LULUCF has been an increasing net emissions sink, which after accounting for sector emissions related to the conversion of land into settlements, has sequestered from grassland and woodlands a net total of 38 kilotonnes CO_2e in 2005 which has risen to 97.9 kilotonnes CO_2e sequestered in 2018 (Figure 15).

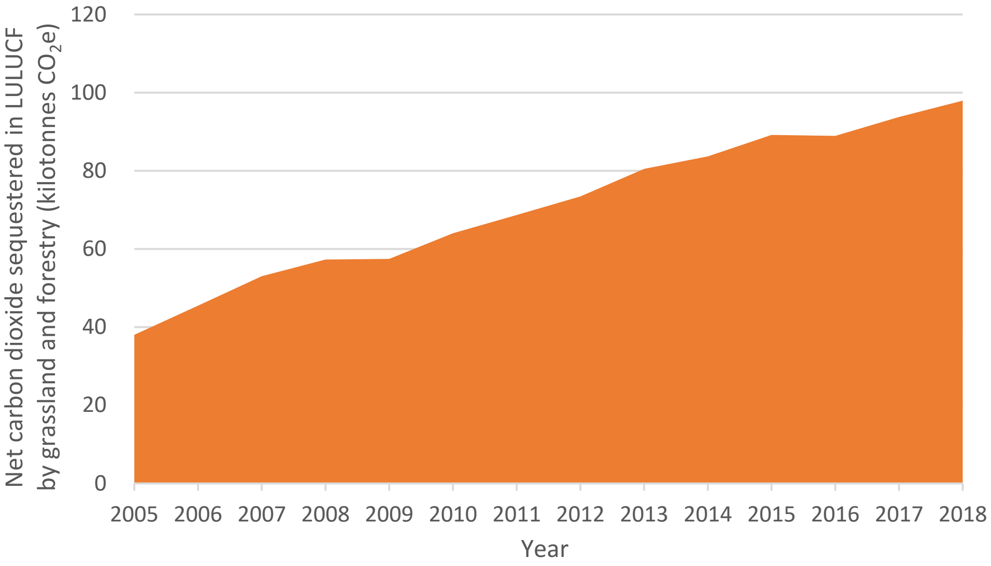


Figure 15: Oxfordshire net greenhouse gas sequestration from LULUCF (kilotonnes CO_2e) (sequestration after account for sector emissions) for 2005-2018.

2. Number of organic farms

According to datasets from Oxfordshire Primary Producers (2021), there are approximately 30-50 farms (out of approximately 350-400 farms) of various sizes which are organic, or using regenerative or wildlife-friendly practices in Oxfordshire e.g. Blacklands Organics, North Aston Organics, Honeydale Farm, Sandy Lane Farm, Tolhurst Organic, Westmill Organics. Additionally, Bothy Vineyard is not officially organic, but it tries to minimise use of herbicides and fungicides, use green compost, and has created biodiversity areas onsite.

3. Natural Capital value

Though sufficient data is not available, natural capital datasets will soon be emerging from the Ox-Cam Arc Local Natural Capital pilot project. The focus of this is mainly strategic but will offer another view of the county's natural assets.

Spotlight

This is local artist Andrew Kay (invisibules.org) during a seed sketching session in the tranquil setting of Barracks Lane Community Garden Oxford, a green space run by members of the local community and filled with family-friendly events throughout the year.

Credit: Hannah Scott

Key regionally significant actions

Action	Detail
Increase and promote sustainable and organic farming	There are several organic farms around Oxfordshire that have demonstrated sustainable agricultural practices. Examples include: The Earth Trust owns and manages 500 hectares in South Oxfordshire, working on wetland restoration and the creation of new wetlands, with 2.5 miles of Thames frontage within their land. It runs the Farm Step programme, supporting several new entrants to farming, including beekeepers, pig farmers, a plant nursery, traditional hedge-laying and artisan goat's cheese production. Tolhurst Organic Produce, an organic farm. With no animals on-site, the farm has managed to continually build organic matter levels without the use of external inputs. Environmental awareness is at the core of the business, with the aim of supplying vegetables to customers with the lowest possible carbon footprint. In 2012, a study by the University of Surrey found that total emissions of the farm were 16.6 t/CO_2e per year and 21t of CO_2e per year is sequestered, meaning the whole farm is 'carbon positive' by over 4t CO_2e annually. This highlights how farmland can produce carbon positive activity and reduce the impacts of the climate crisis. North Aston Dairy is based in North Oxfordshire and has created a business model in which the whole process, from milking to doorstep delivery, is provided by the company. It keeps only a few cows (below 20, as of 2019), raising them outside on grass for 9 months a year, and produces between 180 and 250 litres of organic milk a day. Milk and yoghurt are delivered in glass bottles and jars, which customers then return to be reused, helping limit the farm's impact on the environment. Its milking cows live to 15 years – nearly 10 years longer than those in industrial farms. Though this is a step in the right direction, dairy farming still comes with a substantial methane footprint (reduced in part with grass-feed rather than soy-feed) and more could be done to address this.
Create retail opportunities for local growers	There is a range of local community farmers' markets across Oxfordshire, with several in Oxford and numerous county towns, supporting local growers and foodmakers, whilst providing hubs for local people to meet. Low Carbon Oxford North and Good Food Oxford have collaborated to produce the second edition of 'Act Global, Eat Local – A Food Directory for Oxford'. The directory aims to promote local, low carbon food shopping. There are reference copies in most Oxford community centres and community libraries. The directory can also be downloaded as a PDF. There has been a growth in popularity of local food outlets and growers' veg box schemes during Covid-19. It remains to be seen if people continue to use such outlets post-pandemic.

3.5 Sustainable water

Overall goal: using water efficiently, protecting local water resources and reducing flooding and drought

Headline findings

Progress against overall goal	Greater water efficiency in Oxfordshire has not been achieved, but there has been improvement in reducing leakage rates and there has been investment in flood defence infrastructure.
Key areas of concern	The lack of progress towards water efficiency improvements is a key area for stakeholders across the county to address.

Key outcomes

Key outcome	Detail	Progress
Better water efficiency (4.5.1)	We use and consume water sustainably and efficiently	Mixed progress
Reduced flood risk (4.5.2)	Natural flood management through landscape measures. Floodplain restoration. High quality sustainable urban drainage systems for all new developments	Some progress

3.5.1 Better water efficiency

Indicator: Thames Water customers' water consumption (litres per person per day average)

The water utility company for the majority of Oxfordshire is Thames Water. Thames Water's area of operation covers 13,000 square km, from parts of Gloucestershire in the west to areas of Kent and Essex in the east. Average water consumption in litres per person per day by Thames Water customers indicates the extent to which water is being used efficiently in the region, though data specifically on Oxfordshire was not publicly available. The data (Figure 16) includes customers of properties that have measured volumes, as well as customers at unmeasured properties where charges are made on an estimation basis since metering is not possible. Average consumption is also shown. Data shows there has been a slight increase in average customer water consumption between 2016-17 and 2019-20 from 141.35 to 142.8 litres per person per day, indicating that water consumption intensity has slightly increased, and progress has not been made towards the outcome of improved water efficiency.

It is important to note that this data is excluding leakages across the Thames Valley area of operation, which has historically been high with treated water losses >25% in 2018 due to leaks. However, water leakage rates reduced significantly, with 690ML/day lost to leaks in 2018-19 reducing to 595ML/day in 2019-20 – an improvement of 95ML/day which is around 14%.

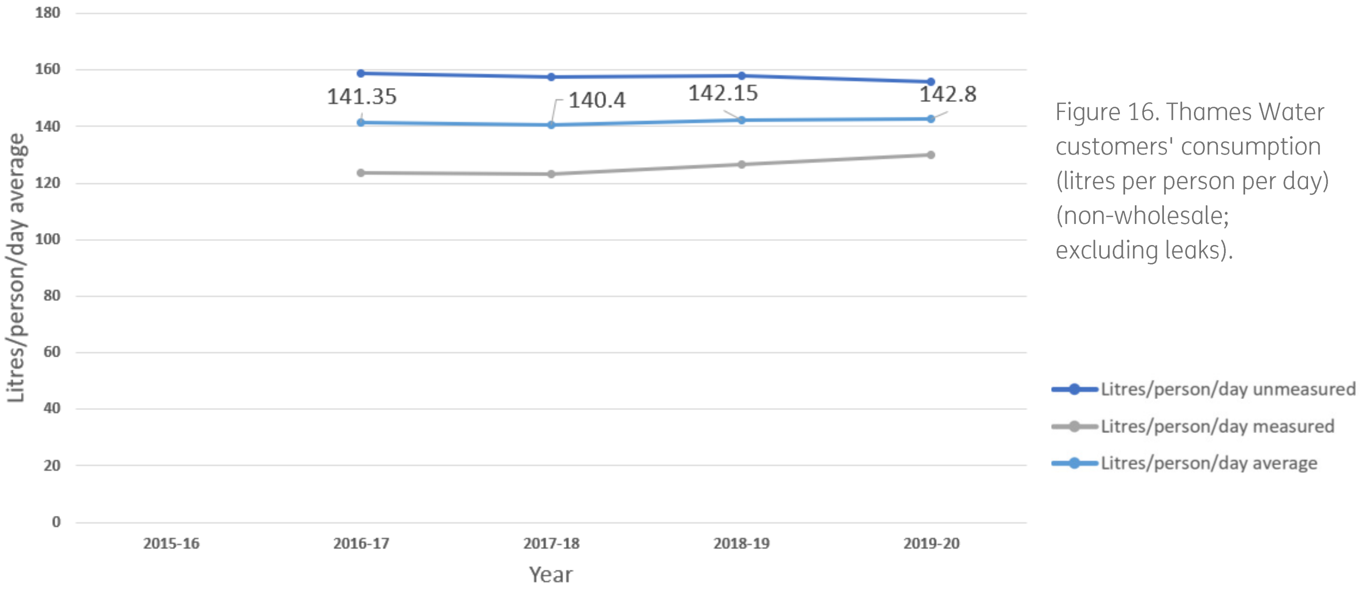


Figure 16. Thames Water customers' consumption (litres per person per day) (non-wholesale; excluding leaks).

Spotlight

'Aoife was so excited to find a water refill station in the Horniman Museum and Gardens. It's fun to refill and the water tastes great.'

Credit: Feng Ho, One Planet Oxfordshire photo competition

Key regionally significant actions

Action	Detail
Building Regulations Technical Standards on water efficiency in Local Plans	Oxford City Council included a policy in its Local Plan 2036 that states that proposals for new residential developments are to meet the higher water efficiency standard within Building Regulations Part G2. This means a water consumption target of 110 litres per person per day, compared to the existing limit of 125 litres. This is in recognition that it is situated in a water-stressed region classed as 'serious', even though the current state of watercourses suggest it is are not vulnerable on the whole. However, future climate projections indicate an increase in dry summers and the concurrent need to be more efficient with water.
Water management strategies	The University of Oxford has a water management strategy dating from 2011 that will eventually be updated in line with its Environmental Sustainability Strategy (March 2021). In 2011, the university set a target for its water use to decrease by 11% by 2014-15 against 2009-10 levels (347,364m^3), meaning that absolute potable water purchased in 2014-15 should be no more than 310,000m^3. Oxford Brookes has a Water Action Plan and in its annual report 2019-2020, it identified its desire to achieve a top 20% ranking in the sector for non-residential water use per FTE. They currently sit in the top 50%, according to the Higher Education Statistics Agency (HESA). The university will monitor meters, include meters in 100% of their new build or refurbishment sites, fix leaks, use the BREEAM calculator and baseline to improve water efficiency, and promote water conservation through student and staff campaigns.

3.5.2 Reduced flood risk

Indicator: number homes better protected due to flood defence schemes

Flooding remains a significant issue in Oxfordshire, as seen in February 2021 when there was severe flooding across the county. However, there has been some progress to increase the number of homes protected from flooding due to government investment and implementation of flood defence infrastructure through the Environment Agency (EA). Overall, the latest data from November 2020 shows that since 2010, the EA has invested £35.5m in flood defences, improving protection of approximately 1,050 homes. Major schemes include:

Table 4: Major flood infrastructure, investment, and homes protected in Oxfordshire.

Scheme	When built	Government investment (£k)	Homes better protected
Paddle and Rymer weir works Package	2014	£5,150	0
Northway and Marston Flood Alleviation Scheme	2017	£1,057	108
Kelmscott Flood Alleviation Scheme	2013	£44	128
Banbury Flood Alleviation Scheme	2012	£111	441
West Thames Packaged projects	2018	£7,396	0

Spotlight

Rowers on the River Isis.

Credit: Sina Korcan, One Planet Oxfordshire photo competition

Key regionally significant actions

Action	Detail
Create and manage flood alleviation schemes	In partnership with the Environment Agency, various schemes are being planned or are already in place. Northway and Marston Flood Alleviation Scheme (2017) entailed a range of flood prevention measures such as flood-proof doors, road and pavement level changes, three temporary flood storage areas, natural embankments, realignment of river channels, and the creation of a wetland reserve. The main upcoming project to note is the Oxford Flood Alleviation Scheme, which is one of the biggest flood prevention schemes in the country. The project is set to cost £150m, and will reduce the flood risk to businesses, services, homes, and major transport routes into Oxford. The scheme seeks to reduce the impacts from a major flood, the size of which has not been seen since 1947. It is expected the scheme will improve protection for 80 properties, which will be less likely to experience sewer flooding. If this scheme had been in place during the 2007 and 2013-14 floods, Abingdon Road, the railway, and Botley Road would have remained open, demonstrating the future benefits this could have for the city. There is also the Abingdon Flood Alleviation Scheme, set to cost £9.7m, which will involve the development of a flood storage area, temporary flood barriers including pumps and barriers which are brought out before a flood occurs, and engagement with local businesses and communities to further reduce flood risk. There is also an emphasis on natural flood management such as woody dams, replanting hedges, and forestry management to maintain the porosity of the soil. As well as physical defences, Oxfordshire County Council has a Flood Toolkit. It has resources for homeowners and landowners, communities and businesses, covering flood prevention, risk awareness (with access to flood risk maps), as well as planning and development resources. There are also emergency information pages to help in the event of a flood, as well as wider 'how to' guides on becoming flood resilient communities and utilising funding schemes.

3.6 Local and sustainable food

Overall goal: promoting sustainable, humane farming and healthy diets high in local, seasonal organic food and plant-based protein

Headline findings

Progress against overall goal	Progress is difficult to discern due to a lack of data on food impacts in Oxfordshire. The county has good rates of food waste recycling through anaerobic digestion, preventing it from entering landfill and producing benefits in terms of energy generation and fertiliser production. Anecdotal evidence indicates better awareness of the impact of food waste with more surplus food being donated and redistributed.
Key areas of concern	More county-specific data is required to track progress effectively.

Key outcomes

Key outcome	Detail	Progress
Reduced food impacts (4.6.1)	Reduced greenhouse gas emissions from food cycle. Food production preserves ecosystems and animal welfare. Reduced waste from food and packaging	Some progress

Spotlight

'Our first strawberries growing in the greenhouse.'

Credit: Imogen Clatworthy, One Planet Oxfordshire photo competition

3.6.1 Reduced food impacts

Indicator: none, no data available

Food impacts

There is no regular research and reporting of the environmental impacts of food in Oxfordshire. The detailed 2015 ecological footprint analysis of Oxfordshire by ecoCity, in partnership with Bioregional and Oxfordshire County Council, provides a snapshot of food impacts on the county. Food makes up 20% of the county's per capita consumption-based greenhouse gas emissions per annum. A sub-set of the Ecological Footprint in the report is the Food Footprint. The following is an extract from the 2015 report:

A total of 826,174 tonnes of food were consumed in Oxfordshire in 2015. Although only 20% of gross consumption by weight, dairy products account for almost half (45%) of the CBEI[3] food component. To inform policy and planning decisions, it is important to consider the varying contributions of each of the food types to the overall emissions profile. Figure 17 shows that following dairy, the next largest contribution of emissions results from consumption of meat. Meat only accounts for a tenth of food consumed, but it contributes 33% to the Food CBEI. Together, dairy and meat products account for 78% of the food CBEI. By contrast, grains also account for a tenth of food consumed, yet they contribute 9% to the Food CBEI.

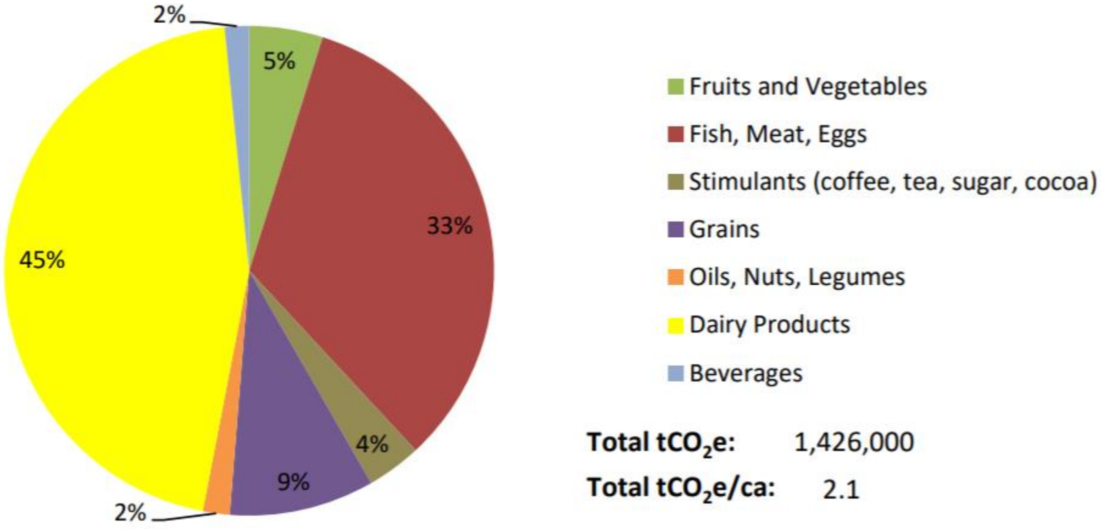


Figure 17: Food Consumption-based Greenhouse Gas Emissions Inventory, 2015.

This food footprint work shows the very large impact that dairy and meat consumption has on greenhouse gas emissions. While there are many initiatives underway across the county, as shown in the list of actions below, these are generally small in scope. The county council's Climate Action Framework mentions supporting the consumption of healthy and sustainable food and reducing food waste, but specific actions have not been developed yet. More needs to be done across the county, by a wide range of organisations, to encourage healthy, sustainable eating and agricultural practices. Examples could include reducing the amount of red meat and dairy served in schools, care homes and other institutions and with councils, setting an example by only serving plant-based food in their canteens and at council events.

3.6.1 Reduced food impacts

Food waste

The picture regarding reducing food waste is somewhat unclear. From the latest county council figures on domestic food waste collected by local authorities, there was an increase between 2015-2020. On the one hand, this could suggest positive behavioural change with less food waste being sent to landfill and more correct use of food waste bins. Or conversely, increasingly wasteful behaviour with more edible food being thrown in the food waste instead of eaten.

For the food waste that is produced, Oxfordshire's local authorities have been working to reduce its impacts. This is being achieved by diverting food waste from landfill (which avoids the production of methane from anaerobic decomposition), increasing the recycling and composting of food waste (helping to return nutrients to soils, thus displacing the need for large quantities of harmful fertilisers), as well as creating biogas for energy use, and bio-fertiliser.

There are now six anaerobic digestion (AD) facilities across the county, generating 7.5% of Oxfordshire's renewable energy generation. The largest of these, Cassington AD and Wallingford AD, are owned by Severn Trent Green Power. Between them, the facilities accept all domestic food waste and some commercial food waste (depending on specific district council arrangements) from Vale of White Horse, South Oxfordshire, West Oxfordshire and Oxford City. The methane generated is used onsite for electricity generation, providing 2.4 MWe and 2.1 MWe capacity from Cassington and Wallingford respectively – enough energy to power 5,000 homes annually. The remaining food waste is converted into bio-fertiliser which is sold to the farming industry after six months of pasteurisation.

Cherwell's food waste is currently processed at an In-Vessel Composting (IVC) facility at Ashgrove Farm, Ardley, and not used for electricity generation.

Regarding preventing surplus food from being disposed, there is anecdotal evidence of an increase in the number of organisations accepting and redistributing surplus food, demonstrated by the number of food parcels given out and the increase in community larders and fridges across the county. Supermarkets and hospitality organisations do appear to have better links with organisations that can take their surplus food.

For national supermarkets, this is due partly to the work of the Banbury-based Waste and Resources Action Programme (WRAP) and its food waste reduction programme. During the various Covid-19 lockdowns, many pubs, cafes and restaurants sent their surplus food to local organisations.

Considering that food waste is responsible for around 8-10% of global greenhouse gas emissions, it is crucial that individuals and organisations in Oxfordshire continue to address this fundamental issue.

Key regionally significant actions

Action	Detail
Promoting and enabling sustainable food production and consumption	Good Food Oxford (GFO) is the county's sustainable food network, launched in 2013 to achieve healthy, fair and sustainable food for Oxfordshire. Organisations or businesses can sign up to the Oxford Good Food Charter to show they share the vision that food can be good for the planet, people, and communities, and commit to making a change in consumption, production and disposal of food waste. GFO's role is to guide the vision and strategy, support aligned activities, establish shared measurement practices, build public will, advance policy, and mobilise funding. GFO's initiatives include: • A directory of sustainable food outlets • Annual Pumpkin Festival to prevent food waste • Cooking skills courses to enable disadvantaged groups to cook health, sustainable food • 'Switch up your lunch' annual campaign to promote plant-based diets The Replenish project is funded by Oxfordshire County Council and run by the CAG project. Replenish helps residents of Oxfordshire grow and cook nutritious food with zero waste via a network of volunteer ambassadors who attend events, set up projects and work with local community groups as well as friends and neighbours.
Sustainable food production	Oxfordshire Real Farming Conference was established in 2010 to highlight the alternatives to conventional farming and to offer all farmers a different kind of farming conference. It has developed over the last 11 years to become the unofficial gathering of the agroecological farming movement in the UK, including organic and regenerative farming, bringing together practising farmers and growers with scientists and economists, activists and policy-makers in a two-day event every January. Oxford City Farm are a community-led charity based in East Oxford, providing opportunities for a diverse range of people to be involved in local farming and food production, as well as getting in touch with nature. *See also actions in section 3.4 Land and nature.*

3.6.1 Reduced food impacts

Ensure 'surplus' food is eaten	The Oxford Food Hub receives supermarket surplus and distributes it to nearly 100 organisations feeding people at risk of malnutrition and food poverty. They also supply Food Surplus Cafes (pop-up meals run by volunteers), many one-off events and Waste to Taste (caterers using food surplus as its main ingredient, with a 'never waste anything' approach). There is an increasing number of community fridges and larders in the county, taking food from supermarkets and other outlets directly to local centres where people can help themselves. The Wonky Food Co in Woodstock makes preserves from waste ingredients.
Sustainable food retail and restaurants	There are supermarkets, smaller food stores and restaurants in Oxfordshire working to reduce packaging and source food products sustainably. Waitrose chose Oxfordshire to trial its 'Unpacked' concept in its Botley store, offering loose dry goods and refill services including beer and wine. This proved popular leading Waitrose to create an Unpacked section in its Abingdon branch. There are also independent shops and social enterprises offering minimally packaged goods, including Flo's Refill Shop in East Oxford's Florence Park and Wast0 in Witney. The latest MICHELIN Guide has a new sustainability category, the Green Star, awarded for commitment to sustainable gastronomy. Recipients in Oxfordshire are Le Manoir aux Quat' Saisons and Daylesford Organic.
Sustainable food retail and restaurants	There are supermarkets, smaller food stores and restaurants in Oxfordshire working to reduce packaging and source food products sustainably. Waitrose chose Oxfordshire to trial its 'Unpacked' concept in its Botley store, offering loose dry goods and refill services including beer and wine. This proved popular leading Waitrose to create an Unpacked section in its Abingdon branch. There are also independent shops and social enterprises offering minimally packaged goods, including Flo's Refill Shop in East Oxford's Florence Park and Wast0 in Witney. The latest MICHELIN Guide has a new sustainability category, the Green Star, awarded for commitment to sustainable gastronomy. Recipients in Oxfordshire are Le Manoir aux Quat' Saisons and Daylesford Organic.
A rich, local and organic food culture	There are half a dozen local farmers' markets in and around Oxford, plus more across the county. The popularity of local food suppliers such as farm shops grew substantially during the Covid-19 lockdowns. Veg box schemes were heavily oversubscribed. It is yet to be seen if the popularity of these shops and schemes remains after the pandemic.

3.7 Travel and transport

Overall goal: reducing the need to travel, encouraging walking, cycling and low carbon transport

Headline findings

Progress against overall goal	Active travel is increasing in Oxfordshire, but there is also a rising dependence on private car travel and a decreasing use of public transport, especially aggravated by the pandemic. There is much action underway to enable more sustainable transport options. Oxford is set to have the world's first Zero Emission Zone.
Key areas of concern	Private car use is a particular concern towards achieving the shift towards active travel and low-carbon public transport systems. There have been negative reactions to new bus gates and Low Traffic Neighbourhoods in Oxford.

Key outcomes

Key outcome	Detail	Progress
Affordable, low carbon transport (4.7.1)	Affordable, low and zero carbon, and public and active transport options accessible for all	Mixed progress
Citizens understand the impact of air travel (4.5.2)	Citizens understand the impact of air travel	Not possible to assess

Indicator: **1.** transport carbon footprint, **2.** modal split, and **3.** public electric vehicle charging infrastructure

1. Transport carbon emissions

The local and regional greenhouse gas emissions (kilotonnes of CO_2e) estimates for 2005-2018 from the UK National Atmospheric Emissions Inventory covers emissions estimations for all sectors across Oxfordshire, including transport (Figure 18). There has been a fluctuation in emissions over the time period, with a peak of 1985 kilotonnes of CO_2e in 2007, a decrease to 1750 kilotonnes of CO_2e in 2013, before a rise until 2017 and decrease in 2018. By 2018, there had been a 5% decrease in transport emissions compared to 2005, but since 2015 this has increased fractionally by 0.21%. The 1860 kilotonnes of CO_2e transport emissions in 2018 represents 45.6% of Oxfordshire total emissions.

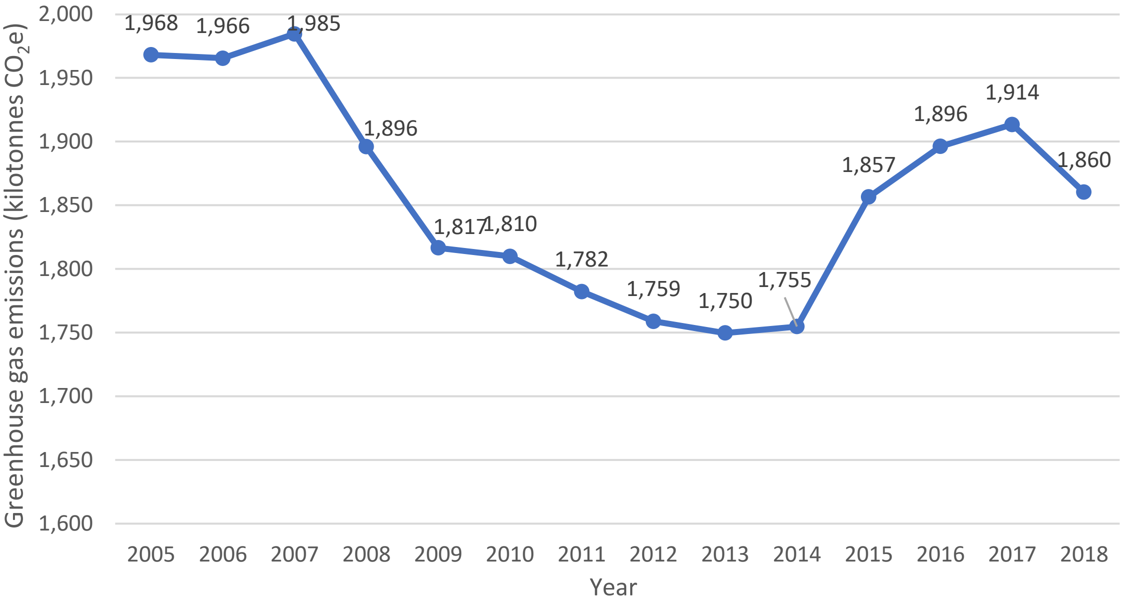


Figure 18: Oxfordshire greenhouse gas emissions (kilotonnes CO_2e) from transport 2005-2018.

2. Modal split

Data on the number of trips per person per year, averaged over a five-year period by transport mode, is provided by the Department of Transport for Oxfordshire and the South East of England. This gives an indication of the average annual amount of travelling people, the extent to which the county is moving towards low and zero-carbon transport, as well as public and active travel options. Figure 19 and 20 show the data for 2002-2019 for Oxfordshire and the entirety of South East England respectively.

The number of trips per person a year in Oxfordshire is higher than the average for all of South East England, but there has been a decrease in active travel since 2002-2006 from 359 trips a year per person to 307 between 2015-2019. This is a slight decrease from 31% of annual trips per person to 30% in Oxfordshire. While active travel has decreased in the county, this is proportionally better than the average for South East England which stands at 27% in 2015-2019.

(Continued overleaf)

3.7.1 Affordable, low carbon transport

Private motor vehicle trips decreased for the county between 2002-2019 from 723 to 666 a year in Oxfordshire, yet proportionally this has increased from 63% to 65%. Contrastingly, the South East England average has changed from 63% to 62% during this period, showing how Oxfordshire has a slightly high level of private vehicle use for the region. Data does not yet exist on the split between internal combustion engine and electric and hydrogen private vehicles, but it will be useful as a more accurate picture of low and zero-carbon transport usage when it becomes available.

Public transport use is very low for the county in the context of the wider region, with a fall from 63 to 53 trips a year over the recorded period, a percentage drop from 6% to 5%. Meanwhile, South East England's average dropped marginally from 103 to 98 trips a year and has stayed proportionally the same at 10%.

This evidence shows that Oxfordshire is performing relatively well in terms of active travel compared to the wider region, but is more dependent on private vehicle use and has a lower uptake of public transport.

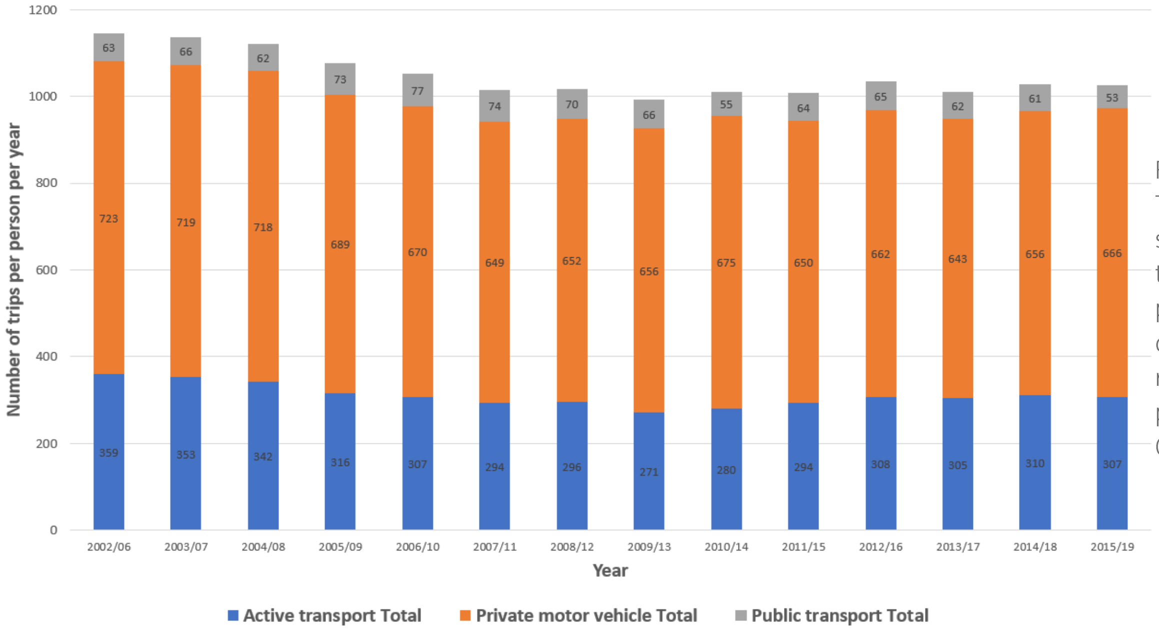


Figure 19: Transport modal split – number of trips per person per year by mode averaged by rolling 5-year periods, Oxfordshire

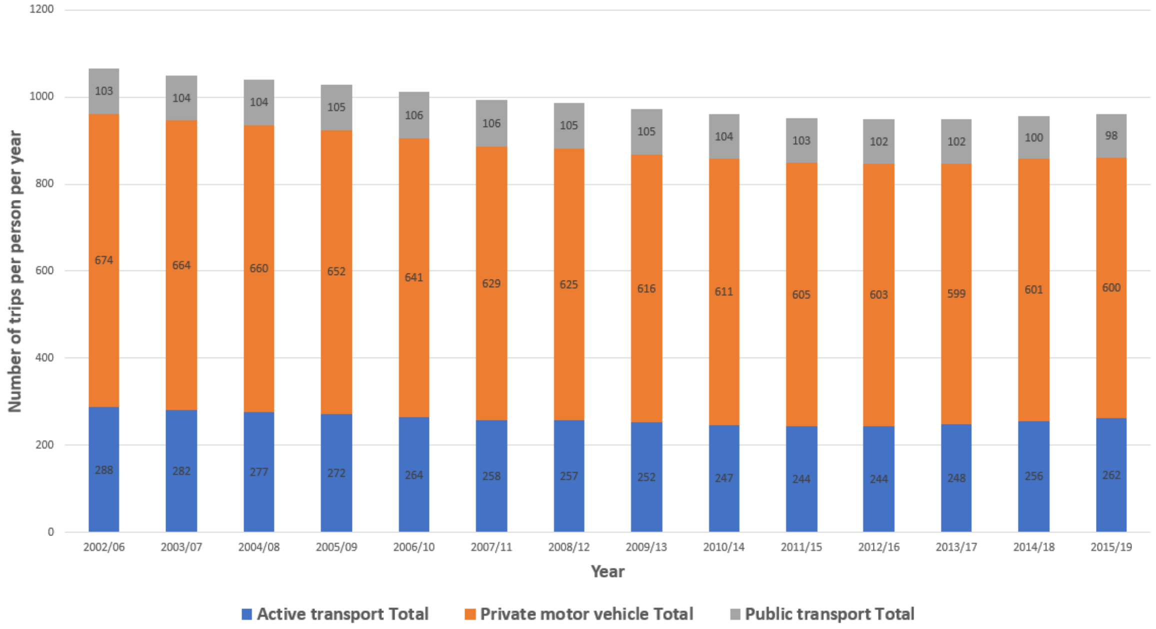


Figure 20: Transport modal split – number of trips per person per year by mode averaged by rolling 5–year periods, South East England

3.7.1 Affordable, low carbon transport

Indicator (3): Electric vehicle (EV) charging infrastructure

As of October 2020, the number of publicly available EV chargers across the county totalled 284, comprising 240 standard and 44 rapid charging. In terms of the density of charging devices per 100,000 people, Oxfordshire is above the UK national average (Table 5). A 2020 report by Oxfordshire County Council identified that, based upon the European directive[4] on the deployment of alternative fuels infrastructure, 'the appropriate average number of recharging points should be equivalent to at least one recharging point per 10 cars'. As such, the council identified that at least 2500-3000 public charging points would be needed across the county to meet the charging needs of the 25,000-30,000 EVs projected by the University of Oxford to be on the road in Oxfordshire by 2025. It is clear that while Oxfordshire is ahead of the national average for charger points density, the county is still in the early stages of rolling out EV infrastructure.

Table 5: Publicly available EV chargers in Oxfordshire, 2020.
Source: Department for Transport

Local Authority / Region Name	**Total public charging devices**	**Total public rapid charging devices**	**Charging devices per 100,000 population**	**Rapid devices per 100,000 population**
UNITED KINGDOM	***19,487***	***3,530***	***29.2***	***5.3***
GREAT BRITAIN	***19,169***	***3,508***	***29.5***	***5.4***
ENGLAND	***16,456***	***2,909***	***29.2***	***5.2***
Oxfordshire	**240**	**44**	**34.7**	**6.4**
Cherwell	52	9	34.6	6.0
Oxford	90	5	59.0	3.3
South Oxfordshire	45	20	31.7	14.1
Vale of White Horse	34	5	25.0	3.7
West Oxfordshire	19	5	17.2	4.5

---

[4] https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:32014L0094

Key regionally significant actions

Action	Detail
An ambitious transport plan for the county	Consultation on the new Local Transport Plan (LTP5) has begun and the plan will eventually supersede LTP4. LTP5 will set out Oxfordshire County Council's policy and strategy for developing the transport system in Oxfordshire to 2050. It is being developed with input from Oxfordshire's district and city councils, its businesses, MPs, stakeholder groups, and through public consultation. It will feature measures to increase active, low-carbon travel, improve public transport, augment EV charging infrastructure, and build a strategy for digital infrastructure for connecting the whole county.
Traffic reduction schemes	Connecting Oxford is a scheme to reduce traffic and emissions in and around Oxford using a workplace parking levy and new traffic filters. The aim of the scheme is to improve accessibility while reducing traffic levels significantly. Implementation is expected in 2023. During March 2021, Oxfordshire County Council introduced a trial of three Low Traffic Neighbourhoods (LTNs) within the Cowley area. Traffic filters were introduced so that residents can enjoy a quieter neighbourhood and feel safer when they walk, cycle or go by wheelchair. Though residents have had initial concerns, they will hopefully encourage long-term modal shift as residents swich to faster, low-carbon modes of transport like cycling, walking or public transport. Advocates are already noticing the difference with fresher air, quieter streets, and a safe place for their children to cycle and play.
Electric vehicle charging infrastructure developed	In February 2021, a draft of the Oxfordshire Electric Vehicle Infrastructure Strategy (OEVIS) was published. Examples of current initiatives: • Go Ultra Low Oxford (GULO) is a government-funded project run by Oxford City Council and Oxfordshire County Council to provide EV charging for people who have to park their car on the street. GULO trialled five different EV charging technologies to identify the best solutions for residents with on-street parking, and subsequently will be rolling out 100 charging solutions to meet the needs across residential streets in Oxford. • Park and Charge is an initiative in 24 car parks across the county, where EV chargers will be installed. It will give residents with no off-street parking the ability to park for free overnight and charge their electric vehicles with competitive prices. This is funded by The Office for Zero Emission Vehicles and Innovate UK, and delivered by Oxfordshire County Council, SSE Enterprise, Zeta Specialist Lighting, Urban Integrated Ltd ([ui!]uk), EZ Charge and University of Oxford, working with other district councils as hosts of the EV hubs.

3.7.1 Affordable, low carbon transport

Increase in electric taxis, buses and fleets	In May 2020, two electric London Electric Vehicle Company (LEVC) taxis were already operating in Oxford, with two more on the road shortly and several drivers making purchasing enquiries. The 'try before you buy' scheme for Oxford's Hackney Carriage drivers has been paused due to Covid-19. An Oxford County Council and Oxford City Council programme to move to electric buses – was funded from the Government's Clean Bus Technology Fund. In March 2020, the Oxford Bus Company has so far completed 65 of its 71 vehicle upgrades retrofitted to electric ultra-low emission Euro 6 standard. Local councils are planning to electrify their fleets. For example, Oxford City Council aims to electrify 25% of its 330 vehicle fleet by 2023 with its Energy Superhub Oxford project. In 2020, the city council added over 30 battery-electric vehicles to its fleet including cars, a street sweeper, an excavator and mix of different sized vans. Oxford's first electric bin lorry entered service in March 2021. The University of Oxford (specifically the Estates Services and the Transport Study Unit) was part of a £8.9m bid to the Government's 'Go Ultra Low City Scheme' that sought match funding to enable 12 vehicles in their fleet to be replaced with Ultra Low Emission Vehicles (ULEVs).
Encouraging and facilitating active travel	Oxfordshire County Council ran a survey for all residents to understand what cyclists like or dislike about cycling in the county and any problem locations they have (August 2019). The survey results will be used to create Local Cycling and Walking Infrastructure Plans (LCWIPs). LCWIPs are now in place for Oxford (March 2020) and Bicester (September 2020) and will be established for Abingdon, Banbury, Didcot and Kidlington. Projects to improve cycling in the county include: • A new foot and cycle path created in Milton beneath the railway to avoid a longer route via Park Drive. • Thames Path Oxford, a 2.4 mile stretch of the towpath has been widened and a new surface laid making the route easier to use. • Bicester Wayfinding Project, a comprehensive network of signage encouraging people to walk and cycle to destinations across the town. One Planet Living developments in Oxfordshire facilitate active travel for residents: • Springfield Meadows offers sustainable transport options through good bus connections, free bus passes for residents' first year, and an electric-car club promotion by developers. (Continued overleaf)

3.7.1 Affordable, low carbon transport

Encouraging and facilitating active travel (Continued)	The Coalition for Healthy Streets and Active Travel (CoHSAT) is a group of 10 voluntary and campaigning organisations working across Oxfordshire to create attractive, accessible and people-friendly streets. Members include Oxfordshire Cycling Network, Cycle Ox and Oxford Pedestrians Association. Oxfordshire County Council will receive £298,500 of the original £597,000 governmental funding to upgrade cycling and walking routes.
Improving public transport	Bus gates restrict car access and allow only buses, cyclists, emergency vehicles, and other limited exempt users to access certain roads. They are intended to stop traffic jams in the city centre and free up road space for buses to move more quickly. There are currently seven in Oxford. A further two gates were planned between Hythe Bridge Street and Worcester Street, and between South Parks Road and St Cross Road on a temporary basis. Oxfordshire County Council's cabinet decided to reject the idea for new gates in October 2020 because of a negative general public response to their consultation. At Elmsbrook in Bicester, a bus route to the town centre, funded by the developer as a condition of planning, was started when the first residents moved in. Bus routes are generally only established once there are a significant number of residents on site. This should be a model for future developments.
Low and zero-carbon business travel	There are a range of businesses that have developed zero-carbon logistics systems, with key examples for Oxford including: • innovative laundry service OxWash, which uses electric cargo bikes • Oxford Office Furniture which has invested in a fleet of electric vehicles • eco-courier Pedal and Post, which uses electric cargo bikes for collections and deliveries across the city. The three companies that offered dockless bike hire in Oxford are no longer operating. There were many complaints about bikes being abandoned and the Covid-19 pandemic reduced demand.
Encourage setting up and use of car clubs and car-sharing	Car clubs in Oxfordshire include: • E-Car Club in Bicester and North Oxford • Oxford's first electric car club Co-wheels car club, which was launched in North Oxford in 2013. Co-wheels car club has over 60 locations and is the winner of GreenFleet's Car Club of the Year award. The Electric scooter hire scheme pilot in Oxford launched February 2021. The launch is part of a trial led by Oxfordshire County Council and Swedish e-scooter operator Voi Technology. This follows the Government’s decision to legalise rental e-scooters in 2020 to support local green travel, as e-scooters offer clean and inexpensive transport.

3.7.2 Citizens understand impact of air travel

Indicator: none

It is not possible to use an indicator to assess whether Oxfordshire citizens are reducing their air travel, as there are no easily accessible records from airlines or airports regarding passengers' county of residence. However, London Oxford Airport in Kiddlington promotes the fact that it handled the fastest growing volumes of private and business aviation in the UK between 2007 and 2012.

Across the board, the impact of Covid-19 and resulting travel ban restrictions have significantly reduced the number of national and international flights. Yet this is likely to revert to previous levels once restrictions are removed.

Key regionally significant actions

Action	Detail
Awareness raising by environmental groups	One Planet Oxfordshire has highlighted the significant impact in reducing an individual's carbon footprint by 'staying on the ground': • Oxford Green Week 2019 One Planet Living 'Actions Individuals Can Take' leaflet • One Planet Oxfordshire update March 2021 focused on 'staycations', discussing the impact of flying and the issue of offsetting emissions from flights Local groups such as Extinction Rebellion and Abingdon Carbon Cutters have raised awareness of the impacts of flying through their public communications and events.

Bakfiets.nl

Spotlight

'Getting a cargo bike has really changed our life! This picture shows pick up from Larkrise Primary School just off the Iffley Road - we love the look of joy in our kids' faces, though it may be because we don't normally let them ride it like this!'

Credit: Oly Shipp, One Planet Oxfordshire photo competition

3.8 Materials and products

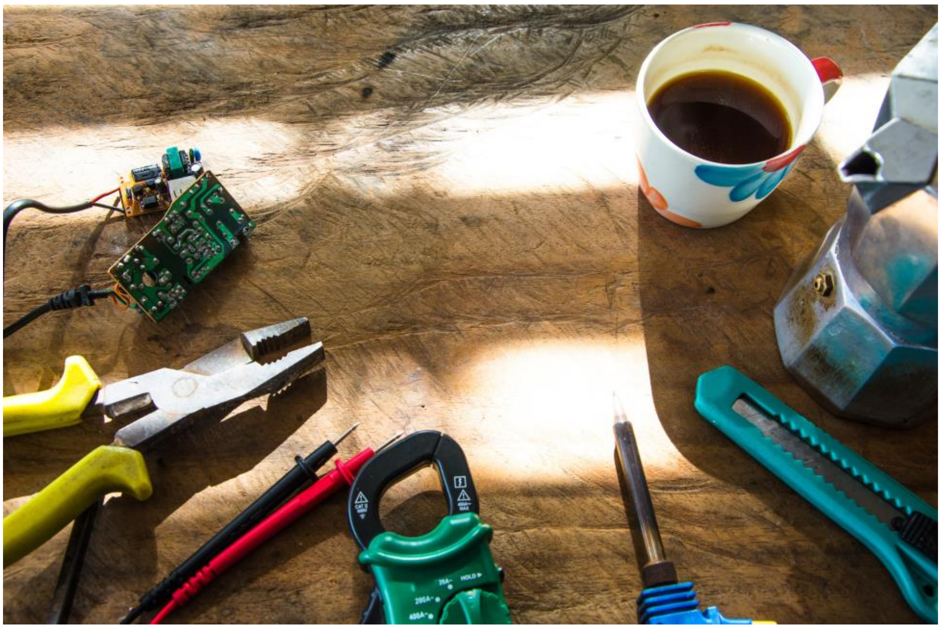
Overall goal: using materials from sustainable sources and promoting products which help people reduce consumption

Headline findings

Progress against overall goal	There has been some progress towards businesses adopting circular business models but this progress is slow. Far more rapid progress has been seen at the community level regarding repair, reuse and the sharing economy although the impact of this activity is very small compared to the whole of Oxfordshire's economy.
Key areas of concern	Insufficient data availability on product and material consumption for monitoring progress and addressing performance gaps.

Key outcomes

Key outcome	Detail	Progress
Thriving circular economy (4.8.1)	Oxfordshire's top 20 employers all have circular economy strategies. All Oxfordshire businesses are supported in developing their circular economy strategies. Oxfordshire has its own skilled and rewarding circular economy network. Oxfordshire is a global leader in the circular economy; developing a culture of repair, remanufacturing and sharing	Some progress



3.8.1 Thriving circular economy

Indicator: none – no data available

The impact of material and product use within a city-region can be analysed using consumption-based data. While consumption-based data cannot be gathered and reported annually due to delays in quantification, the detailed 2015 ecological footprint analysis of Oxfordshire by ecoCity in partnership with Bioregional and Oxfordshire County Council provides a key snapshot. A sub-set of the Ecological Footprint in the report is the Consumables and Waste Footprint. The following is an extract from the 2015 report:

'The footprint of consumables and waste is dominated by upstream impacts, namely the energy and materials that go into producing the goods that are consumed in the city. As shown in Figure 21, these upstream impacts – the embodied materials and embodied energy associated with consumables – represent 70% of the consumables footprint. Embodied materials are those that are utilized in the manufacture of a consumable product, or infrastructure, but do not end up in the finished product. Embodied energy is the energy used in creating and delivering a particular material used in a consumable good. An additional consideration in the consumables footprint is the embodied energy of recycled materials that refers to the energy used in the remanufacturing of products using post-consumer materials. It constitutes the majority of the re-supply chain. Materials disposed refers to the footprint associated with materials that comprise consumer goods. The footprint associated with waste management services is usually very small compared to that of the footprint in the supply chain, often comprising less than 3%.'

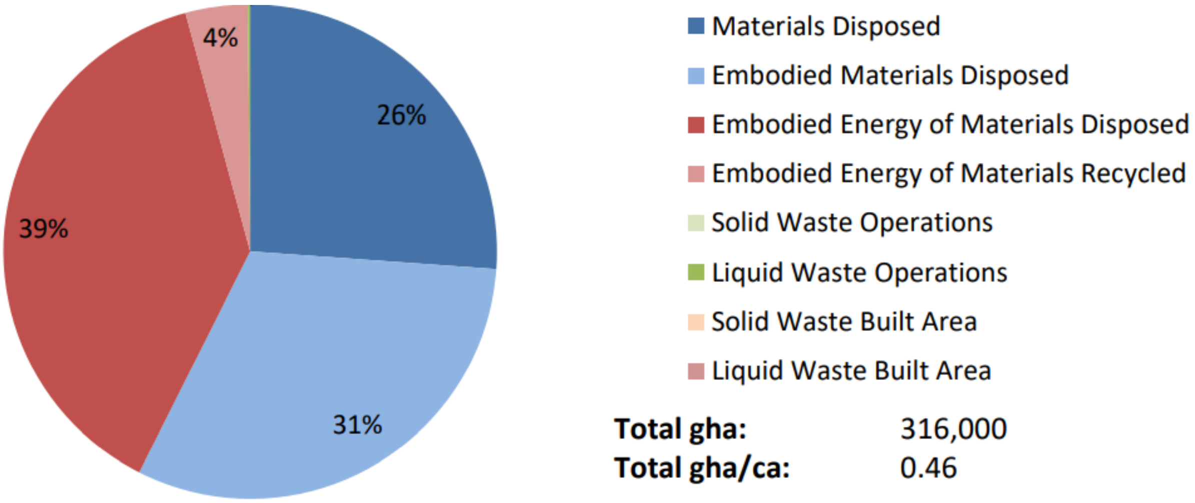


Figure 21: Consumables and Waste Footprint Summary, 2015.

These results highlight the need to prioritise reducing consumption over efforts to increase recycling that divert materials from the waste stream. With that said, there appears to be significant opportunity for material recycling improvements as well. It is also important to evaluate which type of consumable materials have the largest impact on the footprint to develop targeted policy and communication measures. As shown in Figure 22, the majority of Oxfordshire's consumables footprint is attributed to other waste (44%) referring to materials that were undefinable in the waste stream, but probably comprise a mixture of the other streams. Hazardous material containers and e-waste is also included and each accounts for 1% of the total. Paper (43%), followed by textiles (32%) and, to a lesser degree, plastics (8%) and household hygiene (8%) also contribute significantly. In contrast to the CBEI for this component, paper takes a larger share because of the land associated with growing the wood fibre used in paper production. Note that total global hectares is lower in Figure 22 than it is in Figure 21 because Figure 21 also captures the impacts associated with waste management (operating energy and direct emissions from waste management).

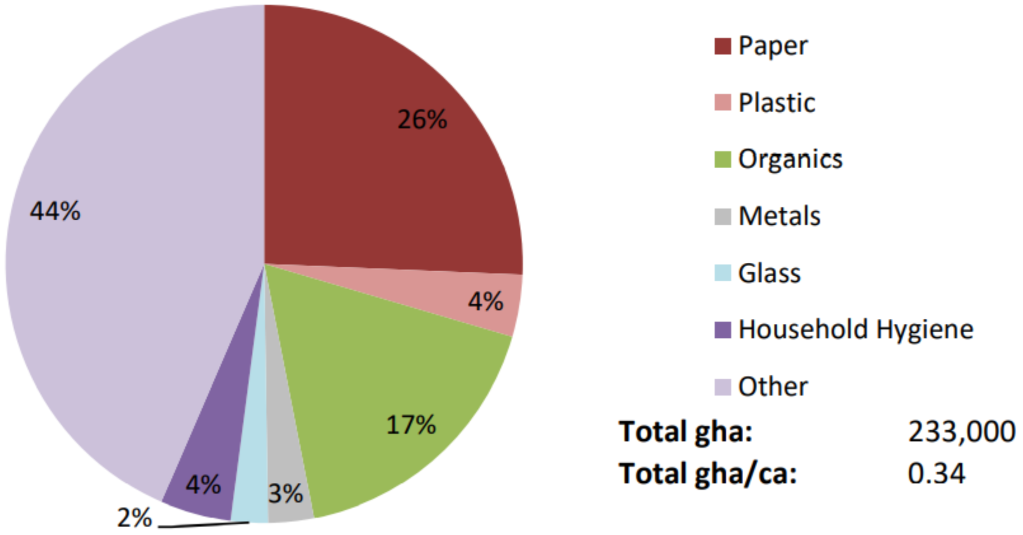


Figure 22: Consumables Footprint by Consumables Type, 2015.

Recent data for waste generation and treatment (explored in the 'zero waste' principle) shows that total waste has reduced by around 4% between 2014-15 and 2018-19. More recent data and analysis has not been available for assessing the county's product consumption for a full Consumables and Waste footprint to be completed since the 2015 Ecological Footprint study for One Planet Oxfordshire. Nevertheless, there are qualitative indicators of progress towards the principle through key actions.

Key regionally significant actions

Action	Detail
World leading research into sustainable consumption	Globally renowned economist Kate Raworth of 'Doughnut Economics' has developed a Doughnut Economics Action Lab (DEAL) in Oxford, as a Community Interest Company. It reframes economic narratives, influences strategic policy, and innovates with the DEAL global community. Working with changemakers, DEAL is used as a concept for community, town, and city-wide planning, building on the concepts of planetary boundaries and social justice.
Supporting organisations to develop circular economy business models	ecoVeritas, based in Oxford, works with companies to analyse data and encourage better use of WEEE, plastics, packaging waste, batteries and deposit return schemes. It also specialises in carbon reduction and nutrition. QSA Partners is a consultancy company providing support to organisations to help them develop sustainable business models. In March 2021, QSA launched an initially free online guidance system to help businesses implement their own circular fashion business models.
Raising awareness about the benefits of circular business models	Oxfordshire Greentech (OG) is the business network supporting the growth of the low-carbon sector in Oxfordshire. It brings together businesses and organisations to encourage innovation, collaboration and knowledge transfer, to facilitate the transition towards a sustainable, low-carbon future in Oxfordshire and the world. OG has run three events on developing circular economy models since Feb 2019. In Spring 2021, OG, South Oxfordshire and Vale of White Horse District Councils will run a briefing event for staff to learn about the circular economy before running an event later in the year to encourage businesses in the districts to adopt circular principles.
Building a circular economy	SESI Refills is an Oxfordshire-based social enterprise that supplies sustainable detergents to farmers' markets, shops, cooperatives and charities. A key part of the business model is based on customers getting refills of detergents instead of using single-use containers, helping people to reduce their plastic footprint. The SESI enterprise has grown into being a key supplier of ethical detergents to the growing zero waste shops and sustainable retail market, helping to create a circular economy in Oxfordshire. Revenues are re-invested in expanding SESI product offer and establishing new partnerships and Refill Stations. (Continued overleaf)

Building a circular economy (Continued)	OxWash is an Oxford-based company which, since 2017, has been a leading sustainable, circular laundry business. The company has the world's first washing process at ambient temperature and uses biodegradable detergents and sustainably produced ozone to clean clothes. The process involves reclamation and reuse of water in subsequent washing cycles which cuts water demand by 70% in comparison to domestic washing machines. Its collection and delivery service is via electric cargo bikes. The company has expanded beyond Oxford with operations now in London and Cambridge, and aims to expand nationally and internationally.
Creating a repair and reuse culture	Extending products' longevity as a key part of slowing the resource loops in a circular economy, repair cafes are a key enabler of product life extension. Share Oxford and various low-carbon groups run regular repair cafes. Volunteer repairers welcome a wide range of broken items such as electronics, bikes, clothes, jewellery and furniture to give them a new lease of life and help their owners learn repair and maintenance skills as well. Items find a new lease of life, with much sharing of materials and knowledge. The Community Action Group project has assisted the spread of repair cafes across the county through providing guidance and resources for local groups to set up their own cafes. Bicester Green is a 'centre for skills, sustainability and second-hand stuff'. It operates by intercepting items that are destined for landfill and use them as catalysts for learning in their workshops. This social enterprise facilitates skill sharing, inviting those with knowledge of bike, furniture and electrical item repair to share their skills with those who would benefit from learning.
Developing the sharing economy	Our consumption of resources is also reduced in the county through product-sharing models instead of private ownership, use and disposal. Alongside informal sharing of tools and knowledge between friends, families and neighbours, the Library of Things in Oxford hires out hundreds of different tools and equipment for short-term use, so that less needs to be bought. Its expanding inventory includes cake stands, air mattresses, bike carrier, wrenches, shredders, cat carrier, chocolate fountain and more. Launched in February 2019, membership of the Library grew steadily through its first year of operation, with nearly 50 new members signing up per month on average. The number registered members reached 620 in March 2020. Its inventory has risen from 200 items at opening to 550 items with 630 loans by March 2020. The Library has not been able to open as usual during the pandemic but re-opened in April 2021. Car clubs and e-scooter hire pilot – see Travel and transport

3.9 Zero waste

Overall goal: reducing consumption, reusing and recycling to achieve zero waste and zero pollution

Headline findings

Progress against overall goal	Oxfordshire has made steady progress in reducing the total waste generated and good progress on diverting waste away from landfill. Recycling rates are among the highest in the UK but have remained relatively stable, with only a slight increase from 57% to 58%.
Key areas of concern	Recycling rates are plateauing. There is also a lack of transparency on the reuse of resources, which prevents assessment and acceleration of progress in the sharing and reuse economy.

Key outcomes

Key outcome	Detail	Progress
All waste is minimised and goes to its optimum use (4.9.1)	All municipal waste is reused, recycled and upcycled for optimum resource efficiency	Good progress

3.9.1 All waste is minimised and goes to its optimum use

Indicator: Oxfordshire waste total and by treatment type

There has been a decrease in total waste generated in Oxfordshire between 2014-15 and 2018-19 of 3.83%, with a significant drop in landfill waste tonnage from 16,669 to 13,922 tonnes (Figure 23). Landfill tonnage has decreased and the percentage total waste sent to landfill has decreased from 19% to 5%. Recycling rates have remained relatively high, with an incremental increase over the period from 57% to 58% (Figure 24). Meanwhile, incineration with energy recovery (EfW) has increased from 21% to 35%.

The county remains a leader amongst UK local authorities for our recycling and composting rates. In 2017-18, Oxfordshire had a recycling rate of 57.2% and was the top ranked county council waste disposal authority in the country. The amount of waste being sent to landfill is now down to 5% due to waste being sent to the Ardley Energy Recovery Facility.

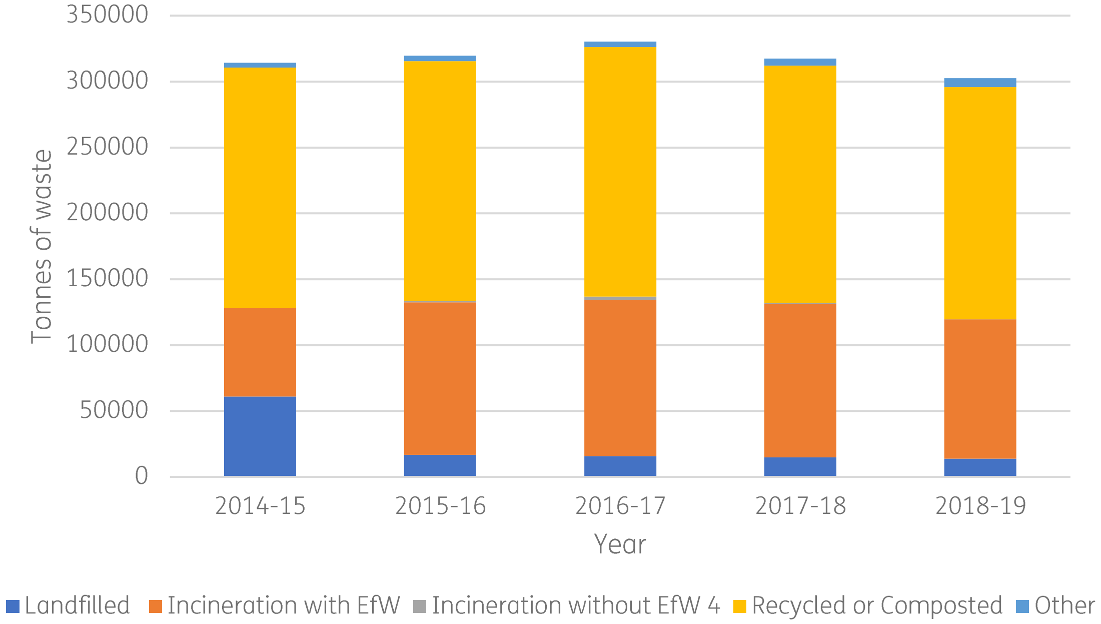


Figure 23: Oxfordshire's waste treatment, tonnes

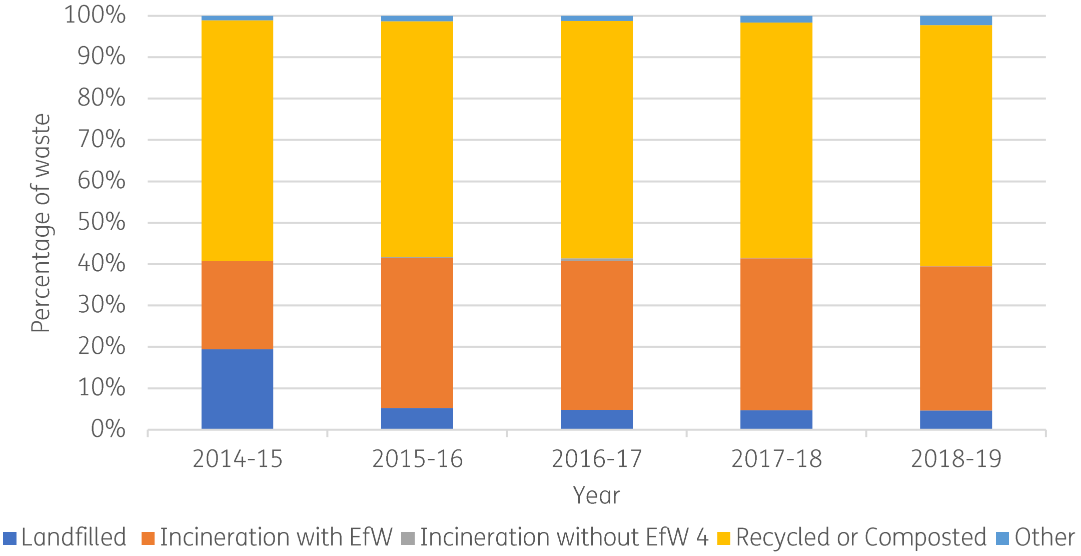


Figure 24: Oxfordshire's waste treatment, percentages

Key regionally significant actions

Action	Detail
Co-ordinated action	The Oxfordshire Resources and Waste Partnership (ORWP) is being brought back, bringing together the city, district and county councils to act on resources and recycling between collection and disposal authorities in Oxfordshire.
Energy Recovery Facility, Ardley	In 2011, Oxfordshire County Council awarded a 25-year contract for residual waste treatment to Viridor Oxfordshire Ltd. In December 2014, construction of an energy recovery facility (ERF) built by Viridor at Ardley in North Oxfordshire was completed. The ERF treats 300,000 tonnes of waste per year. That is sufficient to treat all of Oxfordshire's residual municipal waste, divert at least 95% of Oxfordshire's residual municipal waste from landfill, and generate enough electricity for about 38,000 homes.
Increase use of anaerobic digestion to reduce food waste	There are six Anaerobic Digestion (AD) facilities across the county, generating 7.5% of Oxfordshire’s renewable generation – plus the digestate is a useful fertiliser. *See detail in the section, 'Local and sustainable food'.*
Encouraging residents to reuse, repair and recycle	Waste Wizard is a tool offered by Oxfordshire County Council that allows people to search how to repair, reuse, donate, recycle or dispose of specific items depending on their location. This can enable more responsible waste management across the county. It is advertised through social media with retro computer game characters. A key initiative by South Oxfordshire and Vale of White Horse District Councils and Oxford City Council has been to develop a Waste Wheel, distributed to all residents, to enable quick identification of how specific materials should be disposed of.
Initiatives to reduce waste	Examples include Oxford Wood Recycling, an award-winning charity and social enterprise that offers wood waste collection services, reclaiming, reusing and recycling wood for resale and creating wood products and furniture. In 2021, 361.4 tonnes of wood were collected, leading to 3.32 tonnes of CO_2 emissions being avoided. Raw Workshop offer a similar range of wood reclaiming services. (Continued overleaf)

Initiatives to reduce waste (Continued)	Oxfordshire County Council is reimagining road repairs and gully cleaning. OCC contractor Skanska is currently taking part in a trial with the company Combined Drier Technology to reprocess and reuse the waste salvaged from gullies when they are cleaned by tankers, thereby reducing the amount that must be disposed of at high cost. After dehydrating and screening, these recycled materials could then potentially be used in highways works as fill material for resurfacing, topsoil replacement, or be fed into the production of recycled aggregates. Over a four-year period, the approach could potentially stop 1,000 tonnes of CO_2 being emitted and save £4.3m of council taxpayers' money. It will also cut the amount of waste sent to landfill sites and reduce the amount of new material that is dug out of the ground. *See further examples of reuse initiatives under 'Materials and products' and food waste reduction actions under 'Local and sustainable food'.*

BUCKS FI
COUNTRY LEGEND
1500

Spotlight

James Mayo, the manager of Orinoco - The Oxfordshire Scrapstore.

Credit: David Brugman

3.10 Zero carbon energy

Overall goal: making buildings and manufacturing processes energy efficient, supplying all energy with renewables

Headline findings

Progress against overall goal	Some progress has been made but it is unclear if this will be sufficient or rapid enough to meet the county council's target for a net-zero county by 2050.
Key areas of concern	Clearer local authority plans on how carbon targets will be met are needed. A key concern is the current gap in timely emissions reporting for the county, which is a key part of tracking progress and taking corrective action to achieve the county's new zero-carbon target.

Key outcomes

Key outcome	Detail	Progress
Zero carbon or better by 2050 (3.10.1)	Oxfordshire is net-zero carbon or better by 2050 at the very latest.	Some progress
Energy efficiency programs in all organisations (3.10.2)	All businesses, local authorities, and organisations have energy efficiency programmes and carbon targets in place. Oxford University colleges have carbon targets in place.	Not possible to assess progress
Rapid increase in renewables (3.10.3)	Rapid increase in renewable generation within the county. • All schools and publicly owned community buildings with suitable roofs to have PV arrays. • All commercial buildings with suitable roofs to have PV arrays. • Zero carbon solutions for homes without access to mains gas. • 56% of power demand and 40% of heat to come from renewables by 2030. • Large strategic renewable solutions are mapped and planned for.	Some progress

3.10.1 Zero carbon or better by 2050

Indicator: county-wide carbon emissions from domestic, industrial and commercial sectors

The UK National Atmospheric Emissions Inventory calculated estimations of carbon emissions across Oxfordshire between 2005-2018 from domestic buildings and the commercial and industrial sectors based on electricity, gas, other fuel use, and fuel use in large industrial installations and agriculture. Carbon emissions in these sectors have been steadily declining since 2005 (Figure 25 and table 5).

By 2018, emissions from domestic buildings had decreased by 40% since 2005, and 11% since 2015, to 1279 kilotonnes CO_2e. Homes comprised 25.44% of Oxfordshire's total carbon emissions in 2018. Industrial and commercial emissions decreased by an even greater extent by 2018, with a reduction of 44% since 2005, and 21% since 2015. Emissions from these sectors stand at 1038 kilotonnes CO_2e in 2018, 31.35% of Oxfordshire's total emissions.

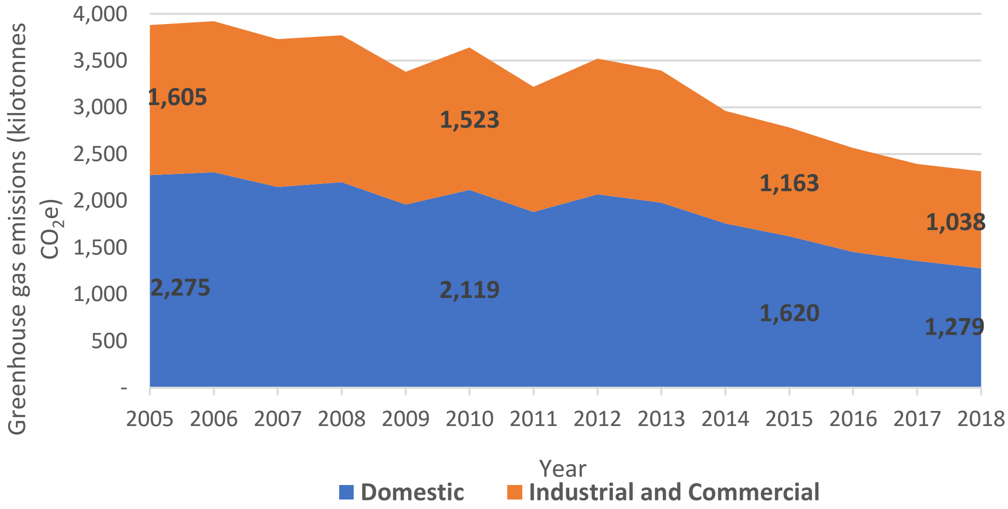


Figure 25: Oxfordshire carbon dioxide emissions (kilotonnes CO_2e) from domestic, industrial, and commercial sectors, 2005-2018.

Table 6: Carbon emissions from domestic, industrial, and commercial sectors across Oxfordshire.

Total emissions from domestic, industrial and commercial (kilotonnes CO_2e)	2,316.51
Percentage of Oxfordshire's emissions from domestic, industrial, and commercial (%)	56.79
Percentage of Oxfordshire's emissions from homes (%)	25.44
Percentage of Oxfordshire's emissions from commercial and industrial sectors (%)	31.35

The Tyndall Centre[5] for climate change research has set carbon budgets for all UK district and city councils based on each council making its 'fair' contribution towards the Paris Climate Change Agreement. For Oxford City, it strongly recommends cuts in emissions averaging a minimum of 12.5% per year. For our districts, the recommended cuts are just over 13% per year. If this level of cuts is not implemented immediately, the challenge becomes greater with even larger cuts required to achieve our net-zero target by 2050.

Such significant cuts fall on all areas of society to make rapid change, not just local authorities, and national policy will also be key to Oxfordshire reaching its net-zero target.

---

[5] https://carbonbudget.manchester.ac.uk/reports/

Key regionally significant actions

Action	Detail
Plans and action by local authorities	*See Culture and community, section 4.3.2 for details for the climate emergency declarations made by all local authorities in Oxfordshire and the progress they are making towards achieving their carbon targets.*
Research pathways/scenarios for getting to zero carbon	The Environmental Change Institute's (ECI) Lower Carbon Futures team, in partnership with Low Carbon Oxford, published an extensive report about the potential of this sector to grow, providing the county with jobs and income, identity as a world leader in this area, and keeping sustainability at the heart of economic development. This research (and other energy-related research) is pulled together under the University's interdisciplinary Oxford Energy Network. OxLEP and key county stakeholders have commissioned the ECI, working with Bioregional, to develop a Pathways to a Zero Carbon Oxfordshire report. This will be launched and published in June 2021, mapping action already being taken across all sectors to reduce carbon emissions, giving three scenarios for Oxfordshire to reach net-zero carbon by 2050 and identifying necessary action to get us there.
Encouraging low carbon innovation	*See section 3.2.1 action 'Scale up the low carbon economy' for details of* • The Oxfordshire Energy Strategy • Energy Pathfinders 2050 competition • Oxfutures programme • Oxfordshire Greentech business network • Low Carbon Hub
Business leadership on carbon emissions reduction targets	Oxford City Zero Carbon Partnership is coordinated by Oxford City Council. It replaces the Low Carbon Oxford partnership which was established a decade ago by members managing their own carbon footprints, with an aim to reduce carbon emissions in Oxford by 40% by 2020. A Zero Carbon Summit was held in February 2021. 21 leaders from the city's universities, institutions and large businesses signed the Zero Carbon Oxford Charter, which marks their support for achieving net-zero carbon emissions as a city by 2040. The new partnership changes the focus from organisations managing their own estates, towards collaborative action and using each member's sphere of influence and knowledge to achieve shared goals and initiatives across the city.

Supporting community energy schemes	The Low Carbon Hub is a key actor in supporting communities, businesses, schools and individuals to act on the climate crisis by reducing their emissions through energy efficiency and increasing installation and use of renewable energy. Its work is grouped into 'Powering Up', in which it supports its partners' transitions to renewable energy, 'Powering Down ' to improve energy efficiency, and 'Innovation' to work to catalyse change for the energy system of the future. *See also section 3.2.1 action 'Scale up the low carbon economy' and below regarding Project LEO, schools and renewables.*
Develop new low-carbon homes and buildings	There are a number of zero and low-carbon housing developments in the county, for example: • Elmsbrook, Bicester is the UK's first eco-town delivering 393 true zero-carbon homes with the UK's largest residential PV array. • Springfield Meadows, Southmoor, has 25 homes. It has been awarded One Planet Living Global Leader status. Developer Ssassy Property is partnering with the Berkshire, Buckinghamshire and Oxfordshire Wildlife Trust (BBOWT) to make the scheme as wildlife-rich as possible. • Kings Farm Close, Longcot has 15 new homes which will have near-zero carbon footprints, due to their use of the Biond offsite construction system. • Graven Hill, Bicester is the UK's largest self-build development and has several Passivhaus-certified homes, including 2-3 bed terrace homes as well as the custom-build opportunities. • Oxford City Council is in the process of building eight zero-carbon homes across three different sites within the city. It is thought that the homes will be the first zero carbon, regulated energy use new-builds to be constructed in Oxford. Examples of zero and low-carbon non-domestic buildings include: • The Eco Business Centre at Elmsbrook in Bicester which is built to Passivhaus standards and developed by Cherwell District Council • The headquarters of CABI international in Wallingford • The Kellogg Hub, the first Passivhaus project for the Oxford College and the University of Oxford, occupied in April 2017.
Retrofit action	Cosy Homes Oxfordshire runs a retrofit programme for the existing housing stock, ranging from simple measures through to whole-house retrofits. (Continued overleaf)

Retrofit action (continued…)	The Better Housing Better Health (BHBH) service has been commissioned by local authorities across Buckinghamshire and Oxfordshire to help keep residents warm during winter and reduce their energy bills. In a preventative approach to health and wellbeing, the free-to-use helpline provides residents with a single point of contact for services, advice and grants to help improve the energy efficiency of their property. As part of the UK Government's Public Sector Decarbonisation Scheme, £122,567,215 of funding has been awarded to projects in the South East of England, which includes funding for projects run by Cherwell District Council, Oxford City Council, Oxfordshire County Council, and the Oxford University Hospitals NHS Foundation Trust. Oxfordshire County Council is delivering a phase of Green Homes Grant Local Authority Delivery (LAD) schemes to 150 households in fuel poverty with low EPC bands by September. After central government retracted the able-to-pay Green Homes Grant in April, it committed to divert funding to local authorities, and so the county council is anticipating another round of funding later in the year to continue its work. Limiting progress: There is a national lack of people who have the skills to undertake retrofit work. This has affected progress in Oxfordshire where there is a high demand for retrofit services, but a lack of qualified tradespeople.
Campaigning for low carbon homes	Oxfordshire Zero Carbon Homes Initiative (OZCHI) is a campaigning partnership set up by Oxford Friends of the Earth in 2021, with the aim that all new homes built in Oxfordshire will be designed to zero-carbon standards. OZCHI is calling for all the councils in Oxfordshire, the Oxfordshire Growth Board and the Local Enterprise Partnership to cooperate to 'develop, set and implement a new common standard that will deliver net zero carbon homes ' as well as work with the government and other agencies to make Oxfordshire a 'Zero Carbon Homes Innovation Zone'.
Work towards a Zero Carbon Electricity system	With the increase in low-carbon technologies, the demand on electricity networks is forecast to increase threefold by 2050. Electricity networks therefore need to evolve to cope with this increase. Through its smart grid trials, Project LEO (Local Energy Oxford) is helping prepare for a shift in the electricity system, from one where energy is only consumed to one where it can be produced, stored, balanced, and sold back to the system. (Continued overleaf)

Work towards a Zero Carbon Electricity system (continued...)	Project LEO seeks to grow an evidence base that can inform how we manage the transition to a smarter electricity system. It will inform how distribution system operators function in the future, show how markets can be unlocked and supported, and create new investment models for community engagement. It will also support the development of a skilled community positioned to thrive and benefit from a smarter, responsive, and flexible electricity network. In January 2021, Project LEO installed 80 low-voltage monitors around Oxfordshire to monitor changes in electricity demand. Energy Superhub Oxford (ESO) is one of three UK demonstrator projects delivering innovation in smart local energy systems. ESO is a consortium of six partners, led by Pivot Power, and includes public, business and academic organisations. It is a key part of Oxford City Council's response to the climate emergency. The project aims to eliminate 10,000 tonnes of CO_2 emissions a year. Between 2019 and mid-2021, this will be achieved by installing a large, hybrid battery energy storage system, enabling more clean electricity, encouraging the uptake of electric vehicles (EVs) in Oxford (including the electrification of the council's own fleet of vehicles), and by implementing renewable electric heating in homes and businesses. As a key part of Oxford City Council's response to the climate emergency, ESO will provide a model for cities around the world to cut carbon and improve air quality. A key milestone was met in February 2021 when Pivot Power successfully energised the point of connection to the transmission network for the hybrid battery storage system. The system is due to operate commercially by Spring 2021. A total of 7128 lithium-ion battery modules have been installed in readiness for go-live.

Spotlight

Tim Nicholson from R-ECO (Renewable Energy Cooperative) installing solar PV panels on a client rooftop near Florence Park. Credit: David Brugman

3.10.2 Energy efficiency programmes in all organisations

Indicator: none, no easily accessible data

Many organisations across the county will have carbon targets and energy efficiency programmes in place but there is no straightforward way to assess the proportion of these in the county. Below we highlight a range of organisations that have published their targets and plans.

Key regionally significant actions

Action	Detail
Energy efficiency programmes in local authorities	All local authorities in Oxfordshire have energy efficiency programmes and targets. Oxfordshire County Council's total emissions for 2019-2020, were 19,164.4 tonnes CO_2e in 2019-2020 against a baseline of 55,862 tonnes of CO_2e in 2010-2011. This represents a decrease of 36,698 tonnes of CO_2e, a decrease of 65.7% and an average annual reduction of 7.3% per year. During 2019-2020, Cherwell District Council reduced its carbon emissions by 9.2% (419.38 tonnes CO_2e), from 4573.69 in 2018-2019 tonnes CO_2e to 4154.31 tonnes CO_2e in 2019-2020. This represents a 38.9% reduction against its baseline of 2008-2009. It is aiming for net zero by 2030 in all its activities and operations. During 2019-2020, West Oxfordshire's emissions totalled 3022.199 tonnes CO_2e, which also acts as its baseline. It is aiming for net zero by 2030 in all its activities and operations. Oxford City Council is aiming to be zero carbon by 2030. Since 2014-2015, the council has achieved a 45.8% reduction in its emissions, emitting 7,425 tonnes CO_2e in 2019-2020, a 4% reduction from the previous year. This increases to 8.4% when taking into consideration the inclusion of Renewable Energy Guarantees of Origin (REGO) certified electricity. South Oxfordshire and Vale of White Horse District Councils are beginning to benchmark existing emissions from their operations and districts.
Large businesses and organisations	21 of Oxford's largest organisations have joined Oxford City Council's Zero Carbon Partnership *(see details in section 3.10.1 above)* and signed the Zero Carbon Charter. The organisations include Oxford and Oxford Brookes universities, both hospital trusts, businesses including BMW, Unipart and LandSec, transport providers, schools, and colleges.

Educational establishments	Oxford Brookes has a Carbon Reduction Strategy and has cut its carbon emissions by 35% since 2005 and are ahead of its target of 34% reduction by 2025. Oxford University's Environmental Sustainability Strategy was launched in March 2021. The key goals of the strategy are to 'achieve net zero carbon and biodiversity net gain by 2035'. The strategy is composed of ten priority areas: research, curriculum, emissions from energy consumption on the University estate, biodiversity, sustainable food, sustainable resource use, international travel, local travel, investments and learning from the pandemic. It contains concrete commitments in all areas, as well as four enablers which are governance, reporting, funding, and offsetting. 'LESS CO_2' energy efficiency programme for schools is funded by the Ashden charity and delivered in Oxfordshire by Low Carbon Hub. The free programme involves four half-day workshops for school representatives, offering peer mentoring, expert advice and free resources. Staff are empowered and equipped to make changes and improvements to their school to reduce their energy usage, save money on bills and lower their CO_2 emissions. On average, schools that participate save £2,600 and 10 tonnes of CO_2 in the first year. The first cohort completed the programme in 2018. The programme so far has involved 350 schools and saved 16,952 tonnes of CO_2.
Run large estates on green energy	Blenheim Palace is committed to becoming the first UK estate to demonstrate carbon-positive land management, while becoming a net generator of green energy, with a fleet of electric vehicles.
Support SMEs to save energy and reduce demand	Energy Solutions Oxfordshire (ESO) is a partnership between Low Carbon Hub, Brookes University's Environmental Information Exchange and EnergyPro to provide small and medium-sized businesses with a tailored 10 step programme of improvements to reduce their emissions. Project management is provided for any interventions, as well as monitoring its effectiveness. To improve take-up, ESO launched the Energy Pioneer award scheme. The award is free to apply for and has three levels, aiming to encourage organisations to be continually find ways to improve energy efficiency and reduce carbon emissions.

Spotlight

Sandford Hydro Turbine.

Credit: Adriano Figueiredo, One Planet Oxfordshire photo competition

3.10.3 Rapid increase in renewables

Indicator: increase in renewable energy installations, capacity, and electricity generation

Since 2016, Oxfordshire has increased the number of renewable energy installations and total installed capacity (MW), based on the latest Regional Renewable Statistics from the Department for Business Energy and Industrial Strategy up to 2019 (Table 6). This data includes solar photovoltaics (PV), wind, hydro, anaerobic digestion, sewage and landfill gas, municipal solid waste, and plant biomass.

Capacity has increased from 432MW in 2016 to 454MW in 2017. There has however been a slight decrease in capacity between 2017-2019, which is related to the drop in Municipal Solid Waste renewable energy from 31MW to 27MW, due to generator failure at the Ardley Energy Recovery Facility (ERF) near Bicester in January 2019.

Solar PV account for the majority of renewables, comprising 99.6% of sites and 85.4% capacity total in 2019. Solar PV capacity continued to increase gradually over the period from 361.8MW to 387.2MW, while wind capacity has remained stable at 6.6MW since 2016-17. Hydro has increased slightly from 0.7MW in 2016 to 1.1MW in 2019.

Renewable electricity generation (MWh) increased between 2016-2018, before a slight decrease in 2019, related to the decrease generation from landfill gas and a slight decrease in solar PV generation.

Table 7: Change in Oxfordshire renewable energy sites numbers, capacity, and generation level

Year	Number of installations	Installed Capacity (MW)	Renewable electricity generation (MWh)
2019	10135	453	533480
2018	9912	452	542607
2017	9572	454	526164
2016	9295	432	525201

Key regionally significant actions

Action	Detail
Community renewable energy	Community renewable energy is a growing area across Oxfordshire. Low Carbon Hub's renewable energy portfolio now has the potential to generate 4.5 GWh of clean energy, power 1645 houses, and save 1259 tonnes of CO_2 per year. In March 2021, Low Carbon Hub announced a new project to be completed by September 2021. Located in Arncott, near Bicester, this will be the largest community-owned solar park in the UK. It will generate approximately 18GWh of clean electricity a year, enough to power around 6,000 homes. (Continued overleaf)

Community renewable energy (continued)	Westmill Solar Co-operative is the largest community-owned solar project in the world and the first in the UK, with over 1,500 members. It generates 4.8GWhr per year, which is enough electricity for around 1,600 average-sized homes a year. Southill Community Energy is another key community benefit society, seeking to have a positive impact around Charlbury through a grant programme to invest in community carbon-reduction initiatives across Oxfordshire. The first project by the society was the community-owner solar farm, Southill Solar, which has been operating since 2016 and generates enough electricity for 1,100 homes.
Install solar panels on council sites	The Leys Leisure Centre Car Park, St Aldates Chambers and more than 200 council houses are some of the Oxford City Council properties now sporting solar PV. Cherwell District Council's solar PV generates 436kWp across 11 sites, with more installations in the pipeline.
Commercial renewable energy installations	In 2014, BMW installed 11,500 solar panels to help harness renewable energy at the Oxford Mini Plant; this saves 1,358,000KG of CO_2 annually. Jennings, the commercial landlord on Monument Park in South Oxfordshire, has a solar PV range on their buildings, a site that currently hosts over 80 businesses.

Image credits:

Front cover & page 14: Paul Brown via Canva/Getty images

Page 12: James Coleman on Unsplash

Page 22: Rawpixel.com / Shutterstock.com; paulaphoto / Shutterstock.com; Tim Mossholder on Unsplash

Page 29: Viesinsh / Shutterstock.com; Gutesa / Shutterstock.com

Page 30: Norbert9 / Shutterstock.com

Page 32: Andrei Nekrassov / Shutterstock.com

Page 34: Sol on Unsplash

Page 35: MikeDotta / Shutterstock.com; Monkey Business Images / Shutterstock.com; Leah Kelley / Pexels

Page 49: Rudmer Zwerver / Shutterstock.com; VVVproduct / Shutterstock.com

Page 51: Alyona Naïve Angel / Shutterstock.com

Page 56: Matej Kastelic / Shutterstock.com

Page 59: Maitree Rimthong / Shutterstock.com; Light Field Studios via Getty Images

Page 62: Le Manna via Getty Images Pro

Page 67: Vittee / Shutterstock.com; HollyHarry / Shutterstock.com

Page 72: Halfpoint via Canva; cat-scape via Canva/Getty Images Pro

Page 76: Imagvixen via Canva/Getty Images Pro

Page 85: SnvvSnvvSnvv / Shutterstock.com; f9photos via Canva

Bioregional

Bioregional
Development Group

The Eco Business Centre
Charlotte Ave
Elmsbrook
OX27 8BL

Head office:
+44 (0)20 8404 4880

info@bioregional.com
bioregional.com
@Bioregional
@BioregionalOxon

First written and published by
Bioregional

June 2021

Bioregional champions a better, more sustainable way to live.

We work with partners to create places which enable people to live, work and do business within the natural limits of the planet. We call this One Planet Living.