



Environment and Climate Change Scrutiny Committee

Date: Thursday, 9 September 2021

Time: 10.00 am

Venue: Council Chamber, Level 2, Town Hall Extension

This is a **Supplementary Agenda** containing additional information about the business of the meeting that was not available when the agenda was published

Access to the Public Gallery

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Filming and broadcast of the meeting

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Membership of the Environment and Climate Change Scrutiny Committee

Councillors - Butt, Chohan, Flanagan, Foley, Hassan, Holt, Hughes, Igbon (Chair), Jeavons, Lynch, Lyons, Razaq, Sadler, Shilton Godwin and Wright

Supplementary Agenda

6. **Manchester Climate Change Agency Progress Report 2021/22** 3 - 70

Report of the Interim Director and the Interim Policy and Strategy Advisor, Manchester Climate Change Agency

This report provides a progress update to the Committee on the Climate Change Agency's achievements to date during the year and reviews work in progress.

Further Information

For help, advice and information about this meeting please contact the Committee Officer:

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This supplementary agenda was issued on **Thursday, 2 September 2021** by the Governance and Scrutiny Support Unit, Manchester City Council, Level 3, Town Hall Extension, Manchester M60 2LA

Manchester City Council Report for Information

Report to:	Environment and Climate Change Scrutiny Committee – 9 September 2021
Subject:	Manchester Climate Change Agency Progress Report 2021/22
Report of:	The Interim Director - Manchester Climate Change Agency and The Interim Policy and Strategy Advisor - Manchester Climate Change Agency

Summary

This report provides a progress update to the Committee on the Climate Change Agency's achievements to date during the year and reviews work in progress. Traditionally the Manchester Climate Change Partnership's Annual Report has been published in July and launched at the Annual Conference. This year, under recommendation from the Partnerships' Independent Advisory Groups, the publication of the report has been pushed back until September, to better align with the release of Government CO2 data published by the Department of Business, Energy and Industrial Strategy (BEIS). It is anticipated that the Annual Report will be signed off at the Partnership meeting on the 23rd of September.

Recommendations

The Environment and Climate Change Scrutiny Committee is requested to:-

1. Note the Manchester Climate Change Partnership and Agency's progress during 2021/22 (Section 2).
 2. Note Citywide progress during 2020/21 (Section 3 and Appendix 1).
 3. Note the expansion underway of Manchester Climate Change Partnership and the increase in capacity of the Manchester Climate Change Agency (Section 2).
 4. Note the progress on developing the updated city wide Manchester Climate Change Framework 2020-25 (Framework 2.0), the planned work to involve local communities and businesses in its development and development of the Implementation Plan for 2022-25 (Section 4).
 5. Agree that the Partnership's priorities for 2021/22 and the draft Implementation Plan for Framework 2.0 be brought to the November meeting of the Committee for consideration.
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Wards Affected: All

Environmental Impact Assessment - the impact of the issues addressed in this report on achieving the zero-carbon target for the city

This report is based on the Manchester Climate Change Framework 2020-25 and progress towards its implementation. The Framework's aim is that 'Manchester will play its full part in limiting the impacts of climate change and create a healthy, green, socially just city where everyone can thrive.' And includes the carbon reduction objective: 'To ensure that Manchester plays its full part in helping to meet the Paris Agreement objectives by keeping our direct CO₂ emissions within a limited carbon budget, taking commensurate action on aviation CO₂ emissions and addressing our indirect / consumption-based carbon emissions.'

Manchester Strategy outcomes	Summary of how this report aligns to the OMS
A thriving and sustainable city: supporting a diverse and distinctive economy that creates jobs and opportunities	The Framework includes the objective: 'To ensure that Manchester establishes an inclusive, zero carbon and climate resilient economy where everyone can benefit from playing an active role in decarbonising and adapting the city to the changing climate.'
A highly skilled city: world class and home-grown talent sustaining the city's economic success	The Framework includes the objective: 'To ensure that Manchester establishes an inclusive, zero carbon and climate resilient economy where everyone can benefit from playing an active role in decarbonising and adapting the city to the changing climate.'
A progressive and equitable city: making a positive contribution by unlocking the potential of our communities	The Framework includes the objective: 'To improve the health and wellbeing of everyone in Manchester through actions that also contribute to our objectives for CO ₂ reduction and adaption and resilience, with particular focus on those most in need.'
A liveable and low carbon city: a destination of choice to live, visit, work	The Framework includes the objective: 'To improve the health and wellbeing of everyone in Manchester through actions that also contribute to our objectives for CO ₂ reduction and adaption and resilience, with particular focus on those most in need.'
A connected city: world class infrastructure and connectivity to drive growth	The Framework's 'Transport and Flying' section sets out five headline actions: 'Increase walking and cycling; Increase public transport use; Private vehicles; Rail connections to other cities within the UK and Europe (and beyond); work with UK Government to ensure that flights from Manchester Airport and all UK airports are fully in line with the Paris Agreement.'

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Background documents (available for public inspection):

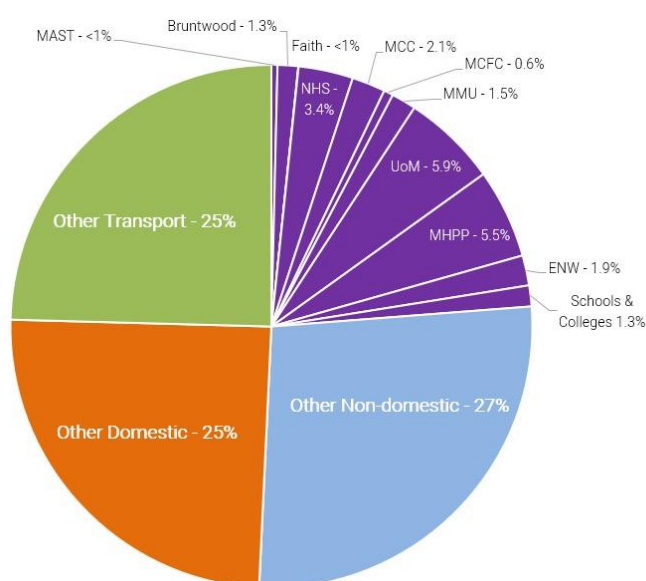
The following documents disclose important facts on which the report is based and have been relied upon in preparing the report. Copies of the background documents are available up to 4 years after the date of the meeting. If you would like a copy please contact one of the contact officers above.

Manchester Climate Change Framework 2020-25
<https://www.manchesterclimate.com/framework-2020-25>

Manchester Climate Change Annual Report 2020
<https://www.manchesterclimate.com/progress>

1.0 Introduction and Background

- 1.1 The Our Manchester Strategy sets out the commitment that *'Manchester will play its full part in limiting the impacts of climate change.'*
- 1.2 The responsibility for developing and facilitating the delivery of the citywide strategy to fulfil this commitment is devolved to the Manchester Climate Change Partnership (the Partnership, MCCC) and Manchester Climate Change Agency (the Agency, MCCA).
- 1.3 The Partnership brings together organisations from the city's public, private, community, faith, education and academic sectors that share the common goal to achieve the ambitious objectives and targets in the Manchester Climate Change Framework 2020-25. The members of the Climate Change Partnership are held to account for the progress that they are making in delivering reductions in emissions within their own organisations. Later in the report we describe the efforts being made to expand the Partnership's membership base further to cover a larger slice of the city's emissions. The Partnership seeks to provide leadership and influence for the city by emphasising that addressing climate change is the responsibility of all organisations and individuals in the city and should not be seen as only the responsibility of the Council and the wider public sector.
- 1.4 As part of the work to produce Framework 1.0, the Partnership members' impact on the City's emissions was quantified by Anthesis. Based on direct ownership and control, these stakeholders account for approximately 20% of the city's footprint (predominantly relating to the direct emissions disclosed by each of the individual organisations). Note that the below does not include organisation's consumption-based emissions (e.g. 3rd party supplier transport or employee commuting). These wider emissions impacts will be explored for certain sectors and organisations as part of Framework 2.0.



Manchester Climate Change Partnership

1. Arts & culture
2. Bruntwood (property)
3. Faith
4. Health
5. City Council
6. Manchester City Football Club
7. Manchester Met University
8. University of Manchester
9. Mcr Housing Providers
10. Electricity Northwest
11. Schools & colleges

MANCHESTER
CLIMATE CHANGE PARTNERSHIP

- 1.5 The Partnership therefore works with the Manchester Climate Change Agency, Manchester communities and businesses, and other relevant partners to ensure that Manchester develops and successfully implements a city climate change strategy aligned with the latest science and built on the views of city stakeholders. It aims to ensure this is consistent with:
- a) The commitment in the Our Manchester Strategy 2016-25 and the Manchester Climate Change Framework that the city will ‘play its full part in limiting the impacts of climate change... and create a healthy, green, socially just city where everyone can thrive’
 - b) The declaration of a climate emergency by Manchester City Council in July 2019,
 - c) The Paris Agreement, and any subsequent global agreement signed by the UK Government to limit global climate change,
 - d) The critical importance, as noted in the Our Manchester Strategy, to create a fair and equitable city where everyone can contribute to and share in success.
- 1.6 In February 2020, the Partnership and Agency published Version 1.0 of the Manchester Climate Change Framework 2020-25 as the city’s high-level strategy for achieving the commitment to ‘play our full part’.
- 1.7 Framework 1.0 was endorsed by Manchester City Council’s Executive in March 2020, formally establishing it as the city’s climate change strategy.
- 1.8 The Framework’s aim is that:
- ‘Manchester will play its full part in limiting the impacts of climate change and create a healthy, green, socially just city where everyone can thrive.’*
- 1.9 The Framework sets out four headline objectives:
- 1) Staying within our carbon budgets:
- ‘To ensure that Manchester plays its full part in helping to meet the Paris Agreement objectives by:
- keeping our direct CO₂ emissions within a limited carbon budget,
 - taking commensurate action on aviation CO₂ emissions and
 - addressing our indirect / consumption-based carbon emissions.’
- 2) Climate adaptation and resilience:
- ‘To adapt the city’s buildings, infrastructure and natural environment to the changing climate and to increase the climate resilience of our residents and organisations.’
- 3) Health and Wellbeing:

‘To improve the health and wellbeing of everyone in Manchester through actions that also contribute to our objectives for CO2 reduction and adaption and resilience, with particular focus on those most in need.’

4) Inclusive, Zero Carbon and Climate Resilient Economy:

‘To ensure that Manchester establishes an inclusive, zero carbon and climate resilient economy where everyone can benefit from playing an active role in decarbonising and adapting the city to the changing climate.’

1.10 And six priority areas for action:

1) Buildings (existing and new)

- Increasing the pace of retrofitting properties with insulation and new heating systems
- Introducing energy saving measures
- Reducing the carbon impact of new buildings

2) Renewable energy

- Switching to renewable energy suppliers
- Increasing the pace of solar panel installation

3) Transport and flying

- Using cars less and making more journeys by public transport, on foot and by bike.
- Taking less flights
- Encouraging the use of electric vehicles

4) Food

- Cutting food waste
- Encouraging plant based diets
- Eating more seasonal produce

5) The things we buy and throw away

- Repairing, re-using and re-cycling more.
- Wearing clothes to last
- Reducing the use of single use plastics

6) Green infrastructure and nature-based solutions

- Planting more trees
- Investing in green infrastructure

1.11 Approach to implementation – bottom-up and top-down:

1.12 The Framework sets out that the approach to making progress in these six areas will be through a combination of ‘bottom-up’ and ‘top-down’ actions:

Bottom-up – engaging and mobilising residents and businesses

- 1.13 Every individual and organisation in the city needs to play their part in helping the city to meet its targets, and, at the same time, realising the wider financial, health and wellbeing benefits that will also come as a result. The Agency has developed a list of 15 suggested Actions for every individual and organisation in the city to take: <https://www.manchesterclimate.com/15-actions>.

Top-down – removing barriers

- 1.14 There will be occasions when structural or systemic barriers prevent or limit the city's residents and businesses from fully delivering the 15 Actions. In these instances, new 'top-down' or strategic interventions are needed to remove the barriers. For example, the delivery of new cycling infrastructure to enable residents to cycle safely, changes in school or council policy to enable school children to follow a plant-based diet, changes in national policy and legislation to incentivise business investments in energy efficiency improvements.

Facilitating the implementation of the Framework

- 1.15 The Framework's implementation is championed and facilitated by the Agency and Partnership. The preferred approach is to work with existing structures and organisations, as far as possible. However, whenever required, the Partnership and Agency work with partners to create new structures and partnerships to ensure the successful delivery of the Framework.

2.0 Partnership and Agency Progress 2021/22

- 2.1 A key focus in the past year has been to strengthen the capacity of the organisation at all levels - Partnership, the Agency CIC (Community Interest Company) Board and the Agency Team. A new Chair of the Partnership was appointed in November 2020 - Mike Wilton, Manchester Office Lead for Arup. Interviews have recently been held to consider applications for the CIC Board and four new Directors have been invited to join. An enhanced staffing structure was approved in May 2021, designed to double the Agency's capacity, and appointments have now been made to the Director role, Sam Nicholson, currently Zero Carbon Manager for the Council, and the Policy & Strategy Lead role, Sean Morris, currently Principal Policy Officer / UK & Ireland NFLA & Mayors for Peace Chapter Secretary. A recruitment process has been commenced to appoint to the Deputy Director role.
- 2.2 In September 2020 the Agency responded to the Our Manchester Strategy Consultation, the response set out twelve proposals that will help the city to both recover from COVID and take action in line with the commitments in the Manchester Climate Change Framework 2020-25. The refreshed strategy, The Our Manchester Strategy Reset: Forward to 2025, was published in March 2021. It includes the commitment from the original strategy that 'Manchester will play its full part in limiting the impacts of climate change', as one of the six strategic priorities. Following the representation made by the

Partnership and Agency, it commits the city to reduce its direct CO2 emissions by 50% during 2021-25, towards Manchester becoming a zero carbon city by 2038, at the latest.

- 2.3 Steps have been taken to further develop the membership of the Partnership, including through Manchester's participation in the 'City-Business Climate Alliance' (CBCA) project with seven other global cities, the C40, CDP (formally, Carbon Disclosure Project) and World Business Council for Sustainable Development (WBCSD). Throughout 2020 and 2021 work has been ongoing through the CBCA project and the Zero Carbon Business Working Group to understand the barriers against taking action on climate change faced by Manchester's Business. In March 2021, MCCA in partnership with C40, CDP and WBCSD, held a Zero Carbon Business Workshop as a first step towards launching our Zero Carbon Business Programme in early 2022. 25 key Manchester Businesses came together to discuss what they are already doing to tackle climate change and the support they need to take more comprehensive action.
- 2.4 The Zero Carbon Business Working Group has now been established, led by the CEO of GM Chamber of Commerce and including representatives from the Growth Hub, Manchester City Council, the City Business Climate Alliance and the World Business Council for Sustainable Development. With the inclusion of external expertise on inclusive growth it is anticipated that the Working Group will evolve into an Advisory Group once the Zero Carbon Business Programme is launched in early 2022.
- 2.5 A call has been published to expand the membership of the Partnership so that it captures around 50% of the city's direct emissions with influence over the remaining 50%¹. The first application has been received and business engagement criteria are being developed in conjunction with CBCA.
- 2.6 Partners progress on Climate Change action plans continues to be monitored by the Partnership with presentations in 2020/21 from Manchester Metropolitan University and MAST (Manchester Arts Sustainability Team). In expanding the Partnership, rigorous engagement criteria have been adopted to ensure a commitment to climate action as well as collaborating across the city. A bid has been made to the Community Renewal Fund, in conjunction with the Growth Company and GM Chamber of Commerce, to kick-start the Zero Carbon business Programme. It is anticipated that a Zero Carbon Business Lead based at GM Chamber will be appointed in the very near future.
- 2.7 In May 2021 the Agency, in partnership with environmental charity Hubbub and The National Lottery's Climate Action Fund launched the largest community climate change campaign in Manchester called "# In Our Nature". The programme delivery is led by a strategic partnership between Manchester Climate Agency and Partnership, Hubbub, The Tyndall Centre for Climate

¹ https://www.manchesterclimate.com/join_partnership

Change Research at the University of Manchester, Amity CIC, Commonplace and Southway Homes². This year-long innovative programme will support several communities across the city to develop community climate action plans and support communities and residents across the city to understand and act on climate change. Through supportive and shared local campaigns, partnership working and developing projects that mobilise community strengths, experiences, and energy, we hope that together we can ignite a community led network of climate active neighbourhoods that will involve Local ward councillors.

- 2.8 The Agency has appointed a Youth Champion to drive forward the priorities of the Climate Change Youth Board and ensure the voices and aspirations of young people are represented at every level. The Agency has supported the development of the Youth Board's manifesto which will be launched in September 21 – this will be a nationwide first and cements Manchester's commitment to an inclusive and people driven approach to meeting net zero by 2038.
- 2.9 Following an unprecedented year, due to relevant partners' focus on COVID-19 during 2020, the Partnership has re-engaged with Health & Social Care Partners during 2021. The intention is to liaise with the GM Health & Social Care Operational Group to involve them in the development of Framework 2.0, see below. Also, to engage with the Manchester Health & Well Being Board to ascertain whether they would prefer to act as a direct sounding board or create a Health, Wellbeing and Climate Change Advisory Group as originally envisaged.
- 2.10 The Partnership has recently adopted a policy document, "*A Roadmap to Net Zero Carbon New Buildings*"³. A Task Group of private, public and third sector representatives was brought together to develop the policy, supported by the UK Green Building Council and involved representatives from the City Council.

The policy document has been well received and a good deal of expertise, experience and professional rigour has been applied in producing a ground-breaking piece of work that will continue to enhance Manchester's leadership in addressing the pressing issue of climate change. Over the autumn of 2021 we will continue the dialogue with all those involved in commissioning new buildings in the city to further refine the proposed Manchester Standard, and to work with those who could be involved in its implementation.

The policy document has received a warm welcome from the City Council as indicated by the statement from the Council's Deputy Leader, Cllr Luthfur Rahman OBE, Deputy Leader of Manchester City Council, who said:

"Manchester is committed to becoming a zero carbon city. The Partnership's Roadmap, including the proposed Manchester New Build Standard, is a welcome contribution to the important discussion about how we will achieve this goal."

² <https://zerocarbonmanchester.commonplace.is/project-team>

³ <https://www.manchesterclimate.com/news/2021/08/ZCNB>

The issue of climate change will be at the heart of the forthcoming refresh of Manchester's Local Plan. We will look at how our planning and development system can support zero carbon objectives, and we will consider the Partnership's proposals as part of this process."

- 2.11 One of the key tasks for the Agency in 2021/22 is to develop a plan for refreshing the current Framework 1.0. The objective is the production of a draft Framework 2.0 for consultation by September 2021 and a final Framework 2.0 by March 2022, at the latest, as part of the EU-funded Zero Carbon *Cities* project⁴. The City Council, working with MCCA, has procured Anthesis, an environmental consultancy, to support the development of the Framework and Action Plan. Further detail on the process for production and the content of Framework 2.0 is outlined in Section 4.
- 2.12 Action has been taken at all levels to ensure inclusion in the Partnership's work. In expanding membership of the Partnership particular efforts are being made to encourage under-represented groups and organisations to participate. Similarly, in the adverts for CIC Board Directors and Staff vacancies, applications have been welcomed from women, young people and those demographic groups under-represented. Additionally, a diverse demographic profile has been adopted for recruitment of citizen representatives to the Community Assemblies. Although work in this area has been delayed due to COVID-19 the Agency is planning to take a more robust approach to diversity and inclusion in 2021/22 and determine whether it is appropriate to establish an advisory group or to continue to mainstream diverse representation at each level.

3.0 Citywide Progress 2020/21

Overview

- 3.1 The Manchester Climate Change Partnership and Agency is provided with independent advice from academics and subject experts via the Zero Carbon Advisory Group, and the Adaptation & Resilience Advisory Group. Their reports on the citywide progress made in 2020/21 is contained at Appendix 1.
- 3.2 The progress made against the ambition to stay within our carbon budgets is illustrated in Figure 1 in Appendix 1. Manchester's direct energy use carbon dioxide (CO₂) emissions fell by 3% between 2018 and 2019. A provisional estimate for 2020 suggests that emissions may have fallen by a further 11% in the past year, much of this decrease being due to Covid-19 restrictions.
- 3.3 The graph shows Manchester's historic energy related CO₂ emissions (emissions from direct fuel use in buildings, transport and industry, and electricity on a Scope 2 basis), with estimated emissions for 2019 and 2020 based on the national trend. The figure also shows the recommended emissions pathway related to the Manchester carbon budget. The estimated annual energy use emissions of CO₂ for Manchester in 2020 are 1.8MtCO.

⁴ <https://urbact.eu/zero-carbon-cities>

- 3.4 The emissions trend in the first three years of the carbon budget period (though 2020 is a provisional estimate) show Manchester is not yet following the recommended pathway, meaning that the carbon budget is being used at a faster rate. The distribution of the carbon budget can be varied in a number of ways, however slower reduction rates must be compensated for by faster reduction rates in the future to keep within the budget. Notably the estimated 11% drop in emissions in 2020, largely due to Covid-19 restrictions, still do not match the rate of mitigation needed to get Manchester onto the emissions pathway to stay within the carbon budget. An average reduction rate of 16% per year would therefore now be required to stay within the budget based on an even distribution of the budget. Framework v2 will identify the critical actions that will need to be taken across the City if we are to return to the trajectory required to stay within the carbon budget.

Aviation

- 3.5 The COVID-19 pandemic had an unprecedented impact on many sectors of the economy, and the aviation industry had a particularly significant impact. Restrictions on non-essential travel saw passenger numbers at Manchester Airport fall by 94% from 29.3 million in 2019 to 1.6 million in 2020.
- 3.6 Reduced demand and social distancing also led to a marked drop in load factors from 82% in 2019 to 64.5% in 2020. With planes flying with fewer passengers, this in turn led to a 63% increase in emissions per passenger. As a result, we estimate that the fall in emissions from flights from Manchester Airport was slightly less steep than that in passenger numbers - a 91% reduction from 3.7 million tonnes CO₂ in 2019 to 0.34 million tonnes CO₂ in 2020.
- 3.7 There is still a great deal of uncertainty about the speed and nature of the aviation industry's recovery. The industry is expecting a relatively quick rebound in leisure flights, but the future trajectory of business flights is less clear with virtual meetings having become embedded during the pandemic. The aviation sub-group will continue to monitor aviation emissions, and work with the Partnership to help members play their part in keeping to a pathway aligned with the Tyndall carbon budget and the recommendations of the Climate Change Committee.

Consumption

- 3.8 A consumption-based approach measures all of the carbon emissions consequent of goods and services consumed within the city, regardless of where they are produced. This contrasts the 'direct' or 'production-based' approach that underpins Manchester's zero-carbon budget, which instead relates to emission directly occurring within the city and those underpinning the electricity it consumes.
- 3.9 The Centre for Research into Energy Demand Solutions (CREDS) has developed a place-based consumption-based carbon calculator. CREDS

estimate that Manchester residents are responsible for 5,645.3 kgCO₂e - 29% lower on a per capita basis than the England average. Based on the population of the city in 2019 we can estimate a total consumption-based footprint of 3.12 MtCO₂e for Manchester in the year 2019.

- 3.10 It is too early to say what effect the UK COVID-19 lockdowns and their economic consequences might have had on our consumption-based footprint. One study in Italy predicted that consumption-based emissions had fallen by 20%, whilst planetary emissions fell by around 7%.

Adaptation and Resilience

- 3.11 Irrespective of the rate of carbon reduction that is achieved in Manchester, the city is already exposed to a range of weather hazards. Earlier this year, the Agency published *Manchester's climate risk: a framework for understanding hazards & vulnerability*⁵. This document establishes an evidence base and structure for more detailed climate risk assessments for the city and its stakeholders. It identifies weather related hazards in the city and considers how climate change might affect them. It also establishes a framework to support a comprehensive assessment of the city's vulnerabilities and exposure to climate change and to evaluate our capacity – or lack thereof – to respond to these threats.
- 3.12 Although the risk associated with climate change cannot be eliminated altogether, it is possible to build capacity and take action to adapt and to enhance climate resilience. On-going work at the Agency will develop an overarching strategic vision for a more climate resilient Manchester. Making progress is further supported by the bolstering of strong stakeholder networks in Manchester, and more widely in Greater Manchester and beyond.

4.0 Framework 2.0

- 4.1 Members will be aware that Manchester was one of the first cities to adopt science-based carbon budgeting. For direct emissions, Manchester has set a carbon budget of 15 million tonnes for 2018-2100. This means Manchester needs to reduce its carbon emissions by at least 13% per year, 50% during 2020-25, en-route becoming a zero-carbon city by 2038, at the latest. The key challenge is to ensure that specific actions are developed across sectors to deliver the target.
- 4.2 The Climate Change Partnership has been given the role of developing and facilitating the delivery of Manchester's strategy to ensure it plays its full part in limiting the impacts of climate change. Version 1.0 of the Manchester Climate Change Framework 2020- 25 was published in February 2020 and was formally endorsed by the City Council in March 2020. Version 2.0 of the Framework for 2020-25 and a new Implementation Plan are being produced during 2021 to provide more detail of what actions need to be taken to achieve the level of carbon reduction required.

⁵ <https://www.manchesterclimate.com/sites/default/files/Climate%20vulnerability%20framework.pdf>

Framework 2.0 will have 5 key components:

- Overall Aim
- Headline objectives: CO2 reduction, climate adaptation and resilience, health and inclusive economy
- Thematic Objectives: buildings, renewable energy, transport, food, things we buy and throw away, green infrastructure and nature-based solutions
- Bottom up – Actions for all residents and businesses
- Top Down - Setting out an approach to removing barriers to action: included in the development of detailed Implementation Plan

4.3 The City Council, working with MCCA, has procured Anthesis, an environmental consultancy, to support the development of the Framework and Action Plan. The process will involve the following stages:

- Development of thematic objectives and potential actions for residents and businesses
- Consultation 1 with residents and businesses asking them “What actions are you already taking?” and “What barriers are preventing you from taking further actions?”
- Development of a Draft Implementation Plan
- Consultation 2 on Draft Implementation Plan – “Are these the right actions to remove your barriers to taking action?” (October to November 2021)
- Final Framework Published (January/February 2022)
- Formal approval by MCCP and the City Council (March 2022)

4.4 Science based targets will determine the pace of change required. Consultants will define these for different sectors, recognising that progress is likely to be faster in some areas than in others. The actions will be focused on the following key themes:

- Buildings
- Renewable energy
- Transport
- Food
- Things we buy and throw away,
- Green infrastructure and nature-based solutions

4.5 For each theme the aim is to develop Specific, Measurable, Achievable, Realistic and Time Bound (SMART) objectives. The objectives will be accompanied by a list of specific actions that will signpost Manchester people, businesses and other organisations to take the actions required.

4.6 The aim is that the Framework and Implementation Plan will provide the city with a clear set of actions that will, if taken, reduce emissions by the required amount by 2025 to ensure that the city stays within its carbon budget and remains on track to become a zero-carbon city by 2038 or earlier. Throughout this process the intention is that barriers will have been identified and removed to enable citizens and businesses to take the actions that are required. In overall terms the Framework is intended to further support efforts to position

the city as a leader, both nationally and internationally, in the response it is taking to mitigation, adaptation and resilience. As a result the objective is that through these actions the city will be seen as a better place to live, work, play and invest in because of the progressive approach it is taking to this key global challenge.

- 4.7 Given the correlation between climate action and the wider work of the Scrutiny Committee, it is vitally important that members represented on the Committee are able to contribute to this work. Therefore, it is proposed that the draft Implementation Plan for Framework 2.0 consultation is brought back to the next meeting of the committee for consideration.

5.0 National Policy and Local – National Government Joint-working

- 5.1 As the Agency and Partnership seek to lead the work to tackle climate change at the city level through ambitious plans for carbon reduction, the national policy context is also often critical in helping to unblock barriers to action.

- 5.2 The Government has published a series of strategy documents relating to its national Zero Carbon ambitions earlier in the year including its Industrial Decarbonisation Strategy and Transport Decarbonisation Plan. Others, such as a Heat and Buildings Plan, were delayed further and won't now be published until after the parliamentary recess. The overarching Government Net Zero Strategy is expected to be published in the Autumn, prior to the UN Climate Change Conference of the parties (COP 26) which takes place in Glasgow between the 31st of October and 12th November.

- 5.3 Earlier this year the Committee on Climate Change (CCC) called on Government to provide local authorities with more powers to act to address Climate Change. In particular in its report on the sixth carbon budget the CCC made a set of recommendations as follows:

- The UK Government and local authorities share a common goal to deliver Net Zero.
- The Sixth Carbon Budget can only be achieved if Government, regional agencies, and local authorities work seamlessly together.
- More than half of the emissions cuts needed rely on people and businesses taking up low-carbon solutions – decisions that are made at a local and individual level. Many of these decisions depend on having supporting infrastructure and systems in place. Local authorities have powers or influence over roughly a third of emissions in their local areas.
- Top-down policies go some way to delivering change but can achieve a far greater impact if they are focused through local knowledge and networks.
- Four key things are needed to achieve this vision of collaborative delivery:
 - **Framework:** An agreed framework for delivery for Net Zero incorporating local and national climate action
 - **Financing:** Appropriate long-term financing to support local authorities in delivering Net Zero

- **Flexibility:** Local operational flexibility around how local areas address climate change
- **Facilitation:** coherent policy and powers for the facilitation of delivery.

5.4 The call for the development of an agreed framework for delivery incorporating local and national action was taken up by the UK100 group, an alliance of local authorities working together on the climate change agenda. In July UK 100 issued a joint communique signed by Metropolitan Mayors and local authority leaders which urged central government to take the following steps:

- Retain the urgency from the pandemic to build a green recovery.
- Change national rules and regulations to enable local councils to do more on climate.
- Create a framework for delivery of climate targets with local flexibility.
- Investment in green jobs and schemes at scale, and in delivery at the local level.
- A consistent message from across government prioritising Net Zero.
- Better or more appropriate powers for councils on housing, planning, and transport and more capacity to implement them.

5.5 The Agency will continue to work with UK 100 on this agenda in the run up to COP26 and members will be kept up to date on national policy announcements and their implications for our work to tackle climate change across the city.

6.0 Recommendations

6.1 Recommendations are at the front of this report.

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Citywide Progress 2020-21

Appendix 1

Staying within our carbon budgets: Where do our emissions come from?

There are three main sources of CO₂ emissions that Manchester is responsible for or which we have influence over:

- Direct (energy-related) CO₂ emissions: from homes, workplaces and ground transport activities inside the city.
- Aviation CO₂ emissions: from flights taken by Manchester residents and organisations, from Manchester and other UK airports. Also recognising that we have a responsibility to work with UK Government, UK airports and others to ensure that emissions from all flights from Manchester Airport are in line with the Paris Agreement.
- Indirect / consumption-based CO₂ emissions: from the things that we buy and ultimately dispose of, for example, food, clothes, phones, electrical equipment, furniture, construction materials, many of which are produced outside of the city."

Staying within our carbon budgets: Direct Emissions

Prepared by Dr Chris Jones (University of Manchester)¹

Manchester's direct energy use carbon dioxide (CO₂) emissions fell by 3% between 2018 and 2019 [1]. A provisional estimate² for 2020 suggests that emissions may have fallen by a further 11% in the past year due to Covid-19 restrictions.

Figure 1 shows Manchester's historic energy related CO₂ emissions (emissions from direct fuel use in buildings, transport and industry, and electricity on a Scope 2 basis), with estimated emissions for 2019 and 2020 based on the national trend. The figure also shows the recommended emissions pathway related to the Manchester carbon budget. The estimated annual energy use emissions of CO₂ for Manchester in 2020 are 1.8MtCO₂.

¹ **NB:** All views contained within this report are attributable solely to the author and do not necessarily reflect those of researchers within the wider Tyndall Centre for Climate Change Research.

² The interim provisional estimate provided here is based on the latest provisional statistical release for UK territorial energy related CO₂ emissions (international aviation, shipping and land use CO₂ emissions removed for consistency with local data) at the time, which covers 2019 and 2020 [3]. This analysis applies the % year on year change for these emissions at the national level to the latest local authority emissions data for Manchester. This therefore assumes that in 2019 and 2020 Manchester followed the national trend in CO₂ emissions. For reference last year's update report set a provisional emissions change estimate of 4% based on the national trend while 3% was seen in the final data release.

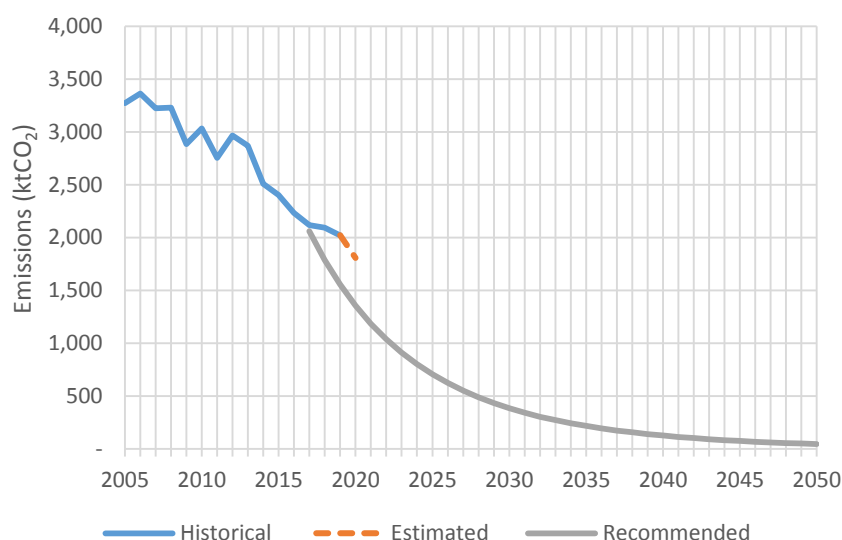


Figure 1: CO₂ Emissions for Manchester (Exc. LULUCF) and Recommended Emissions Pathway for the 2038 Carbon Budget

The latest data release on regional and local CO₂ emissions covers the period of 2005 to 2019. There have been some changes to the methodology for producing local CO₂ emissions sets (See [1]). These have primarily affected land-use based emissions but have also had implications for the energy CO₂ emissions attributed to the city. The variation is negligible for the 2009 to 2011 period but there is an upward revision of energy CO₂ emissions for 2011 to 2018 in the Manchester LA. Table 1 shows how emissions attributed to Manchester in BEIS Local and Regional Database have changed between the 2020 and 2021 releases. The 2021 data release is used in the rest of this report.

	<i>Manchester LA CO₂ Emissions (exc. LULUCF) 2020 Data Release (ktCO₂)</i>	<i>Manchester LA CO₂ Emissions (exc. LULUCF) 2021 Data Release (ktCO₂)</i>	<i>% Difference in Attributed Emissions</i>
2005	3,275	3,275	0.0%
2006	3,364	3,365	0.0%
2007	3,224	3,225	0.0%
2008	3,230	3,230	0.0%
2009	2,884	2,885	0.0%
2010	3,030	3,033	0.1%
2011	2,745	2,755	0.4%
2012	2,951	2,966	0.5%
2013	2,853	2,871	0.6%
2014	2,487	2,511	1.0%
2015	2,374	2,404	1.3%
2016	2,196	2,235	1.8%
2017	2,075	2,118	2.0%
2018	2,035	2,094	2.9%

Table 1: Comparison of Energy Related CO₂ Emissions Attributed to Manchester in 2021 and 2020 Local and Regional Carbon Dioxide Database Statistical Releases.

Manchester 2020 Carbon Target

Manchester has a long-standing carbon commitment to reduce scope 1 and 2 emissions by 41% against a 2005 baseline by 2020. This would equate to a carbon budget for 2005 to 2020 of 41.7 MtCO₂ with a linear (straight-line) reduction rate. Including the provisional figure 2020, emissions for 2005 to 2020 were 42.8 MtCO₂. With the influence of the pandemic Manchester has bettered its 2020 end point goal, with emissions in 2020 45% lower than in 2005, however the implied budget for the period was exceeded by 3%. Without the 11% reduction in emissions largely driven by lockdown restrictions in 2020 it is still likely that Manchester would have still achieved this end point target, having reached a 41% reduction in emissions against the 2005 baseline in 2019.

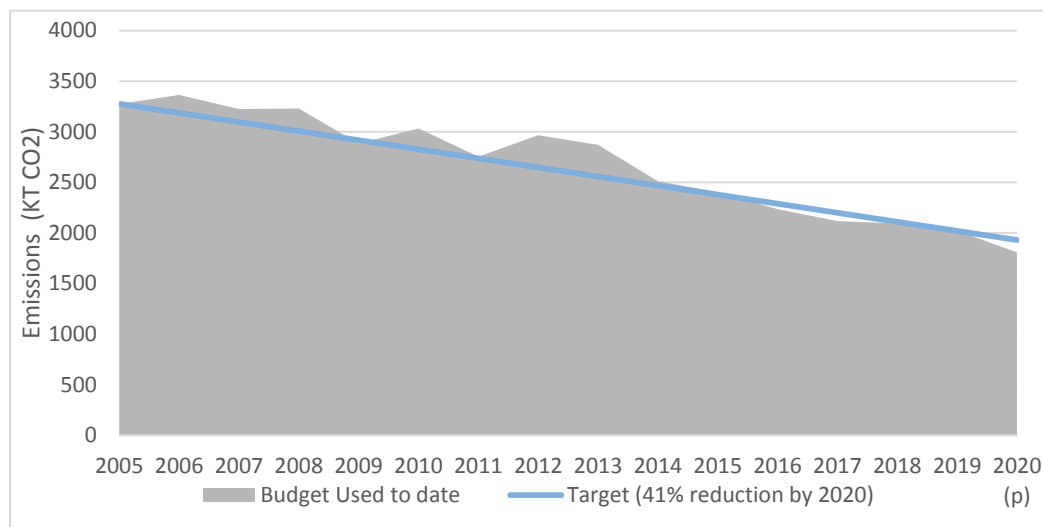


Figure 2: Progress Against Manchester's 2005 to 2020 Target. Data from [1] and Provisional Estimate Based on National Emissions Trend (p).

Progress Against the 15 MtCO₂ Carbon Budget for Making a Fair Contribution to Meeting the UNFCCC Paris Agreement

Manchester has committed to a carbon budget that positions it to make a fair contribution to meeting the goals of the United Nations Paris Agreement. This sets a commitment for the city to limit its carbon emissions from energy from 2018 onwards to 15 MtCO₂ [2]. The figure below shows Manchester's emissions [1] (provisional for 2020) compared to a pathway that evenly distributes the carbon budget over time. The emissions trend in the first three years of the carbon budget period (though 2020 is a provisional estimate) show Manchester is not yet following the recommended pathway, meaning that the carbon budget is being used at a faster rate. The distribution of the carbon budget can be varied in a number of ways, however slower reduction rates must be compensated for by faster reduction rates in the future to keep within the budget. Notably the estimated 11% drop in emissions due to Covid-19 restrictions do not match the rate of mitigation needed to get Manchester onto the emissions pathway to stay within the carbon budget. An average reduction rate of 16% per year would now be required to stay within the budget based on an even distribution of the budget.

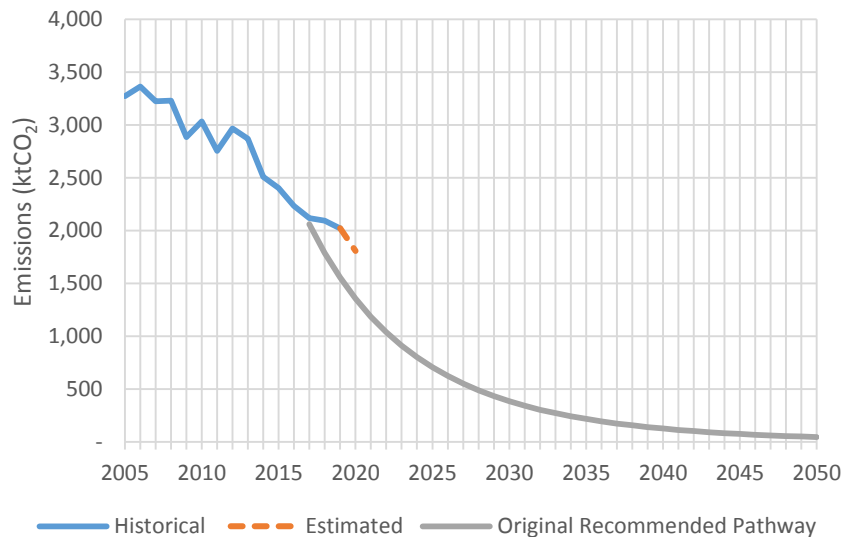


Figure 3: Progress in Reducing Energy Related CO₂ Emissions Against UN Paris Aligned Carbon Budget

The figure below shows how much of Manchester's carbon budget, split into 5-year periods have been used so far. In the first three years 86% of the 2018 to 2022 interim carbon budget has been used. This means that Manchester will almost certainly exceed the first interim budget. The extent to which it does will depend on whether emissions resume, exceed or reverse pre-pandemic trends.

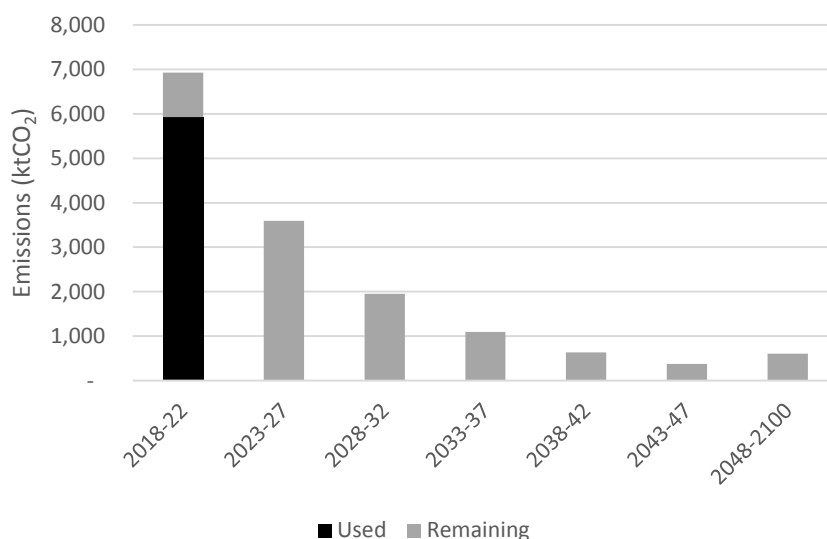


Figure 4: Manchester's Adopted Paris Agreement Aligned Carbon Budgets by Interim Period.

Pre-Covid Emissions Direct Emissions Trend

Due to the Covid-19 pandemic 2020 is a highly irregular year for emissions data. According to the provisional emissions data from BEIS, emissions fell by 11% in 2020 [3]. The biggest contributor to this reduction appears to be transport which had the largest proportional (20%) and absolute (24MtCO₂) decline over the year for the UK as a whole [3]. This sector has strong potential for a rebound if transport demand

is not shifted to active travel and public transport modes on the relieving of Covid-19 restrictions.

Overall, there are considerable risks to Manchester staying within its carbon budget. Previous decreases in UK and Manchester emissions can largely be attributed to the decarbonisation of the UK national grid since 2012. Future emissions reductions will necessarily involve demand and technology changes for transport and the heating of buildings within Manchester itself. Manchester, as with the UK as a whole [4] is not yet on track to meet a Paris Agreement aligned carbon emissions pathway for well below 2°C of global warming.

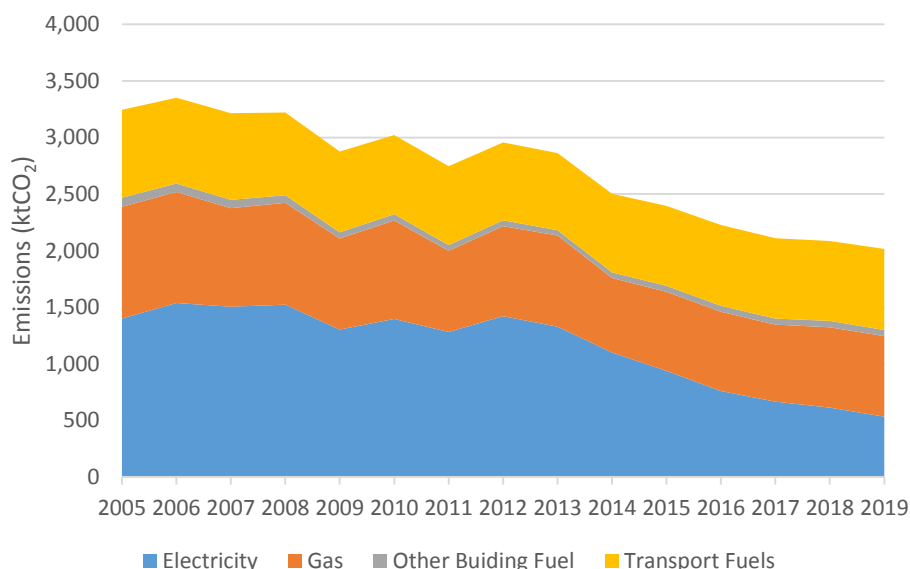


Figure 5: Manchester Direct Energy CO₂ Emissions by Fuel Type 2005 to 2019 [1]

Figure 6 shows how Manchester's direct energy use emissions have changed between 2005 to 2019, as reported in BEIS Local and Regional CO₂ Database. It shows how the significant reduction in electricity use emissions from around 2012 is the main contributor to emissions savings to date. Figure 7 shows that this has happened while Manchester's population has grown, with electricity use emissions falling 64% between 2005 and 2019, while the population grew by 18% over the same period – highlighting the potential for emissions to reduce while population grows. The Figure also shows however that per capita transport and building heating emissions have not fallen significantly and have been largely static since 2013.

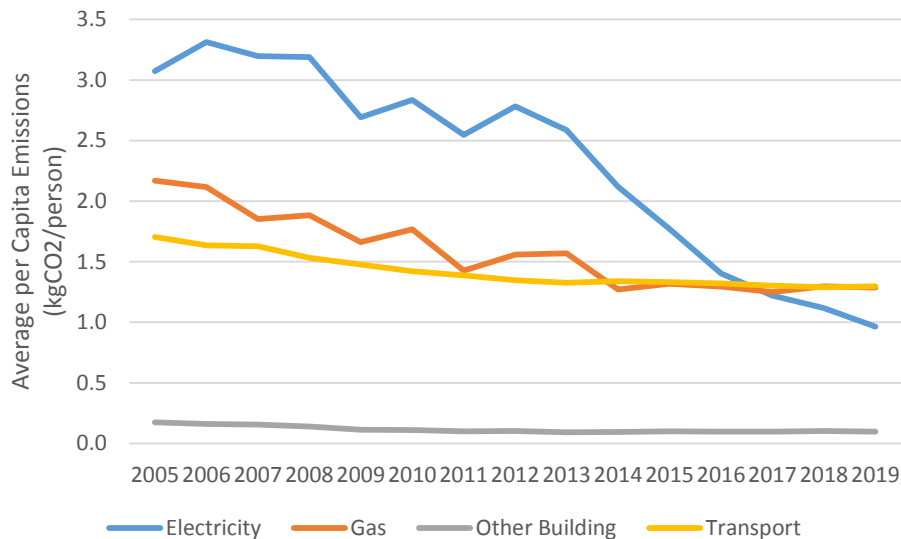


Figure 6: Manchester Direct Energy Use Emissions Averaged per Capita [1]

According to the BEIS data, vehicle emissions on minor roads are an important contributor to the lack of reductions in transport. Across road transport, emissions have reduced very little over the past decade, with an increase in the 2018 to 2019 period. This is likely primarily due to growing vehicle use on minor roads, offsetting some reduced emissions on A-Roads. This also has implications for local air quality and vehicle emissions related ill-health and deaths. There is a wider national trend on transport emissions starting to increase pre-Covid-19 [3] which may reflect changes in the vehicle stock towards heavier petrol and diesel vehicles.³

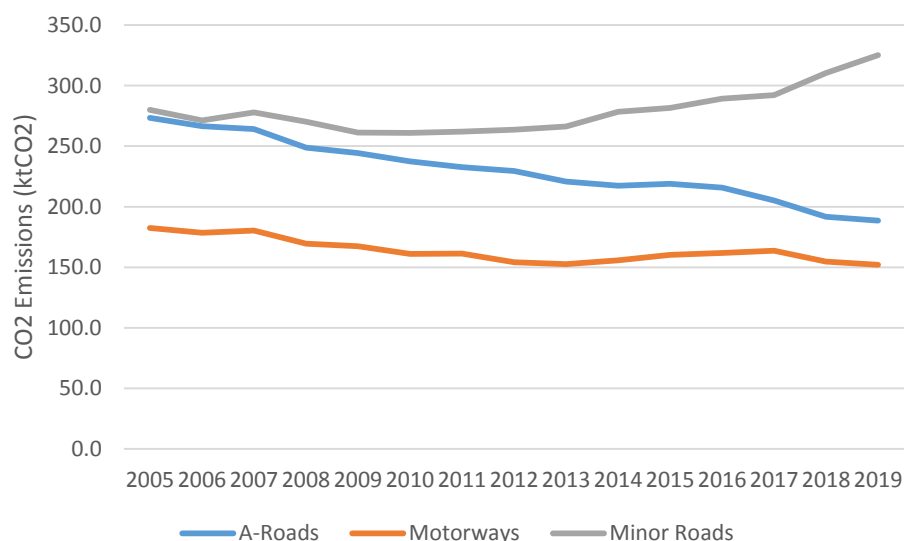


Figure 7: CO2 Emissions from Transport in Manchester LA area [1].

A return to pre-pandemic trends will see Manchester continue to drift off-track from the rates of carbon reduction needed to stay within its Paris Agreement aligned carbon budget. While decarbonisation of the National Grid and improved energy efficiency in electrical appliances will continue to produce some further emissions

³ See <https://www.iea.org/commentaries/growing-preference-for-suvs-challenges-emissions-reductions-in-passenger-car-market>

savings, this alone will not put Manchester on track to meet its climate change goals. City-wide initiatives to tackle natural gas use in homes and fossil fuel transport in Manchester are needed so that these sectors pull their weight. This is a situation replicated at the UK national level where there is a widening gap between stated ambition and policy to achieve this [4]. This risk is amplified if changes post-Covid restrictions, particularly in transport, lead to a rebound in emissions to greater than 2019 levels. It is therefore a critical time for determining whether Manchester can meet its goal on direct energy use CO₂ emissions.

References

- [1] Department for Business, Energy and industrial strategy, "UK local authority and regional carbon dioxide emissions national statistics: 2005-2019," 2021. [Online]. Available: <https://www.gov.uk/government/collections/uk-local-authority-and-regional-carbon-dioxide-emissions-national-statistics%0A>.
- [2] J. Kuriakose, K. Anderson, J. Broderick, and C. Mclachlan, "Quantifying the implications of the Paris Agreement for the City of Manchester," 2018. [Online]. Available: <http://www.manchesterclimate.com/sites/default/files/Manchester Carbon Budget.pdf>.
- [3] Department for Business, Energy & Industrial Strategy, "Provisional UK Greenhouse Gas Emissions National Statistics 1990-2020," 2021. [Online]. Available: <https://www.gov.uk/government/statistics/provisional-uk-greenhouse-gas-emissions-national-statistics-2020>.
- [4] Climate Change Committee, "Progress in reducing emissions 2021 Report to Parliament," 2021. [Online]. Available: <https://www.theccc.org.uk/publication/2021-progress-report-to-parliament/>.

Staying within our carbon budgets: Aviation Emissions

The COVID-19 pandemic had an unprecedented impact on many sectors of the economy, and the aviation industry had a particularly significant impact.

Restrictions on non-essential travel saw passenger numbers at Manchester Airport fall by 94% from 29.3 million in 2019 to 1.6 million in 2020.

Reduced demand and social distancing also led to a marked drop in load factors from 82% in 2019 to 64.5% in 2020. With planes flying with fewer passengers, this in turn led to a 63% increase in emissions per passenger.

As a result, we estimate that the fall in emissions from flights from Manchester Airport was slightly less steep than that in passenger numbers - a 91% reduction from 3.7 million tonnes CO₂ in 2019 to 0.34 million tonnes CO₂ in 2020.

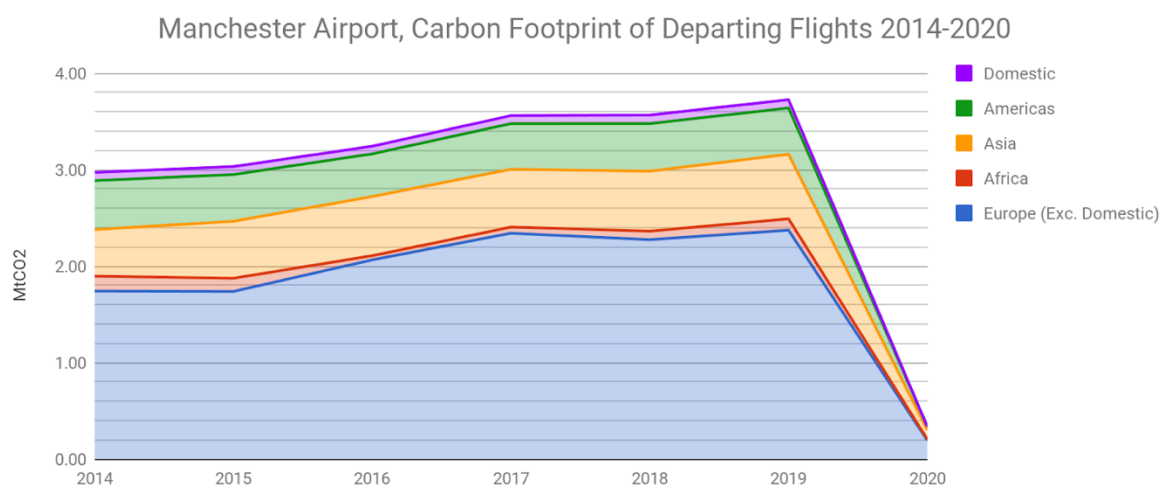


Figure 8: Manchester Airport, Carbon Footprint of Departing Flights 2014-2020

In comparison, UK aviation emissions are projected to have fallen by 75% from 37 million tonnes CO₂ in 2019 to 9.4 million tonnes CO₂ in 2020.

UK Aviation Footprint, Manchester Airport Aviation Footprint

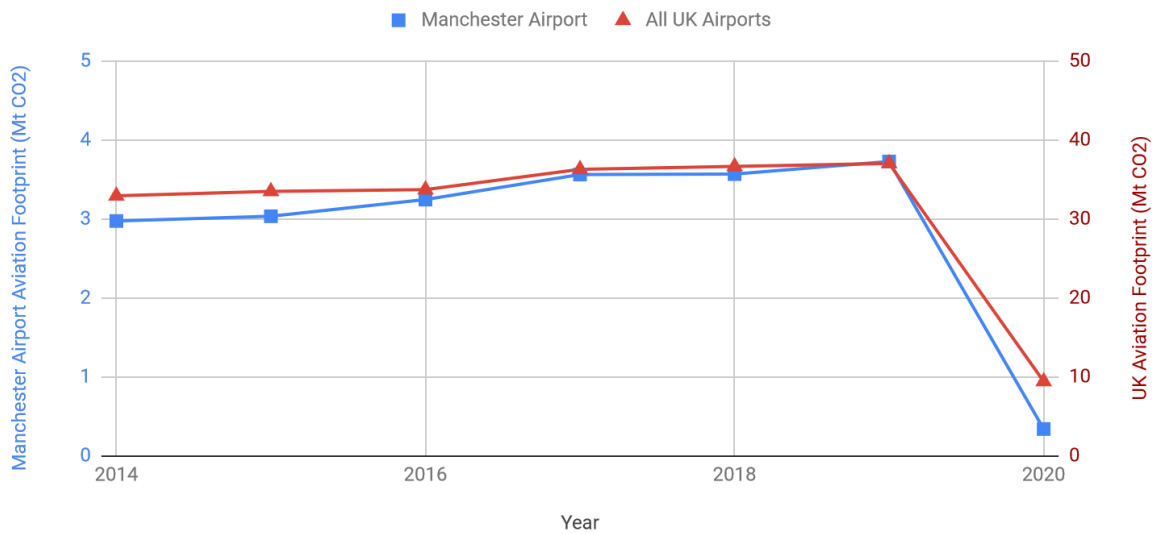


Figure 9: UK Aviation Footprint, Manchester Airport Aviation Footprint

Emissions from flights taken by Manchester residents from all UK airports followed a similar trend, falling by 91% from 0.19 Mt CO₂ in 2019 to 0.018 Mt CO₂ in 2020.

Emissions from Manchester Citizen Flights

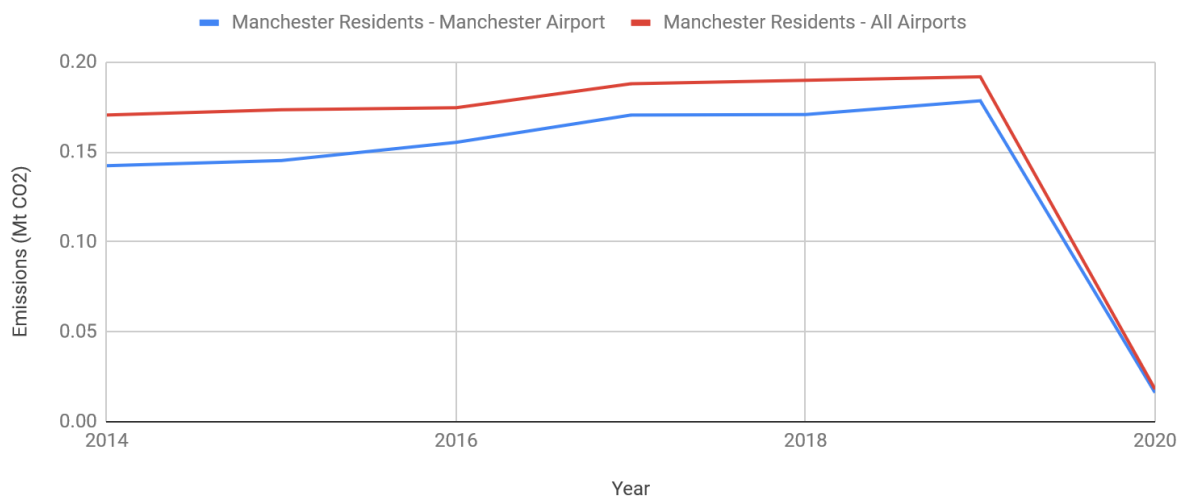


Figure 10: Emissions from Manchester Citizen Flights

In the last year, we've also seen the publication of two notable reports on future UK aviation pathways:

- In 2020, Sustainable Aviation - a coalition of UK airlines, airports, and manufacturers - issued its roadmap to net zero to 2050 through technological improvements, sustainable aviation fields and carbon offsetting and removal, followed in June 2021 by an update with interim targets.

- The Climate Change Committee published its Sixth Carbon Budget, which recommended that aviation emissions in 2030 should be 20% below 2019 levels, without carbon offsetting or removal.

UK aviation pathways (MtCO₂)

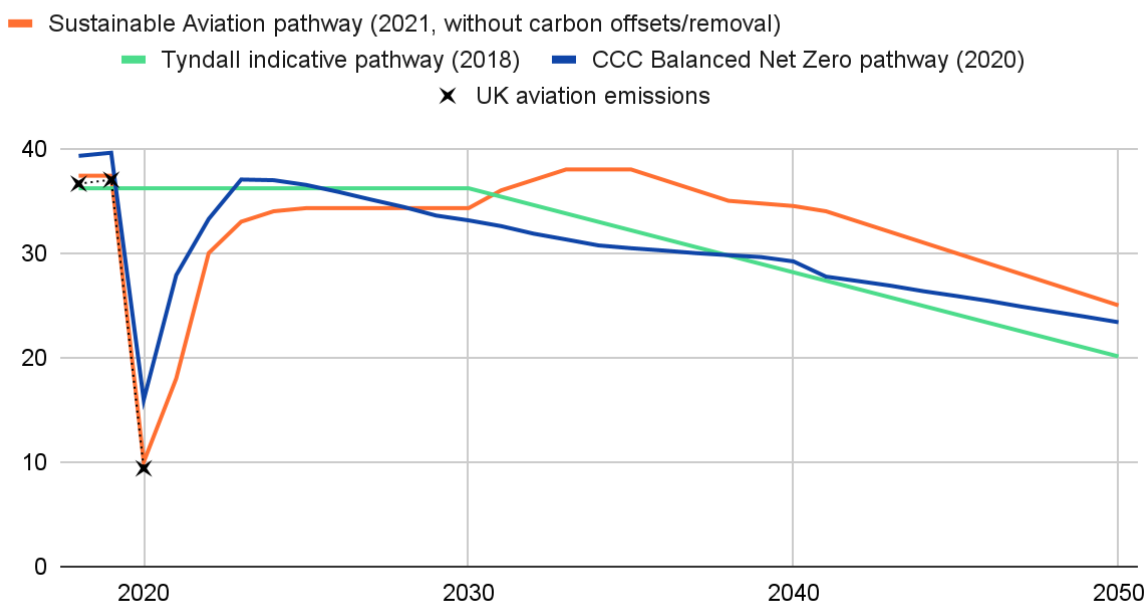


Figure 11: Figure 11 UK Aviation Pathways (MtCO₂)

There is still a great deal of uncertainty about the speed and nature of the aviation industry's recovery. The industry is expecting a relatively quick rebound in leisure flights, but the future trajectory of business flights is less clear with virtual meetings having become embedded during the pandemic.

The aviation sub-group will continue to monitor aviation emissions, and work with the Partnership to help members play their part in keeping to a pathway aligned with the Tyndall carbon budget and the recommendations of the Climate Change Committee.

Staying within our carbon budgets: Consumption-based Emissions

A consumption-based approach measures all of the carbon emissions consequent of goods and services consumed within the city, regardless of where they are produced. This contrasts the 'direct' or 'production-based' approach that underpins Manchester's zero-carbon budget, which instead relates to emission directly occurring within the city and those underpinning the electricity it consumes.

A consumption-based approach is therefore an alternative way to understand the impact of Manchester's actions on planetary carbon emissions. Consider, for instance: a punnet of strawberries grown in Cheshire; a mobile phone manufactured in Zhengzhou, China; or cement produced in the Peak District, each of these are used by Manchester Residents, but their production creates emissions counted in other places.

According to a study led by C40 Cities Group, the consumption-based emissions of large cities like Manchester need to be reduced by two-thirds⁴ within the next decade to ensure that we play our full part in meeting the Paris Agreement. These would be overlooked if we only focused on direct emissions - which is why tackling our consumption-based footprint in parallel is vital for a more holistic picture.

The Manchester Climate Change Framework 2020-25 committed to better understanding the broader climate change impact of the city's consumption of goods and services and to take action to develop more sustainable consumption practices for the city's residents and organisations.

Understanding Manchester's Consumption-Based Footprint

In November 2019 the Tyndall Centre was commissioned by the Manchester Climate Change Agency to review the city's climate change targets. As part of this review Dr Christopher Jones made a series of recommendations on how Manchester might measure and manage its consumption-based emissions⁵.

This review noted that obtaining accurate and up-to-date data for city-level consumption-based footprints is a major challenge. Centrally, city-level consumption-based footprints rely heavily on assumptions, downsampling and estimations, painting a fuzzy picture. The lack of local data also means it is very hard to account for change that is specific to Manchester. We cannot, therefore, currently effectively track our progress year-on-year or set consumption-based emissions targets.

Based on a study by the C40 Cities Group⁶ and the results of the Tyndall centre study we had previously made a very rough estimate that Manchester's consumption-based footprint was around 60% greater than its production-based footprint - around 3.3 MtCO₂e for 2017. More recently, the Centre for Research into Energy Demand Solutions (CREDS) has developed a place-based consumption-

⁴ <https://www.c40.org/consumption>

⁵ [https://www.manchesterclimate.com/sites/default/files/Consumption Based Carbon Target Setting.pdf](https://www.manchesterclimate.com/sites/default/files/Consumption%20Based%20Carbon%20Target%20Setting.pdf)

⁶ <https://www.c40.org/researches/consumption-based-emissions>

based carbon calculator⁷. Though they also paint a somewhat fuzzy picture due to the data issues described above, their work has offered a greater resolution of understanding as they draw upon UK-specific data and break down the footprint into numerous sectors.

CREDS estimate that Manchester residents are responsible for 5,645.3 kgCO₂e - 29% lower than the England average (Figure 13). Based on the population of the city in 2019 we can estimate a total consumption-based footprint of 3.12 MtCO₂e for Manchester in the year 2019.

The largest proportion of our consumption-based footprint is estimated to be from flying (17%), followed by food and drink (16%) and gas usage (15%).

It is too early to say what effect the UK COVID-19 lockdowns and their economic consequences might have had on our consumption-based footprint. One study in Italy predicted that consumption-based emissions had fallen by 20%⁸, whilst planetary emissions fell by around 7%⁹.

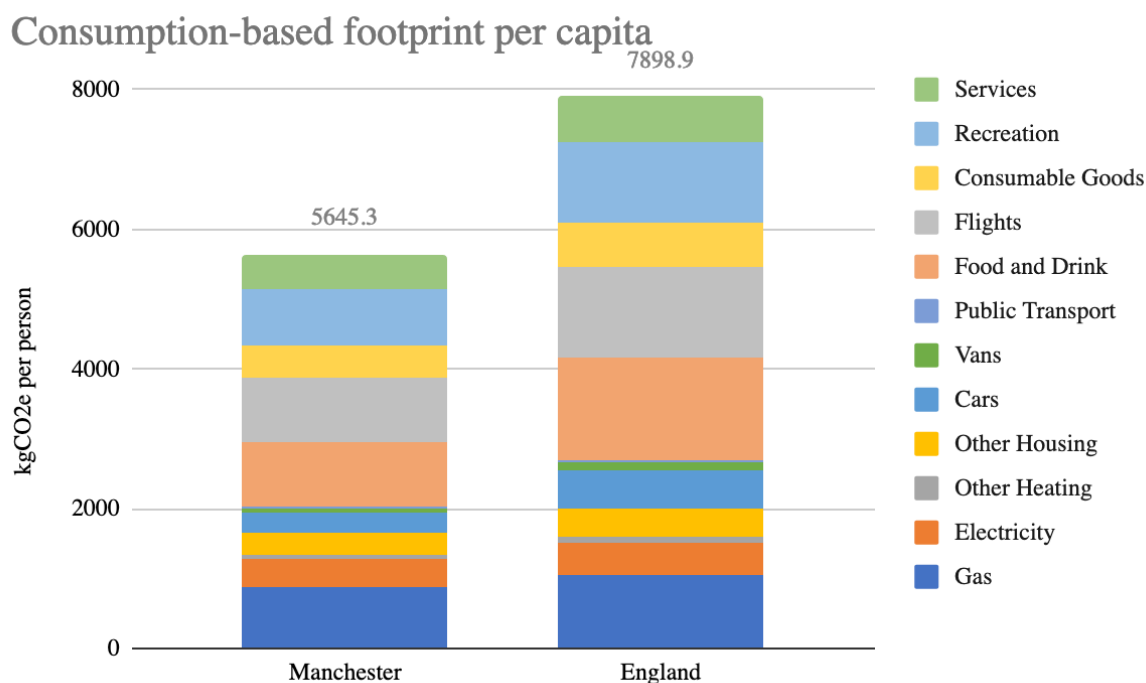


Figure 12: Estimated consumption-based footprint per capita for the City of Manchester compared to England. Adapted from CREDS¹⁰.

Decarbonising Consumption Hotspots in the COVID-19 Recovery

Jones (2019) advised that action should focus on the following consumption-based emissions hotspots: food and drink, transport, construction, clean and waste water, and other manufactured goods. In February 2021 Dr Jane Wendler and Dr Joe

⁷ <https://www.carbon.place/la/>

⁸ <https://doi.org/10.1016/j.scitotenv.2020.139806>

⁹ <https://www.globalcarbonproject.org/carbonbudget/>

¹⁰ <https://www.carbon.place/la/>

Blakey extended this review to look at how these consumption-based emissions hotspots can be decarbonised in the economic recovery¹¹ from novel coronavirus (COVID-19). It brought together academic and grey literature alongside insights generated from two workshops with academics, organisations and citizens held in October 2020 to explore the 'low hanging fruit' alongside the more radical actions necessary to keep us within safer levels of warming. Meanwhile, Dr Josephine Mylan undertook a 'deep dive' study on the role of food in particular. Both studies made inroads for strategizing on mitigating consumption-based emissions in the pandemic recovery and will form an appendix to the refresh of the Manchester Climate Change Framework.

The first report highlighted the need for a climate-first recovery from the COVID-19 lockdown. Economic recovery interventions from policy-makers have tended to encourage consumption and thus risk increasing consumption-based carbon emissions. Cities have a key role to play in ensuring this does not happen.

It also highlighted the key role of tackling inequalities in consumption. Consumption-based emissions of the poorest half of citizens fell by nearly a quarter in the years between 1990 and 2015 and grew by 3% for the richest 10%¹². At the same time, the richest 10% of the world's population are responsible for more than half of the world's emissions. It is estimated that the richest 10% had a net worth (financial assets, plus real assets, minus debts) of around £67,500 in 2018¹³.

The reports also made a series of more specific recommendations for actions on each hotspot:

Food and drink - included supporting a low carbon food culture, low carbon school meals, creating a better work life balance to allow people to engage more in sustainable food practices, and promoting low carbon food in workplaces. Dr Mylan's forthcoming 'deep dive' report will similarly advocate a systemic approach, leveraging Manchester's role in generating demand for food, by engaging with activities such as:

- food processing by businesses, food retail, and the hospitality sector;
- the provision of meals in public contexts (e.g. schools and hospitals);
- shaping the infrastructure provided to households (e.g. proximity of food retail to housing; waste collection; transport); and
- direct engagement with consumers (e.g. through education and information campaigns).

It also highlights the multiple economic, social and environmental co-benefits of addressing key problem areas identified in the city's food provision, including reducing food waste, meat consumption, single use plastics and food insecurity.

Construction - included enforcing carbon indicators in planning and procurement, encouraging experimentation in low carbon construction,

¹¹ <https://www.manchesterclimate.com/green-recovery/decarbonising-consumption>

¹² <https://www.oxfam.org/en/research/confronting-carbon-inequality-european-union>

¹³ <https://www.cnbc.com/2018/11/07/how-much-money-you-need-to-be-in-the-richest-10-percent-worldwide.html>

creating a local base of low-carbon skills, and building only when absolutely necessary.

Other manufactured goods - included removing advertisements for high-carbon goods from public spaces, decarbonising final mile delivery through bicycles, buying less and buying better, and working to move away from our high-consumption and often throwaway culture.

Waste and wastewater - included tackling food waste by supporting businesses that redistribute it, reducing water demand (and hence the need for treatment), moving towards low-consumption and circular economies, and creating better waste management infrastructure to avoid landfill and incineration.

Transport beyond the city - included accelerating active travel schemes, enabling cycles on trams, encouraging working from home, discouraging international business travel, and addressing travel inequalities (aviation, for instance, accounts for around half of the emissions of the super rich¹⁴).

Moving Forwards

The Consumption-Based Emissions Sub-Group of The Manchester Zero Carbon Advisory Group, led by Dr Joe Blakey (The University of Manchester), will work to expand our understanding of Manchester's consumption-based emissions, enabling the city to better monitor and manage them.

We will continue to work towards tackling these hotspots, whilst also improving our understanding of Manchester's overall consumption-based footprint and working to track changes year-on-year.

Dr Joe Blakey
Dr Josephine Mylan
Dr Jana Wendler
(The University of Manchester)

¹⁴ <https://www.nature.com/articles/s41558-019-0402-3>

Adaptation and Resilience to the changing climate

Our objective for 2020-25: To adapt the city's buildings, infrastructure and natural environment to the changing climate and to increase the climate resilience of our residents and organisations.

The Partnership and Agency acknowledge the adaptation and resilience dimension of work to address climate change requires further development if our commitments and actions are to reach parity with – and complement – mitigation efforts.

Manchester is exposed to a range of weather hazards. These will be exacerbated by climate change, potentially creating significant future challenges for the health, well-being and prosperity of the city. There is a projected shift towards higher temperatures and seasonal changes in precipitation patterns with drier, hotter summers, wetter winters and an increased incidence of extreme weather events.

Flooding is Manchester's most prominent extreme weather and climate change threat. Floods in February 2020 and 'near-misses' in January 2021 are just the latest indicators of the damage and disruption that these events can cause. Although currently relatively uncommon, droughts, heatwaves and wildfires represent future risks. Of particular concern is the impact that hotter summers will have on the health and well-being of the city's residents, workers, and visitors.

Understanding climate change hazards is just one dimension of our climate risk. We must consider our exposure and vulnerability to climate hazards, as well as our capacity to respond to them if we are to fully appreciate the full extent of our climate risk.

Many aspects of the city are exposed to the direct and indirect impacts of weather hazards. Earlier this year, the Agency published *Manchester's climate risk: a framework for understanding hazards & vulnerability*¹⁵. This document establishes an evidence base and structure for more detailed climate risk assessments for the city and its stakeholders. It identifies weather related hazards in the city and considers how climate change might affect them. It also establishes a framework to support a comprehensive assessment of the city's vulnerabilities and exposure to climate change and to evaluate our capacity – or lack thereof – to respond to these threats.

More effort is required to fully appreciate the extent of the risk of climate change for Manchester, both in terms of exposure and vulnerability. This is a complex but vital task that will support coordinated action to collectively create a more climate resilient Manchester.

Although the risk associated with climate change cannot be eliminated altogether, it is possible to build capacity and take action to adapt and to enhance climate resilience. On-going work at the Agency will develop an overarching strategic vision for a more climate resilient Manchester. Making progress is further supported by the bolstering of strong stakeholder networks in Manchester, and more widely in Greater Manchester and beyond.

¹⁵ <https://www.manchesterclimate.com/sites/default/files/Climate%20vulnerability%20framework.pdf>

This includes work to co-produce a vision for a climate resilient Manchester which will explicitly link adaptation and resilience responses to other priorities in the city, including inclusive economic growth, in realising social justice and in identifying and maximising synergies between climate adaptation and mitigation. This will be accompanied by a series of principles that will frame action on the part of strategic stakeholders, businesses, communities and citizens to collectively realise greater climate resilience and adaptation.

Work throughout the remainder of 2021 and into early 2022 will identify good practice for the realisation of climate adaptation and resilience across the city. Indicators for monitoring progress against our adaptation and resilience objectives will be developed, building on learning from the IGNITION project review of GI target setting. We will also work with stakeholders to identify and report progress that has already been made and is on-going to enhance climate resilience.

The current Climate Change Framework 2020-25¹⁶ places particular emphasis on enhancing green infrastructure (GI) and nature-based solutions (NBS) as a key response to the changing climate. GI and NBS can help to¹⁷ reduce risks linked to flooding and high temperatures and can also reap a range of co-benefits for the city, its inhabitants, workers and visitors.

In practical terms, the following examples are some of the activities taking place to enhance Manchester's climate resilience.

IGNITION: the headline objective of this project is to establish innovative funding and delivery mechanisms to increase Greater Manchester's urban green infrastructure over the next two decades. To date the project has produced a green infrastructure baseline that will be used to better understand and plan the enhancement of existing and new green spaces in Manchester. Ignition is also developing a planning support system that can inform decisions on locations where GI investments could be targeted to maximise positive outcomes.

GrowGreen¹⁸: an €11.2m project running from 2017-22, coordinated by Manchester City Council, to support cities to develop and implement plans to become greener and better adapted to climate change. Manchester's new community park in West Gorton has now opened and demonstrates how nature-based solutions such as swales, bio-retention tree pits, rain gardens and permeable paving can be used to reduce surface water flooding in urban areas. Work on Manchester's Green and Blue strategy refresh has commenced and a piece of work has been commissioned to develop a river valley strategy for Manchester demonstrating how they can be better utilised to mitigate the impact of climate change and maximise other benefits such as improved biodiversity and health and wellbeing.

¹⁶ <https://www.manchesterclimate.com/sites/default/files/Climate%20vulnerability%20framework.pdf>

¹⁷ <https://www.greatermanchesterca.gov.uk/what-we-do/environment/ignition/>

¹⁸ www.growgreenproject.eu

Northern Gateway development¹⁹: this development, on the River Irk is planning to invest over £16m into flood mitigation and river works alongside major enhancements to the existing green spaces.

Mayfield development²⁰: Mayfield will include a new multifunctional city park to provide recreation space for Manchester residents and visitors, manage flood water, and increase biodiversity. It will be the biggest creation of public open space in the city since the Victorian parks were created.

During 2021 and 2022 we plan to:

1. Refine our emerging vision for realising greater climate resilience and adaptation. This will include the development of a series of objectives and indicators for resilience, and associated actions for strategic stakeholders, business, and communities.
2. Support research and planning that assesses climate risk and develops associated adaptation and resilience responses.
3. Include adaptation and resilience in the engagement, education and support activities delivered by Manchester Climate Change Agency, and across the wider partnership. This will include giving specific attention to climate resilience and adaptation in the Framework refresh and associated consultations.
4. Continue to deliver the 'Green Infrastructure and Nature-based Solutions' action in the Climate Change Framework. Support will also be given to the refresh of the city-wide green infrastructure strategy currently underway.
5. Provide constructive support and input to refresh of the Manchester Local Plan which will provide an opportunity to update the statutory planning framework for the city to ensure it is supportive of efforts to increase the pace of adaptation and aspiration to build a more resilient city. Issues for consideration will include, the approach to flood risk, dealing with heat stress in new buildings and delivering sustainable drainage systems.

Together, these efforts will co-ordinate our collective effort to enhance the city's resilience to climate change.

¹⁹ <http://northerngatewaymanchester.co.uk/>

²⁰ <https://mayfieldmanchester.co.uk/>

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Manchester Climate Change Agency and Partnership: Progress Report 2021/22

MANCHESTER
CLIMATE CHANGE
PARTNERSHIP

Manchester City Council Environment and Climate
Change Scrutiny Committee
9TH SEPTEMBER 2021

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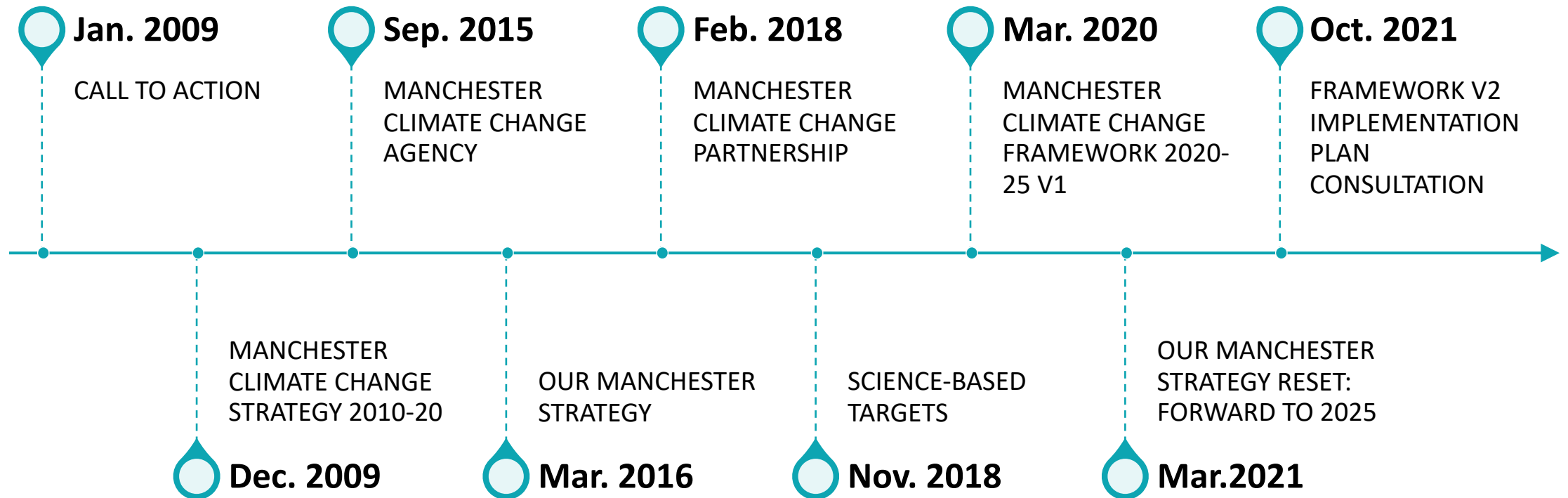
Appendix 2, Item 6



AGENDA

1. BACKGROUND AND CONTEXT
2. PARTNERSHIP AND AGENCY PROGRESS 2021/22
3. CITYWIDE PROGRESS 2020/2021
4. FRAMEWORK V2 UPDATE

BACKGROUND AND CONTEXT



MANCHESTER CLIMATE CHANGE FRAMEWORK 2020-25

Our strategy towards making Manchester a
thriving, zero carbon, climate resilient city.

Version 1.0
February 2020

MANCHESTER
CLIMATE CHANGE PARTNERSHIP

MANCHESTER
CLIMATE CHANGE AGENCY

MANCHESTER CLIMATE CHANGE FRAMEWORK 2020-25

MANCHESTER
CLIMATE CHANGE PARTNERSHIP

1) AIM: Manchester will play its full part in limiting the impacts of climate change and create a healthy, green, socially just city where everyone can thrive

2) HEADLINE OBJECTIVES

CO₂

Resilience

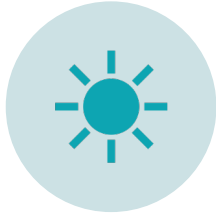
Health

Economy

3) THEMATIC OBJECTIVES



**BUILDINGS
(EXISTING AND
NEW)**



**RENEWABLE
ENERGY**



**TRANSPORT
AND FLYING**



FOOD



**THE THINGS WE
BUY AND
THROW AWAY**



GI & NBS

4) BOTTOM-UP ACTION

Resident Action
Business Action

5) TOP-DOWN ACTION / REMOVING BARRIERS – IMPLEMENTATION PLAN 2022-25

Infrastructure, policy,
legislation, funding, etc.

PARTNERSHIP AND AGENCY PROGRESS

2021/2022



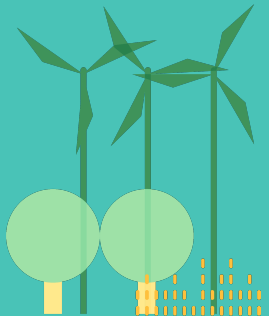
BUSINESSES AND ORGANISATIONS

- Chair appointed and applications for new member of the Partnership opened.
- Ongoing participation in the 'City-Business Climate Alliance' (CBCA) project with seven other global cities, the C40, CDP (formally, Carbon Disclosure Project) and World Business Council for Sustainable Development (WBCSD).
- Established Zero Carbon Business Working Group, led by the CEO of GM Chamber of Commerce and including representatives from the Growth Hub, Manchester City Council, the the CBCA team.
- MCCA in partnership with C40, CDP and WBCSD, held a Zero Carbon Business Workshop as a first step towards launching our Zero Carbon Business Programme in early 2022. 25 key Manchester Businesses came together to discuss what they are already doing to tackle climate change and the support they need to take more comprehensive action.



YOUNG PEOPLE

- Appointed the Youth Champion for Climate Action to drive forward the priorities of the Climate Change Youth Board and ensure the voices and aspirations of young people are represented at every level.
- Supported the development of the Youth Board's manifesto which will be launched in September 21 – this will be a nationwide first and cements Manchester's commitment to an inclusive and people driven approach to meeting net zero by 2038.
- Continued to participation in the EU's FoodWave project which is giving young people a voice in Manchester to raise awareness on sustainable patterns of food consumption and production.



RESIDENTS AND COMMUNITIES

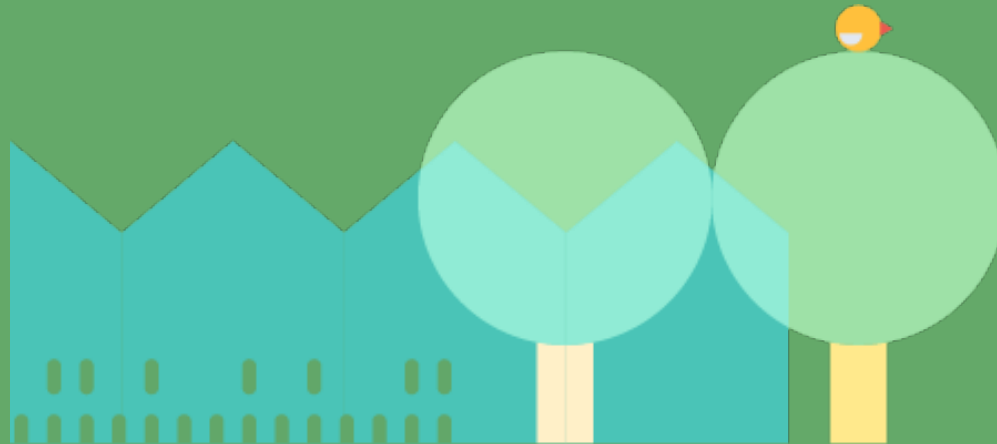
- The Agency, in partnership with environmental charity Hubbub and The National Lottery's Climate Action Fund launched the largest community climate change campaign in Manchester called “# In Our Nature”. A year long programme taking place across 6 wards in Manchester.
- Recruited a Creative Content Producer. A shared post with Hubbub to record content to inspire residents to act across the city.
- Launched the Interactive Community Engagement portal with Commonplace
- Briefed key stakeholders in each of the 6 wards.
- Community carbon footprints in development Tyndall Centre for Climate Change Research.
- Recruited to the Inspired Community Action Groups
- Projects underway in Manchester communities including, Community Fridges, Greener Wilder Homes, Tiny Urban Forests and Nature Takeover
- Community Climate Assembly taking place between w/c 9th August and the 23rd September.

MANCHESTER
CLIMATE CHANGE PARTNERSHIP



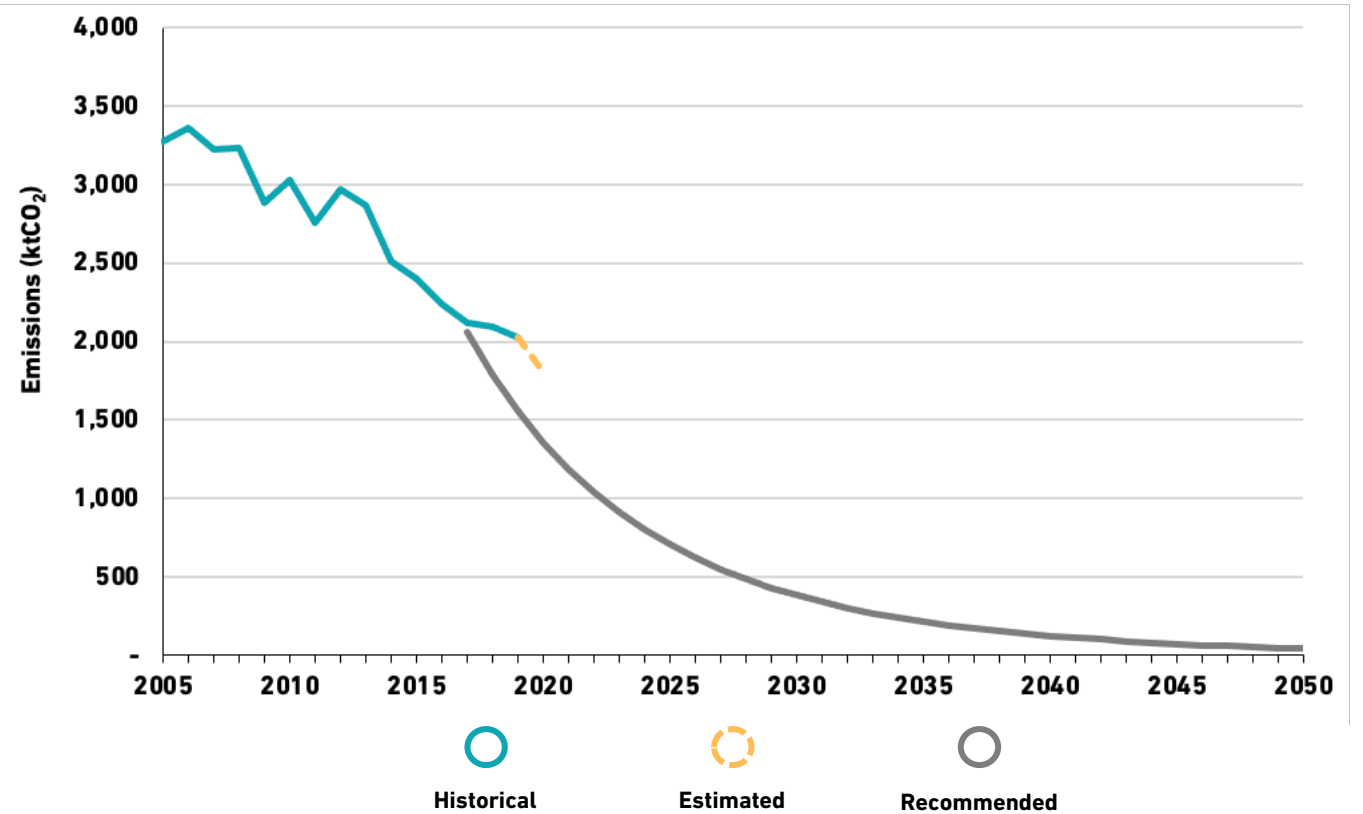
CITYWIDE PROGRESS

2020/2021



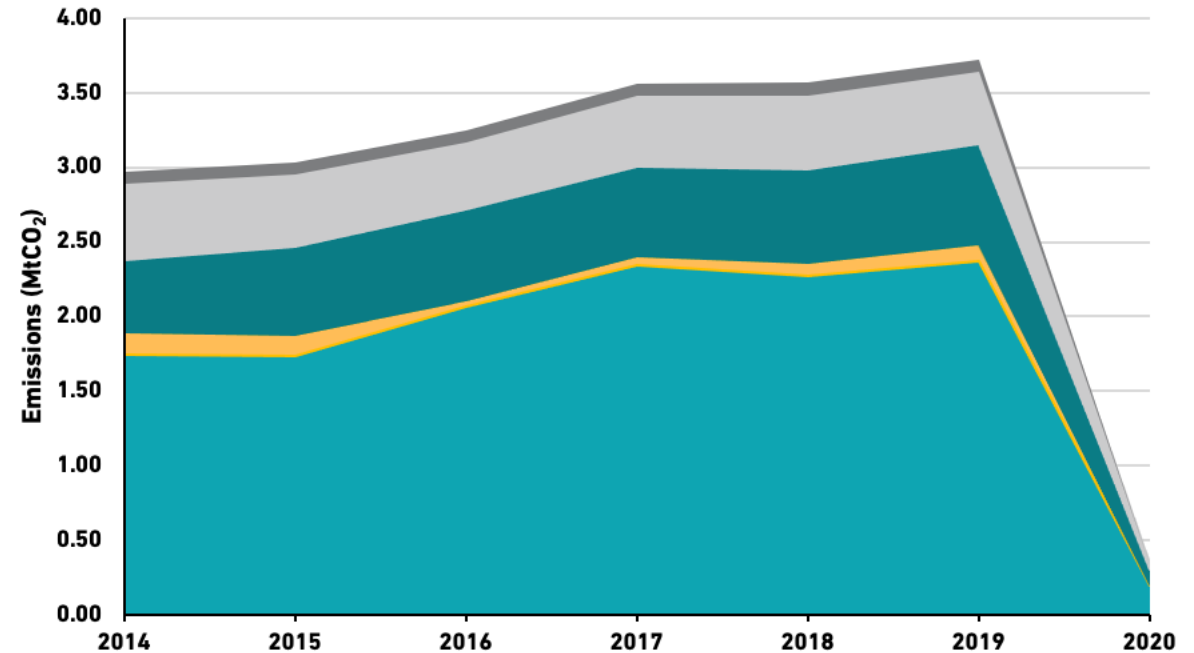
DIRECT EMISSIONS

- **3% reduction 2018-19**
- **11% reduction 2019-20 (est.)**
- **16% year on year reduction now required to meet 2038 target**
- **Manchester bettered its 41% reduction by 2020 target, achieving a 45% reduction (est.)**



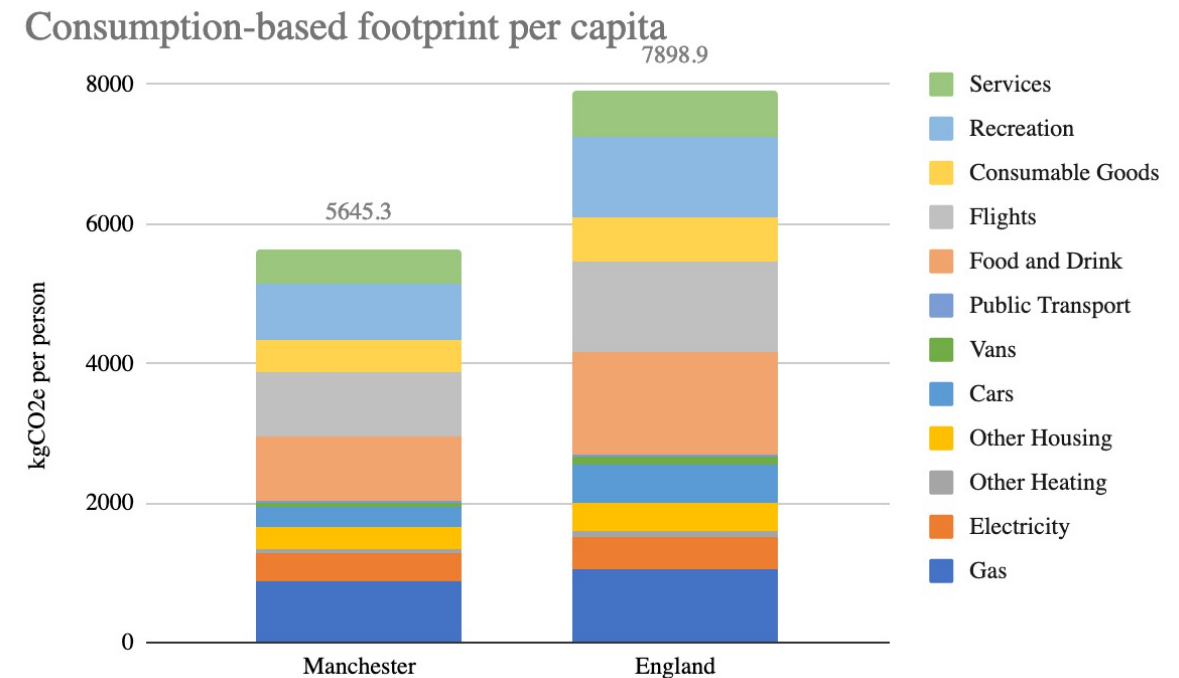
AVIATION EMISSIONS

- **Passenger numbers at Manchester airport fell by 94% from 29.3 million in 2019 to 1.6 million in 2020.**
- **Estimated 91% reduction in emissions from flights from Manchester airport from 3.7 million tonnes CO₂ in 2019 to 0.34 million tonnes CO₂ in 2020.**
- **The industry is expecting a relatively quick rebound in leisure flights, but the future trajectory of business flights is less clear.**



CONSUMPTION BASED EMISSIONS

- **CREDS estimate that Manchester residents are responsible for 5,645.3 kgCO₂e - 29% lower than the England average. Based on the population of the city in 2019 we can estimate a total consumption-based footprint of 3.12 MtCO₂e for Manchester in the year 2019.**
- **In February 2021 Dr Jana Wendler and Dr Joe Blakey published a report review to look at how Manchester's consumption-based emissions hotspots can be decarbonised in the economic recovery.**
- **According to a study led by c40 cities, the consumption-based emissions of large cities like Manchester need to be reduced by two-thirds.**



ADAPTATION AND RESILIENCE

- **Adaptation and Resilience lead appointed: Dr Paul O'Hare, senior lecturer at MMU, on secondment to the Agency for 12 months to further to guide and implement the City's objective to become more climate resilient.**
- **MCCA published Manchester Climate Risk: A Framework for Understanding Hazards and Vulnerability, an indicative framework for understanding climate risk in a more comprehensive manner.**
- **This was the first step in helping us to pursue coordinated action for collectively creating a more climate resilient Manchester.**

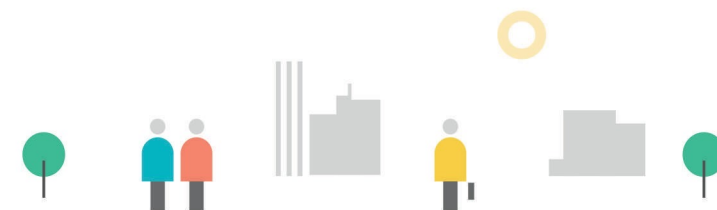


FRAMEWORK V2 UPDATE



Background to Framework 2.0

Page 52



Manchester was one of the first cities to adopt science-based carbon budgeting and has developed a city-wide stakeholder group, the Manchester Climate Change Partnership, to oversee delivery.

For direct emissions, Manchester has set a carbon budget of 15 million tonnes for 2018-2100. This means Manchester needs to reduce its carbon by at least 13% per year, 50% during 2020-25, en route becoming a zero carbon city by 2038, at the latest.

Challenge is to develop appropriate specific actions to deliver the target.

The Framework and Action Plan

Manchester Climate Change Partnership has been given the role of developing and facilitating the delivery of Manchester's strategy to ensure it plays its full part in limiting the impacts of climate change.

Version 1.0 of the Manchester Climate Change Framework 2020- 25 was published in February 2020
Formally endorsed by the City Council in March 2020.

Version 2.0 of the Framework for 2020-25 and a new Implementation Plan are being produced during 2021 to provide more detail of what needs to be achieved by when.

Developing Framework 2.0 for Manchester – Process and Timetable

The City Council, working with MCCA, has procured Anthesis, an environmental consultancy, to support the development of the Framework and Action Plan. The process will involve the following stages:

- Development of thematic objectives and potential actions for residents and businesses (August 2021)
- Consultation 1 with residents and businesses asking them “What actions are you already taking?” and “What barriers are preventing you from taking further actions?” (July – September 2021)
- Draft Implementation (produced by September 2021)
- Consultation 2 on draft implementation Plan – “Are these the right actions to remove your barriers to action?” (October to November 2021)
- Final Framework Published (January/February 2022)
- Formal approval by MCCP and the City Council (March 2022)

Developing Framework 2.0 for Manchester – Key Themes for Action

Science based targets determine the pace of change required. Consultants will define this for different sectors.

The actions will be focused on the following key themes:

- **Buildings**
- **Renewable energy**
- **Transport**
- **Food**
- **Things we buy and throw away,**
- **Green infrastructure and nature based solutions**

For each theme aim is to develop Specific, Measurable, Achievable, Realistic and Time Bound (SMART) objectives.

The objectives will be accompanied by a list of specific actions that will signpost Manchester people, businesses and other organisations to take the actions required.

What will Success Look Like ?

The City will have a clear set of actions that will, if taken, reduce emissions by the required amount by 2025.

Barriers will have been identified and removed to enable citizens and businesses to take the actions that are required.

The city will be seen as a leader, both nationally and internationally, in the response it is taking to mitigation, adaptation and resilience.

The city will be seen as a better place to live, work, play and invest in because of the progressive approach it is taking to this key global challenge.

THANK YOU

MANCHESTER
CLIMATE CHANGE
PARTNERSHIP

For any further enquiries, please contact:

info@manchesterclimate.com

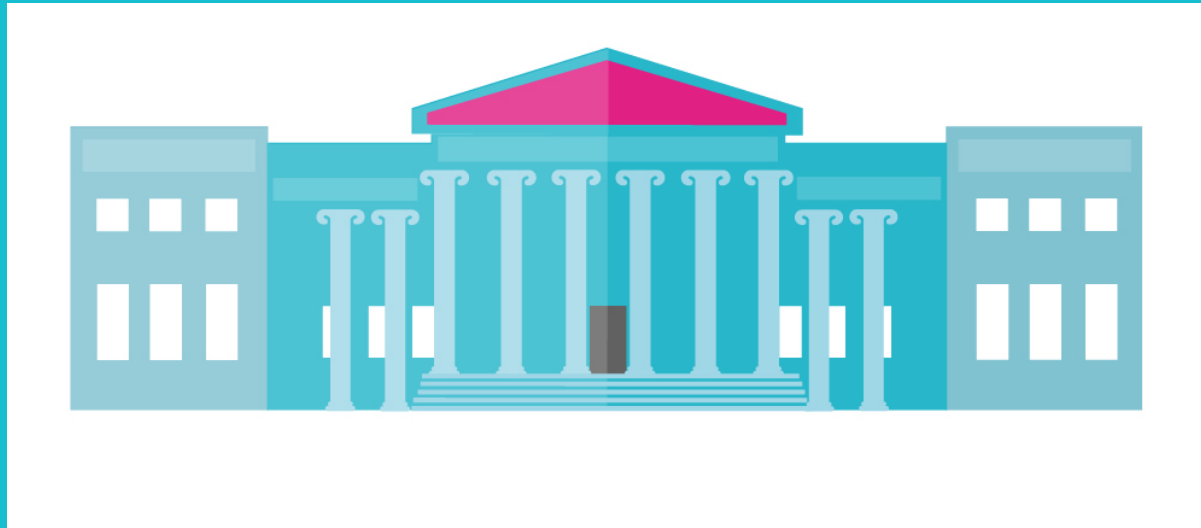
Or visit:

www.manchesterclimate.com



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10 Years of Cultural Collaboration on Climate



Simon Curtis
Convenor, Manchester Arts Sustainability Team

Manchester
Arts
Sustainability
Team

Call to Action

CEOs

Green Champions

2011

2012

**Greater
Manchester
Climate Change
Strategy
2011**

**Manchester
Cultural
Leaders
Environmental
Forum**



MANCHESTER: A CERTAIN FUTURE

Develop a low carbon culture change

Develop an active transition to a low carbon economy

Prepare for and actively adapt to a rapidly changing climate

**UK
Climate Change
Act
2008**

Target of 41% emissions reduction

Develop a low carbon culture change

Develop an active transition to a low carbon economy

**Prepare for
and actively
adapt to a rapidly
changing
climate**

Meetings

**Self
funded**

2013

Community

Engagement

Operational

-7%
Annual
reduction

**MACF
Steering
Group**

**Manchester
Climate
Change
Agency**

2015

COP21

Paris Agreement

Zero Carbon 2050

2016

Appendix 3, Item 6

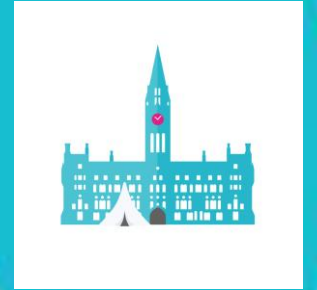
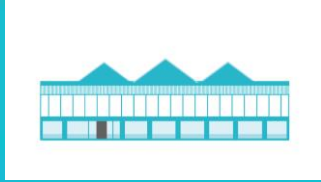
Manchester

Arts

Sustainability

Team

MANCHESTER
CLIMATE CHANGE
AGENCY



2017

27

Good
Practice

33%
Reduction

Manchester

Arts

Sustainability

Team



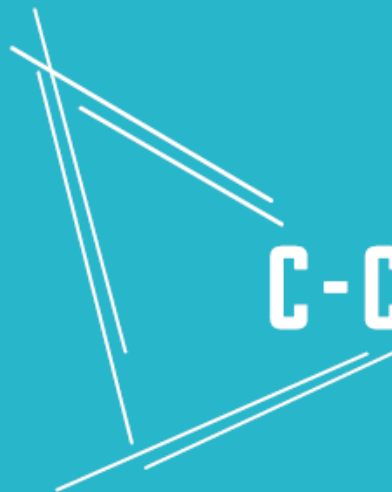
MANCHESTER



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GELSENKIRCHEN



WROCLAW



C-CHANGE

ARTS + CULTURE
LEADING CLIMATE ACTION IN CITIES

An Urbact Transfer Network



6 CITIES



COMBINED
POPULATION

1.6 million



CULTURE AND
CREATIVITY

At the heart



GREENHOUSE
GAS EMISSIONS

9 million tonnes



CLIMATE CHANGE
IMPACTS

Experienced by all

Working together to build cultural collaboration for climate
action and engagement based on the Manchester Arts
Sustainability Team model



MANTOVA



ÁGUEDA



ŠIBENIK



MANCHESTER
CITY COUNCIL

MANCHESTER
CLIMATE CHANGE
AGENCY

Manchester

Arts

Sustainability

Team

What on earth do **arts and culture** have to do with **CLIMATE CHANGE**?

COLLABORATION

Culture connects
on climate
in cities

SUPPORT

Cities support
culture to act on
climate

POLICY

City policy frames
sector action on
climate

ENGAGEMENT

Culture engages
people in cities
on climate

C-CHANGE

ARTS + CULTURE
LEADING CLIMATE ACTION IN CITIES

Culture connects on climate in cities

- New alliances bringing culture together on climate in 5 cities
- A bigger more impactful Manchester Arts Sustainability Team
- 100+ cultural organisations in total across 6 cities - from theatres and festivals to libraries and orchestras

Culture engages people in cities on climate

Wide range of cultural activity with city support...

- 23 pilot actions across 6 cities
 - 2 C-Change Festivals, 1 C-Change Season – 27 events
- From children's music workshops with recycled instruments and a climate change myth-busting machine to environmentally themed theatre performances and street art



Cities support culture to act on climate

- 12 new trainers and 160 people trained across 5 cities
- New digital training and learning tools in Manchester
- Over €0.5 million new funding secured by Mantova
- New Green Culture grants in Wrocław
- 2 new sector-specific carbon calculators
- 2 new city guides on sustainable events

City policy frames sector action on climate

City culture and climate departments working together
A range of **new integrated policy measures** including....

- integrating culture in Mantova's Sustainable Energy Plan
- aligning Manchester cultural funding and climate change strategy
- involving culture sector in Gelsenkirchen's new climate change strategy development



Zero
Carbon

2038

MANCHESTER
CLIMATE CHANGE PARTNERSHIP

2018

2019

What does
zero carbon
mean for
arts and
culture?

50+
organisations
working across
the
city region

Manchester

Arts

Sustainability

Team

2020



The next 10 years

Manchester

Arts

Sustainability

Team



<https://www.g-mast.org>







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LET'S
CREATE



STRATEGY 2020-2030
ARTS COUNCIL ENGLAND