


Welcome to the CDP-ICLEI Unified Reporting System 2021

0. Introduction

(0.1) Please give a general description and introduction to your city including your city’s reporting boundary in the table below.

	Administrative boundary	Description of city
Please complete	Independent city	<p>Manchester has a population of 552,858 as of the ONS, the mid-year 2019 resident population estimates. Around 30% of the population is aged under 30 years old and the city is growing at a rate of around 1% per year.</p> <p>The city has a total of 22,850 business' in 2020 with 410,000 people working in Manchester in 2019. Manchester’s economy has continued to grow, in 2018 Manchester’s GVA £22,500 million and between 2017 and 2018, Manchester’s overall GVA grew by 3.6%, compared to 3.4% for the UK.</p> <p>Manchester covers an area of 11,564 hectares with 32 wards. Manchester sits within the Greater Manchester conurbation, attached is a map of Greater Manchester and its boroughs, the city of Manchester can be seen in yellow. The ten metropolitan boroughs of Greater Manchester – Bolton, Bury, Manchester, Oldham, Rochdale, Salford, Stockport, Tameside, Trafford, and Wigan – represent the largest city region economy outside London, with a gross value added (GVA) of £62.8 billion. In the decade to 2012, the economy grew by 42% and it has been one of the major UK city-regions driving job growth (84% between 2002-2015), at twice the rate of jobs growth of the north as a whole.</p> <p>The ten councils– the first statutory “Combined Authority” in the UK outside London – and our Mayor coordinate key issues such as economic development, regeneration and transport. This governance structure has enabled the region to secure greater powers from central government to shape its own future and success.</p> <p> 1</p>

 1GreaterManchesterBoroughsMap (1).jpg

(0.2) If you have not previously submitted your Letter of Commitment to the Global Covenant of Mayors, either through the relevant regional covenant or through the Global Covenant secretariat, please attach the letter signed by an appropriately mandated official (e.g. Mayor, City Council) to this question.

City Details

(0.3) Please provide information about your city's Mayor or equivalent legal representative authority in the table below.

	Leader title	Leader name	Current term end year
Please complete	Councillor	Sir Richard Leese	2022

(0.4) Please select the currency used for all financial information disclosed throughout your response.

GBP Pound Sterling

(0.5) Please provide details of your city's current population. Report the population in the year of your reported inventory, if possible.

	Current population	Current population year	Projected population	Projected population year
Please complete	552,858	2020	563,300	2025

(0.6) Please provide further details about the geography of your city.

	Land area of the city boundary as defined in question 0.1 (in square km)
Please complete	115.64

1. Governance and Data Management

Governance

(1.0) Please detail sustainability goals and targets (e.g. GHG reductions) that are incorporated into your city's master plan and describe how these are addressed in the table below.

Sustainability goals and targets	Description

Emissions reduction targets	<p>The city's overarching strategy, the Our Manchester Strategy 2016-25, sets out the headline commitment for Manchester to 'play its full part in limiting the impacts of climate change'.</p> <p>Manchester Climate Change Agency (MCCA) has updated the definition of what it means for the city to play its full part, in line with the Paris Agreement and the latest science. A set of objectives and targets were developed in early-2020, underpinned by recommendations by the Tyndall Centre for Climate Change Research and supported by the Manchester Zero Carbon Advisory Group. http://www.manchesterclimate.com/targets</p> <p>The objectives and targets are set out in the Manchester Climate Change Framework 2020-25 (the Framework V1), the city's high-level strategy for tackling climate change. The Framework was published by the Agency in February 2020 and formally endorsed by Manchester City Council in March 2020. http://www.manchesterclimate.com/framework-2020-25</p> <p>Framework V1 sets out the 4 high-level objectives that the city needs to achieve by 2025:</p> <ol style="list-style-type: none"> 1. Staying within our carbon budgets 2. Climate adaptation and resilience 3. Health and wellbeing 4. Inclusive, zero carbon and climate-resilient economy <p>MCCA are currently conducting a refresh of the Framework V1 (Framework V2) which will be published in early 2022.</p> <p>Staying Within Our Carbon Budgets Headline 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. The carbon budget objective is split into 3 sub-objectives:</p> <ol style="list-style-type: none"> 1. Direct Emissions 2. Aviation Emissions 3. Consumption-based Emissions <p>The direct emission sub-objective is: To emit a maximum of 15 million tonnes CO₂ from our homes, workplaces and ground transport from 2018. We will reduce our direct CO₂ emissions by at least 50% between 2020-25. In line with this budget we will emit:</p> <ul style="list-style-type: none"> - A maximum of 6.9 million tonnes during 2018-22, and - A maximum of 3.6 million tonnes during 2023-27. <p>The Tyndall Centre's full analysis and recommendations are available here: https://www.manchesterclimate.com/sites/default/files/Manchester%20Direct%20Carbon%20Budgets_Review%202020.pdf</p>
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<p>Emissions reduction targets</p>	<p>As part of the 'Staying Within our Carbon Budgets objective an aviation emissions sub-objective was also adopted.</p> <p>Aviation sub-objective: We want the emissions from all flights from Manchester Airport to be fully aligned with the Paris Agreement. We believe this means operating within a limited carbon budget for UK aviation, as part of a wider international budget.</p> <p>We recognise the UK aviation budget that has been proposed by the Tyndall Centre for Climate Change Research, 1,200 million tonnes CO2 for the period 2020 to 2100, calculated in line with the methodology for establishing Manchester’s carbon budget for our direct emissions. We recognise the interrelationship between these two budgets; if one is exceeded, the other has to reduce to compensate for it.</p> <p>We also recognise that the Tyndall Centre’s proposed UK aviation budget is 37% of the total UK carbon budget, a much larger allocation than for other sectors of the economy. With no global city yet having reconciled its climate change responsibilities with having a major international airport within its boundaries, we believe we have the opportunity to establish Manchester Airport and the city as a national and international leader in sustainable aviation.</p> <p>Our Aviation sub group is currently undertaking a review of this objective in line with the development of Framework V2.</p> <p>For more information see the Manchester Climate Change Framework 2020-25 here, http://www.manchesterclimate.com/sites/default/files/Manchester%20Climate%20Change%20Framework%202020-25.pdf</p> <p>The Tyndall Centre’s full analysis and recommendations are available here: https://www.manchesterclimate.com/sites/default/files/Manchester%20Aviation%20Emissions_Review%202020.pdf</p>
<p>Emissions reduction targets</p>	<p>As part of the Staying Within our Carbon Budgets objective an indirect/ consumption emissions sub-objective was also adopted.</p> <p>Indirect / consumption-based CO2 emissions (CBE) sub-objective: To better understand the broader climate change impact of the city’s consumption of goods and services and take action to develop more sustainable consumption practices for the city’s residents and organisations. Greenhouse gas emissions from goods and services consumed in Manchester from the rest of the country and worldwide also contribute to the city’s overall climate impact. Based on the average for C40 cities, Manchester’s emissions on a consumption basis maybe 60% greater than they are for our direct CO2 emissions.</p> <p>CBE are more difficult to assess accurately than our direct CO2 emissions, particularly at</p>

	<p>a city scale. This means that target-setting and monitoring is not yet possible in the same way as for the direct emissions carbon budget. A consumption-based account of Manchester's greenhouse gas emissions can, however, provide an indicative picture of the city's wider contribution to climate change. This, in turn, can be used to direct action on sustainable consumption practices. We will develop a more detailed understanding of our consumption-based emissions to enable us to target action and monitor progress. In parallel, we will also start to take action based on known key contributors to the city's consumption-based impacts.</p> <p>For more information see the Framework V1 and The Tyndall Centre's full analysis and recommendations are available here: https://www.manchesterclimate.com/sites/default/files/Consumption%20Based%20Carbon%20Target%20Setting.pdf</p> <p>Further work has been undertaken in 2021 and Manchester's CBE are understood to be from five main hotspots: food and drink, waste and wastewater, construction, other goods and materials, and transport beyond the city. https://www.manchesterclimate.com/sites/default/files/Decarbonising%20Consumption%20in%20Manchester_0.pdf</p> <p>A review is also underway to understand how Sustainable Food Mission in Manchester can Support a Green and Just Recovery from COVID-19 to be published in Summer 2021.</p> <p>Dr Joe Blakey from the Zero Carbon Advisory Group and University of Manchester is seeking funding to further develop our understanding of progress and the further action needed on Manchester's CBE</p>
<p>Adaptation targets</p>	<p>The Framework V1 has the following objective on climate adaptation and resilience: Adapting the city's buildings, infrastructure and natural environment to the changing climate and increasing the climate resilience of our residents and organisations.</p> <p>MCCA was successful in a bid for the UK NERC's 'Climate Resilience: Embedded Researcher scheme'. During 2021 this has given the Agency dedicated capacity and expertise to enable development of a SMART(er) adaptation and resilience objective.</p> <p>Work is ongoing to better understand the level of climate risk faced by our residents and businesses to enable us to more effectively focus our efforts on the key vulnerabilities and locations most in need. To this end, MCCA has recently published Manchester Climate Risk: A framework for understanding hazard and vulnerability: https://www.manchesterclimate.com/news/2021/05/manchester-climate-risk-framework-understanding-hazards-vulnerability</p> <p>In addition, work is on-going to support practical climate resilience and adaptation action. We have outlined six sub-objectives across three themes in the Framework V1. These will be updated in the forthcoming refresh of the Framework.</p>

	<p>Action</p> <ol style="list-style-type: none"> 1) Act on the existing evidence and research on climate change impacts and risks to target available adaptation and resilience effort and resources. 2) Increase the amount of urban green infrastructure cover, aiming for a 10% increase by 2038 from 2018 levels, in line with the Greater Manchester aim. 3) Educate and prepare our residents, our businesses, and our public sector to encourage changes in their behaviours, operations and services that can support adaptation and resilience to climate change. 4) Continue to develop a clear and up-to-date understanding of how the climate is projected to change and the associated risks that we could experience over the short, medium and long-term. This will include developing understanding of our heat stress risks, as well as those for flooding. 5) Respond to these risks by incorporating adaptation and resilience within our plans and strategies, and acting to make necessary changes to our buildings, infrastructure and our natural environment. 6) Utilise the European Climate Risk Typology to identify and then learn from cities and urban areas that have a similar climate risk profile as Manchester.
<p>Other, please specify</p> <p>Inclusive, zero carbon and climate-resilient economy objective</p>	<p>Inclusive, zero carbon and climate-resilient economy</p> <p>This objective was published in the Framework V1. It was developed jointly with reps from the Manchester Work and Skills Board to help ensure that the city's climate action also contributes to achieving Manchester's aim to establish a more inclusive economy, as set out in the Our Manchester Industrial Strategy (OMIS).</p> <p>The objective is: 'To ensure that Manchester establishes an inclusive, zero carbon and climate resilient economy where everyone can benefit from playing an active role in decarbonising & adapting the city to the changing climate.'</p> <p>During 2020-25, we will develop our list of strategic actions based on our growing understanding of the city's needs. The following list is a starting point, based on work from 2019-20 with orgs and groups involved in education & training in the city, including Manchester's Work and Skills Board & the Manchester Careers, Education, Information, Advice & Guidance Group.</p> <ol style="list-style-type: none"> 1) Ensure that climate change remains 1 of the key objectives in the implementation of the OMIS, with a view to expanding the strategy's aim from the current 'develop a more inclusive economy' to 'develop a more inclusive, zero carbon and climate-resilient economy'. 2) Embed climate change throughout the city's education & training system to help Manchester become a Carbon Literate city. 3) As we invest in infrastructure to become a zero carbon city, we need a proportionate

	<p>investment in the skills sector to ensure that our education & training providers can respond. In particular, we need to develop the 'green skills' the city needs to deliver the projects & programmes planned for 2020-25 & to prepare for further initiatives from 2026.</p> <p>4) Support existing & new businesses in the low carbon and environmental goods and services sector to provide the expertise & products the city needs to act on climate change.</p> <p>5) Support 'non-environmental' organisations to act on climate change, including those currently in fossil fuel heavy industries where major changes to business activities will be needed & where workers may need support to transition into new jobs where they can deploy their skills.</p> <p>Over the coming year we plan to set up an Independent Advisory Group to set up a monitoring & reporting system for this objective.</p>
<p>Other, please specify</p> <p>Health and Well-being objective</p>	<p>Health and Well-being objective</p> <p>This objective was published in the Manchester Climate Change Framework 2020-25. It was developed jointly with representatives from the Manchester Health and Wellbeing Board to help ensure that the city's climate action also contributes to the successful delivery of the Manchester Population Health Plan 2018-2722.</p> <p>The objective '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.'</p> <p>During 2020-25: As well as Manchester residents taking action for themselves over the next five years, we will also need new strategic initiatives to help accelerate what people are already doing, and to address any barriers that are preventing or limiting further action. When these initiatives are developed we need to focus them on the people and communities where climate action has the most potential to improve health and wellbeing, those that are expected to be most impacted by the changing climate, and those who would most benefit from additional support. Often these people will also have made less of a contribution to changing the climate than residents in other parts of the city. As well as ensuring that climate action has positive health and wellbeing outcomes, this approach will also ensure that our commitment to social justice remains at the heart of what we do.</p> <p>Over the coming year we plan to set up an Independent Advisory Group to set up a monitoring & reporting process for this objective.</p>

(1.6) Please provide information on the overall impact of COVID-19 on climate action in your city.

Impact of COVID-19 on climate	Comment
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	action in your city	
Response	Increased emphasis on climate action	<p>In June 2020 Manchester Climate Change Partnership and Agency publicly set out a proposal to Manchester City Council for Manchester to commit to and implement a green recovery. In July 2020 Manchester City Council responded, publicly committing to a green recovery and inviting MCCP and MCCA to contribute towards the Reset of the Our Manchester Strategy for 2016-25 and the development of the Manchester Economic Recovery and Investment Plan. As a result the Reset Our Manchester Strategy for 2021-25 includes a restated commitment that 'Manchester will play its full part in limiting the impacts of climate change' and has embedded climate change action as a cross-cutting commitment across all five strategy priorities. The Manchester Economic Recovery and Investment Plan includes commitments to ensure the city's economic recovery also contributes towards the city's climate change objectives. It contains £800m of proposed economic recovery projects, £290m of which are for carbon reduction and climate adaptation projects, including £260m for a major social housing retrofit programme. Further information is available from https://www.manchesterclimate.com/green-recovery.</p> <p>Accelerating actions which have been impacted by COVID-19: Actions which have been delayed due to COVID-19 or areas where there is an opportunity to scale up activity will be prioritised. These include: Implementing the Zero Carbon Communities project and continuing neighbourhood working in all wards of the city. Improving communications about the positive action the Council is taking on Climate Change to build on the 'Leaving Carbon Behind' campaign. Embedding the new Manchester Climate Change Agency structure to drive delivery of the citywide Manchester Climate Change Framework. Working with local partners, Core Cities, Greater Manchester and our international partners to maximising the opportunities from the delayed COP26 in Glasgow which will take place in November 2021. Revisiting the proposals to support Manchester's schools to decarbonise their estate. Capitalising on new ways of working for the Council's staff through the continued use of ICT, changes to the way we use our estate and developing a new and ambitious Staff Travel Policy which captures the opportunities resulting from the pandemic.</p>

(1.7) Please provide information specifically on the impact of the COVID-19 economic response on climate action in your city and synergies between COVID-19 recovery interventions and climate action.

Impact of COVID-19 economic response on city's budget for financing climate action in your city	COVID-19 recovery interventions and climate action synergies	Explanation

Response	Increased finance available for climate action	<p>Recovery interventions that boost public and sustainable transport options</p> <p>Recovery interventions that increase access to urban green spaces</p> <p>Other, please specify</p> <p>£290m requested from national government for carbon reduction and climate adaptation green recovery projects.</p>	See Question 1.6
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2. Climate Hazards and Vulnerability

Climate Risk and Vulnerability Assessment

(2.0) Has a climate change risk and vulnerability assessment been undertaken for your city?

Yes

(2.0a) Please select the primary process or methodology used to undertake the risk and vulnerability assessment of your city.

	Primary methodology	Description
Risk assessment methodology	Other, please specify	<p>Work has been undertaken not only at the city-region scale, but nationally & internationally to understand climate risk hazards & vulnerability. Some of this work has been reviewed and used to inform the assessment.</p> <p>The report attempts to align with assessments at other spatial scales. Of note, the Combined Authority’s Community Risk Register (GMCA 2021) and academic research on climate hazards and vulnerability, in particular Ecocities and RESIN.</p> <p>Nationally, work from the UK Climate Projections (UKCP) 2018 was used to inform the risk assessment. The National Risk Register 2020 published by central Government’s Cabinet Office was used to provide context to weather related hazards and how these will evolve with climate change. Previous versions of this document framed the GM Community Risk Register. The work of the Climate Change Committee and the Adaptation Committee has informed both the hazard assessment and the development of the framework for understanding vulnerability. On-going work to inform the UK’s Third Climate Change Risk Assessment and the work of Adaptation Scotland have also been useful.</p> <p>Internationally, work from the Intergovernmental Panel on Climate Change Working Group II, the EU’s recently published Adaptation Strategy, the UN’s Adaptation Gap Report, and work from C40</p>

		<p>Cities, the Rockefeller 100 Resilient Cities network and the CDP has further helped to shape the understanding of climate hazard and vulnerability. To assist with the articulation of the framework, the risk assessment of numerous other cities and regions have been reviewed. Of particular note, here is the work of Climate Ready Boston, Climate Ready Clyde, Thrive Indianapolis, and the London Climate Change Partnership. The author has spoken to or interviewed several individuals and representatives of organisations to inform the framework, and to establish a context for further work on adaptation and resilience planning. These include: the Carbon Disclosure Project; Greater Manchester Combined Authority; London Climate Partnership; Manchester City Council; Manchester Arts Sustainability Team; Manchester Climate Change Agency; Manchester Climate Youth Board; Manchester Metropolitan University; & the University of Manchester. The work has been reviewed and commented on by the recently established Manchester Climate Change Partnership Adaptation & Resilience Advisory Group.</p>
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GCoM Additional Information

(2.0b) Please attach and provide details on your climate change risk and vulnerability assessment. Please provide details on the boundary of your assessment, and where this differs from your city's boundary, please provide an explanation.

Publication title and attach the document

Manchester Climate Risk: A framework for understanding hazard and vulnerability

 ManchesterClimateRiskAFrameworkForUnderstandingHazardsVulnerabilityv0.1.pdf

Web link

https://www.manchesterclimate.com/sites/default/files/Manchester%20Climate%20Risk-%20A%20Framework%20For%20Understanding%20Hazards%20%26%20Vulnerability_v0.1.pdf

Year of publication or approval from local government

2021

Boundary of assessment relative to city boundary (reported in 0.1)

Larger – covers the whole city and adjoining areas

Explanation of boundary choice where the assessment boundary differs from the city boundary

Although the framework overwhelmingly concentrates on the Manchester local authority administrative area, it does acknowledge that some risks and impacts extend beyond the city's boundaries. The Framework includes a section named 'Risk beyond the city boundaries'. It states:

“The drivers and consequences of climate change hazards cross local authority boundaries to regional, national and global scales. For instance, supply chains are – more often than not - dependent upon infrastructure networks, businesses and service suppliers in other places. Employees, business customers, and service users may live in other places outside Manchester, or may travel through Manchester to reach destinations. The city’s rivers convey water from other parts of the city region and beyond meaning that flood water is both imported from other local authorities and, in turn, is exported elsewhere. Manchester may also be impacted by the international affects of climate change including potential disruption to continental and global food supplies, trading, human migration and the introduction of invasive species. Consequently, consideration should be given to how climate change mitigation, adaptation and resilience elsewhere might have consequences for Manchester’s vulnerability.”

Primary author of assessment

Dedicated city team

Does the assessment identify vulnerable populations?

Yes

Areas/sectors covered by the risk and vulnerability assessment

Environment, Biodiversity and Forestry

Residential

Public health

Please explain

MCCA has recently published Manchester Climate Risk: A framework for understanding hazard and vulnerability. This report identifies the main weather hazards that the city has faced and continues to face and how these are projected to alter given climate change. Beyond this, the document outlines the city’s main climate risk exposure and vulnerabilities across a series of six interrelated themes (outlined below).

1. People & society

The health, wealth and well-being of everyone in society are fundamental indicators of the success and vitality of a city. Manchester is a complex and diverse city, composed of many intersecting communities with different strengths and vulnerabilities. Communities and individuals will be affected by climate change in different ways. Some people will have greater capacity to respond than others.

2. Economic Activity

Wealth and economic opportunity is not shared equally across the city and its people. Climate change will bring both threats and opportunities to the economic sustainability and the competitiveness of the city. It has the potential to have significant implications for social justice and inclusive growth.

3. Place & the built environment

The places that we inhabit, and more specifically our built environment, are a key element of our exposure to the impacts to climate change. We need to consider how our

urban spaces, public places and parks and green spaces are vulnerable to the impacts of climate change.

4. Infrastructure

The effective functioning of our infrastructure is vital for economic and social well-being of all those that live and work in the city. Climate change threatens to both exacerbate long-standing vulnerabilities and introduce new vulnerabilities to the city's infrastructure networks.

5. Natural environment, biodiversity and green and blue infrastructure

Manchester has a vast range of green and blue space and biodiversity. However, these spaces are of varying quality, and face pressure from development for new homes and workplaces. Some of these spaces and their biodiversity and quality will themselves be impacted by climate change.

6. Cross-cutting themes

There are several cross-cutting factors that should be considered when assessing Manchester's sensitivity and vulnerability to climate change. These include interdependencies that will frame any efforts to adapt to climate change such as the management of risk across the city's boundaries, and evaluating the understanding of climate risk, resilience and adaptation.

Climate Hazards

(2.1) Please list the most significant climate hazards faced by your city and indicate the probability and consequence of these hazards, as well as the expected future change in frequency and intensity. Please also select the most relevant assets or services that are affected by the climate hazard and provide a description of the impact.

Climate Hazards

Extreme hot temperature > Extreme hot days

Did this hazard significantly impact your city before 2021?

Yes

Current probability of hazard

Low

Current magnitude of hazard

Low

Social impact of hazard overall

Increased demand for public services

Increased demand for healthcare services
Increased risk to already vulnerable populations

Most relevant assets / services affected overall

Transport
Residential
Education
Public health
Society / community & culture
Emergency services

Please identify which vulnerable populations are affected

Children & youth
Elderly
Persons with disabilities
Persons with chronic diseases

Future change in frequency

Increasing

Future change in intensity

Increasing

Future expected magnitude of hazard

Medium

When do you first expect to experience those changes in frequency and intensity?

Medium-term (2026-2050)

Please describe the impacts experienced so far, and how you expect the hazard to impact in the future

Although heatwaves and extreme hot days are currently rare in Manchester, climate projections suggest that Manchester will face warmer summers in the future. There is an associated increased likelihood that we will face intense very hot spells (heatwaves). Some summer days could potentially be extremely hot. Higher night-time temperatures will be a particular problem in cities where buildings retain heat overnight.

As part of the Greater Manchester (GM) Critical infrastructure risk assessment, using projected climate change (developed under the EcoCities project) for a 2050's high GHG emissions scenario, projections suggest:

- summer mean daily maximum temperature: + 5.6°C
- Warmest day in summer: + 6°C
- Warmest night in summer: + 4.4°C

The potential direct impacts are outlined below:

- Significant human health implications. Increased death rates for the old, the very young and those with underlying conditions.

- Negative impact on the thermal comfort of inhabitants. Consequences for the ability of people to rest and sleep, again with implications for human health and productivity.
- Increased use of air conditioning, paradoxically producing further climate changing emissions.
- Pressure on urban infrastructure including railways and airport capacity and efficiency. IT servers may struggle to cope with very hot weather.

The spatial pattern of Manchester's urban heat island demonstrates that certain areas, particularly those where development density is at its highest, are more likely to suffer from negative impacts as a result. There is also an equality dimension to heat stress. For example, there is greater potential exposure to heat stress in more deprived areas. In effect, groups that are vulnerable to heat stress, due to factors including poverty and poor health, show the highest potential exposure to this climate change impact.

Climate Hazards

Flood and sea level rise > Flash / surface flood

Did this hazard significantly impact your city before 2021?

Yes

Current probability of hazard

Medium

Current magnitude of hazard

Medium High

Social impact of hazard overall

Fluctuating socio-economic conditions
 Increased demand for public services
 Increased demand for healthcare services
 Increased risk to already vulnerable populations

Most relevant assets / services affected overall

Water supply & sanitation
 Transport
 Commercial
 Residential
 Public health
 Emergency services
 Land use planning

Please identify which vulnerable populations are affected

Children & youth
 Elderly
 Marginalized groups
 Persons with disabilities
 Persons with chronic diseases

Low-income households
 Unemployed persons
 Persons living in sub-standard housing

Future change in frequency

Increasing

Future change in intensity

Increasing

Future expected magnitude of hazard

High

When do you first expect to experience those changes in frequency and intensity?

Medium-term (2026-2050)

Please describe the impacts experienced so far, and how you expect the hazard to impact in the future

Flooding is the most significant weather hazard for Manchester; a threat that is projected to increase with climate change. For some time now we have known that pluvial (surface water) flooding is superseding fluvial flooding (from main rivers) as the most common type of event (Carter and Lawson 2011).

SUMMER STORMS

Although it is anticipated that, generally, the climate will be drier in Summer in the future, data from UKCP 2018 also indicates future increases in short-lived heavy rainfall events. There is an increased likelihood that there will be greater intensity in hourly precipitation extremes. More particularly, the impacts of increased convective rainfall events could be exacerbated by significant surface water run-off with precipitation falling on very dry ground.

AUTUMNAL AND WINTER STORMS/ WINTER PRECIPITATION

Winters are likely to be wetter. In particular, successive mid-Atlantic lows have the potential to bring considerable amounts of rain to the region. Groundwater levels and soil saturation could remain high all winter, particularly in the hills and moorlands around Manchester that feed rivers. It is worth noting that UKCP 2018 warns “Users may wish to take the precautionary approach of considering the implications of a very large winter precipitation increase being more likely than the probabilistic projections suggest” (Met Office, 2019: 8).

The GM Critical infrastructure risk assessment looked at the 2050s high GHG emissions scenario (developed under the EcoCities project) and compared it to conditions during 1961-1990. The findings for GM’s Mersey Basin zone (where Manchester city is situated) projects the following hazard increases which will intensify the pluvial/flash flood risk by:

-Precipitation on the wettest day in winter: + 31%

- Precipitation on the wettest day in summer: + 19%
- Winter mean precipitation: +28%
- Annual mean precipitation: +9%

Beyond the damage caused to buildings and infrastructure, flooding also brings secondary impacts including the subsequent psychological stress that can be caused to flood victims. Another secondary impact is that treatment works can overflow into a river during times of excess flow causing pollution.

Climate Hazards

Extreme hot temperature > Heat wave

Did this hazard significantly impact your city before 2021?

No

Current probability of hazard

Medium Low

Current magnitude of hazard

Medium Low

Social impact of hazard overall

Increased demand for public services
Increased demand for healthcare services
Increased risk to already vulnerable populations
Increased resource demand

Most relevant assets / services affected overall

Residential
Education
Public health
Society / community & culture
Emergency services

Please identify which vulnerable populations are affected

Children & youth
Elderly
Persons with disabilities
Persons with chronic diseases

Future change in frequency

Increasing

Future change in intensity

Increasing

Future expected magnitude of hazard

Medium

When do you first expect to experience those changes in frequency and intensity?

Medium-term (2026-2050)

Please describe the impacts experienced so far, and how you expect the hazard to impact in the future

Although currently relatively rare, climate projections suggest that Manchester will face warmer summers in the future. There is an associated increased likelihood that we will face intense very hot spells (heatwaves). Some summer days could potentially be extremely hot. Higher night-time temperatures will be a particular problem in cities given the urban heat island effect and because buildings will retain heat overnight. This is particularly important because economic activity is concentrated in the city core (that is, the Mersey basin zone) and given the prevalence of vulnerable groups (deprived, health impacted, young and elderly) in the spatial locations projected to suffer the most from heat waves. Heat waves may also bring the threat of an increased frequency and intensity of intense convectional rainfall.

As part of the Greater Manchester (GM) Critical infrastructure risk assessment, using projected climate change (developed under the EcoCities project: https://resin-cities.eu/fileadmin/user_upload/Resources/City_report_GM/GMCCRA_report_final.pdf) for a 2050's high GHG emissions scenario, projections suggest:

- summer mean daily maximum temperature: + 5.6°C
- Warmest day in summer: + 6°C
- Warmest night in summer: + 4.4°C

The implications are potentially significant particularly for human health. Severe heat waves will increase death rates for the old, the very young and those with underlying health conditions.

There is an equality dimension to heat stress. Those at broader socio-economic disadvantage, show the highest potential exposure to this climate change impact.

Heat waves also have the potential to have a significant impact on the thermal comfort of the city's inhabitants. In particular, heat waves could have consequences for the ability of people to rest and sleep, again with implications for human health and productivity.

Further implications include an increased use of air conditioning, paradoxically producing further climate changing emissions.

Heat waves and very hot summer days pose a threat to the functioning of urban infrastructure including railways and airport capacity and efficiency. For instance, it has been reported to us that in recent heatwaves IT servers have struggled to cope.

Climate Hazards

Storm and wind > Severe wind

Did this hazard significantly impact your city before 2021?

Yes

Current probability of hazard

Medium

Current magnitude of hazard

Medium

Social impact of hazard overall

Increased demand for public services

Increased demand for healthcare services

Increased risk to already vulnerable populations

Most relevant assets / services affected overall

Energy

Water supply & sanitation

Transport

Food & agriculture

Waste management

Information & communications technology

Environment, biodiversity, forestry

Emergency services

Please identify which vulnerable populations are affected

Children & youth

Elderly

Marginalized groups

Persons with disabilities

Low-income households

Persons living in sub-standard housing

Future change in frequency

Increasing

Future change in intensity

Increasing

Future expected magnitude of hazard

Do not know

When do you first expect to experience those changes in frequency and intensity?

Medium-term (2026-2050)

Please describe the impacts experienced so far, and how you expect the hazard to impact in the future

Disruption and short-term interruption associated with damage to infrastructure or problems with mobility, including mobilisation of emergency response. There could be a risk to health due to the dangers of high winds. This could be compounded by disruption to the wider energy and ICT networks. This, alongside combinations of high wind events with higher rainfall, could see this hazard impact combine with more frequent and higher risk fluvial and pluvial flood risks identified above. (Adapted from the Greater Manchester CDP submission)

Climate Hazards

Flood and sea level rise > River flood

Did this hazard significantly impact your city before 2021?

Yes

Current probability of hazard

Medium Low

Current magnitude of hazard

Medium Low

Social impact of hazard overall

Increased demand for public services
Increased demand for healthcare services
Increased risk to already vulnerable populations

Most relevant assets / services affected overall

Energy
Water supply & sanitation
Transport
Food & agriculture
Waste management
Information & communications technology
Environment, biodiversity, forestry
Emergency services

Please identify which vulnerable populations are affected

Children & youth
Elderly
Marginalized groups
Persons with disabilities
Low-income households
Persons living in sub-standard housing

Future change in frequency

Increasing

Future change in intensity

Increasing

Future expected magnitude of hazard

Do not know

When do you first expect to experience those changes in frequency and intensity?

Medium-term (2026-2050)

Please describe the impacts experienced so far, and how you expect the hazard to impact in the future

Fluvial flooding is one of the key weather and climate threats to the city, both today and in the future.

Manchester has four main river courses, the largest of which is the River Irwell which rises in moorland near Bacup. The Irwell flows to the west of Manchester city centre and is canalised in its lower reaches, eventually becoming the Manchester Ship Canal. The Irwell catchment area is wetter than the UK average. It is considered 'flashy', responding very quickly to rainfall given the rapid runoff from steep and narrow valleys, moorland that has lost water retention functionality since the industrial era, and intense urbanisation across Greater Manchester over several centuries. The Irwell confluences with the much smaller rivers Irk and Medlock in the city centre. These two tributaries, and other subordinate tributaries and brooks, are heavily modified in their lower reaches, in many places being fully culverted. The River Mersey flows through the south of the city.

Given the location of key assets and infrastructures within Flood Zones and the high consequences of related impacts should they occur, the associated risks remain high. Manchester is already seeing an intensification in this fluvial flood hazard, with river flooding events becoming increasingly frequent in the last 70 years.

Within the GM Critical infrastructure risk assessment (which looked at 2050s high GHG emissions change is from 1961-1990 at 90th percentile) scenario for GM's Mersey Basin zone (which Manchester city is situated in). Which was defined under the Ecocities project, Cavan 2010, the emissions scenario, projects the following hazard increases which will intensify the pluvial/flash flood risk by:

- Precipitation on the wettest day in winter: + 31%
- Precipitation on the wettest day in summer: + 19%
- Winter mean precipitation: +28%
- Annual mean precipitation: +9%

Fluvial flooding for communities and properties - both residential and commercial – and infrastructure. Significant economic damage, as well as potentially severe, long-term

social and psychological impacts for communities.

High river levels may accelerate riverbank erosion, cause silting and potentially alter the course of channels. There may be overtopping or undermining of reservoirs or water storage.

Climate Hazards

Extreme Precipitation > Rain storm

Did this hazard significantly impact your city before 2021?

Yes

Current probability of hazard

Medium High

Current magnitude of hazard

Medium

Social impact of hazard overall

Increased demand for public services

Increased risk to already vulnerable populations

Increased resource demand

Most relevant assets / services affected overall

Energy

Water supply & sanitation

Transport

Food & agriculture

Information & communications technology

Residential

Society / community & culture

Emergency services

Land use planning

Please identify which vulnerable populations are affected

Children & youth

Elderly

Persons with disabilities

Persons with chronic diseases

Low-income households

Persons living in sub-standard housing

Future change in frequency

Increasing

Future change in intensity

Increasing

Future expected magnitude of hazard

High

When do you first expect to experience those changes in frequency and intensity?

Short-term (by 2025)

Please describe the impacts experienced so far, and how you expect the hazard to impact in the future

Although it is anticipated that, generally, the climate will be drier in Summer in the future, data from UKCP 2018 also indicates future increases in short-lived heavy rainfall events. There is an increased likelihood that there will be greater intensity in hourly precipitation extremes. More particularly, the impacts of increased convectional rainfall events could be exacerbated by significant surface water run-off with precipitation falling on very dry ground. Critically, however, climate change is just one facet of this hazard. Urbanisation and aging urban infrastructures are contributing to this risk..

We have identified the direct impacts below:

- Fluvial flooding for communities and properties - both residential and commercial – and infrastructure. Significant economic damage, as well as potentially severe, long-term social and psychological impacts for communities.
- High river levels may accelerate riverbank erosion, cause silting and potentially alter the course of channels.
- Overwhelming of urban drainage infrastructure. Pluvial flooding of communities, businesses and infrastructure nodes.
- Overtopping or undermining of reservoirs or water storage.
- Treatment works can overspill into a river during times of excess flow causing pollution.
- Land instability, landslips, subsidence or sinkholes.
- Possible (though likely to be isolated) damage from lightning strikes during intense convectional thunderstorms.
- Disruption to – and potential closure of – infrastructure and transport networks.
- Dangerous winds with the potential for fallen trees (in full-leaf), infrastructure disruption, and damage to buildings.

Climate Hazards

Extreme cold temperature > Extreme cold days

Did this hazard significantly impact your city before 2021?

Do not know

Current probability of hazard

Low

Current magnitude of hazard

Low

Social impact of hazard overall

Increased demand for public services
Increased demand for healthcare services
Increased risk to already vulnerable populations
Increased resource demand

Most relevant assets / services affected overall

Transport
Residential
Emergency services

Please identify which vulnerable populations are affected

Elderly
Persons with disabilities
Persons with chronic diseases
Low-income households
Persons living in sub-standard housing

Future change in frequency

Decreasing

Future change in intensity

Decreasing

Future expected magnitude of hazard

Low

When do you first expect to experience those changes in frequency and intensity?

Long-term (after 2050)

Please describe the impacts experienced so far, and how you expect the hazard to impact in the future

Climate projections indicate winters will generally be warmer. UKCP 2018 suggest that by the end of the century there will be very few, if any, incidents of snowfall lying on the ground, except for on higher ground. This does not, however, entirely preclude periods of relatively prolonged cold snaps and accumulations of ground-lying snow in the short to medium term.

The primary impacts are noted below:

- Threat to human health, particularly for vulnerable people including the elderly, people in fuel poverty and the homeless.
- Pressure on infrastructure including disruption to transport networks, the fracturing of water and drainage pipes, snow and ice on power lines.
- Disruption to transport services, including airport and road closures.
- Disruption to public and human health services, including school closures, health services, and council services.

- Economic impacts given business and infrastructure disruption.

GCoM Common Reporting Framework Reporting Requirements for European Cities

(2.2) Please identify and describe the factors that most greatly affect your city’s ability to adapt to climate change and indicate how those factors either support or challenge this ability.

Factors that affect ability to adapt	Indicate if this factor either supports or challenges the ability to adapt	Level of degree to which factor challenges/supports the adaptive capacity of your city	Please describe how the factor supports or challenges the adaptive capacity of your city
Infrastructure capacity	Supports	Moderately supports	Electricity North West has committed to support Manchester and the north to become a zero carbon city by de-carbonising the city's power to near net zero by 2038.
Community engagement	Supports	Significantly supports	Manchester has an incredibly strong history of working collaboratively. Manchester Climate Change Partnership (MCCP) is a network of 60 organisations across 10 sectors, composing 20% of the city's economy and carbon emissions, with influence over the remaining 80%. MCCP is coordinated and supported by Manchester Climate Change Agency (MCCA), which operates with two core principles: taking a science-based approach to setting objectives, and; the need for 'bottom-up' stakeholder action to meet the city's targets, enabled by strategic interventions by local and national agencies. Combined, MCCA and MCCP champion and facilitate citywide climate change action. Manchester has an advanced policy framework for climate change mitigation, committing to halving CO2 emissions during 2020-25 and achieving net-zero by 2038. The partnership is committed to the cities carbon reduction targets and gives us

			unprecedented access to Manchester’s citizens as customers, staff, students as well as access to Manchester’s organisations through partnership, supply chains and their networks.
Access to basic services	Supports	Somewhat supports	Particularly in relation to disaster risk response which is mandated under legislation (civil contingencies act 2004) means that public sector is well placed to respond to hazard events
Poverty	Challenges	Significantly challenges	Inequality, including income inequality and poverty, negatively affects citizens adaptive capacity.
Resource availability	Challenges	Significantly challenges	Funding available to local authorities and other public sector agencies working in this field has to compete with a range of other statutory priorities. This is occurring against a challenging background of wider public sector funding pressures, There are added challenges this year with COVID-19 and the recovery, which is having an impact on capacity of key organisations to develop and deliver adaptation and resilience responses.
Access to quality / relevant data	Challenges	Moderately challenges	<p>1. The extent and nature of climate related risk is not yet fully understood due to the complexity of interconnections between the changing climate, land use and natural processes.</p> <p>2. Records have not been systematically kept of the incidence and consequences of extreme weather events impacting on critical infrastructure (and other locations and assets) located within and serving Manchester. This makes it difficult to generate a strategic picture of priority sectors, locations and hazard events that are of greatest relevance to the conurbation. The passing of the Flood and Waters Management Act (in 2010) has started to address this issue in the</p>

			<p>context of flooding.</p> <p>3. There are issues and uncertainties concerning the accuracy of data and prediction tools, particularly regarding future flooding projections data. This makes is challenging to develop adaptation and resilience responses, particularly regarding hard infrastructure investments that operate over long time horizons.</p>
Political stability	Supports	Somewhat supports	<p>Manchester has both political and officer-level awareness and involvement in tackling the climate crisis.</p> <p>It also has history of collaborative working with the wider Combined Authority which can provide a platform to support engagement of other partner organisations involved in adaptation and critical infrastructure activities</p>
Political engagement / transparency	Supports	Somewhat supports	<p>Manchester maintains transparent monitoring and reporting on progress from a range of groups, such as MCCP Annual Reports and annual reports since 2019 to CDP.</p> <p>This has allowed for a critical perspective to be maintained and for areas for improvement to be identified.</p>

(2.3) Is your city facing risks to public health or health systems associated with climate change?

Yes

(2.3a) Please report on how climate change impacts health outcomes and health services in your city.

Area affected by climate change

Health outcomes

Health systems (service provision, infrastructure and technologies)

Areas outside the health sector (e.g. agriculture, water and sanitation, transport, power generation, built environment)

Health-related risk and vulnerability assessment undertaken

No

Identify the climate hazards most significantly impacting the selected areas

Flood and sea level rise > Flash / surface flood

Flood and sea level rise > River flood

Identify the climate-related health issues faced by your city

Disruption to water, sanitation and wastewater services

Disruption to health service provision

Timescale of climate-related issues for the selected health area

Medium-term (2026-2050)

Please identify which vulnerable populations are affected by these climate-related impacts

Elderly

Marginalized groups

Persons with disabilities

Persons with pre-existing medical conditions

Low-income households

Persons living in sub-standard housing

Other, please specify

Black and minority ethnic communities. Households unable to access transport.

Those with fewer educational qualifications. People in social housing or rental housing. Those with communication difficulties/limited proficiency in English.

Homeless

Please explain

Further work is needed on this topic. This will be undertaken by the 'Manchester Health, Wellbeing and Climate Change Independent Advisory Group, once established during 2021-22. Its establishment has been delayed due to COVID.

<http://www.manchesterclimate.com/advisory-groups>

This has been scoped in Manchester Climate Risk: a framework for understanding hazards and vulnerability. This report, published in May 2021 states:

The adverse direct impacts of climate change – particularly from flooding and higher summer temperatures/ heatwaves - on human health could be considerable. They will involve both exacerbating existing health inequalities and the introduction of new health risks for people.

Notably, Greater Manchester is referred to as a 'Marmot city-region'; a place necessitating innovative cross sectoral governance responses to address significant health in-equalities (Codling & Allen, 2020). Health inequalities and the impacts on recovery from shocks were further demonstrated by recent work by Public Health England (2020) outlining disparities in the risk and outcomes from COVID19 across a range of population characteristics (see also Marmot et al, 2020).

The human health impacts of climate change may disproportionately affect those who are already vulnerable, for example, older people, very young people, people living in socio-economic deprivation and those with underlying health conditions. Demonstrating this, heatwaves and air pollution exacerbated by climate conditions or moorland fires can cause death and serious illness, particularly in the elderly, children and those with pre-existing respiratory illness and cardio-vascular disease. Flood water poses a (relatively small) risk of drowning and may harbour disease. Households that flood, but for whatever reason are unable to relocate either during the flood event or the process of reconstruction, report ill-health from living in damp homes.

Experience of hazards can generate severe mental health and emotional impacts that may outlast the immediate impacts of events. For instance, communities that have suffered from flooding often report impacts in mental health several years after specific flood events.

In the longer-term, climate change could increase the risk of new pathogens and diseases borne by invasive insect species.

It is possible that warmer summers and milder winters will encourage greater use of the outdoors and greenspace, potentially bringing benefits to physical and mental health.

Climate change will have likely impacts on the delivery of functional human health and social care services. There are two key dimensions to this:

1. How climate change will directly impact staff, facilities and the effective delivery of essential human health and social care services. This might include disruption to buildings through flooding or other weather related damage, staff shortages during extreme weather events, or disruption caused by outages to critical infrastructure such as road and public transport networks, power and water supply and/ or IT and communication systems.
2. How climate change will drive further/ or a new demand for services. For instance, heatwaves may put pressure on acute medical services. Dislocation from floods and storms might increase pressure on social services and GP services. There may also be longer term stresses on services given that climate change is likely to increase chronic physical and mental health challenges.

Area affected by climate change

Health outcomes

Health systems (service provision, infrastructure and technologies)

Health-related risk and vulnerability assessment undertaken

Identify the climate hazards most significantly impacting the selected areas

Wild fire > Land fire

Chemical change > Atmospheric CO2 concentrations

Identify the climate-related health issues faced by your city

Air-pollution related illnesses

Exacerbation of Non-Communicable Disease Symptoms (e.g. respiratory disease, cardiovascular disease, renal disease)

Timescale of climate-related issues for the selected health area

Current

Please identify which vulnerable populations are affected by these climate-related impacts

Children and youth

Elderly

Marginalized groups

Outdoor workers

Factory workers

Persons with disabilities

Persons with pre-existing medical conditions

Low-income households

Persons living in sub-standard housing

Please explain

Air pollution and climate change are closely related. As well as driving climate change, the main cause of CO2 emissions – the extraction and burning of fossil fuels – is also a major source of air pollutants. What's more, many air pollutants contribute to climate change by affecting the amount of incoming sunlight that is reflected or absorbed by the atmosphere, with some pollutants warming and others cooling the Earth. These short-lived climate-forcing pollutants (SLCPs) include methane, black carbon, ground-level ozone, and sulphate aerosols. They have significant impacts on the climate: black carbon and methane in particular are among the top contributors to global warming after CO2.

Poor air quality is the largest environmental risk to the public's health. Taking action to improve air quality is crucial to improve the health of the general population. Whilst air quality has been generally improving over time, particular pollutants remain a serious concern in many urban areas including across Manchester.

Air pollution affects the health of people living, working and travelling in Greater Manchester. Pollutants such as nitrogen dioxide (NO2) which is the harmful oxide of nitrogen (NOx), and particulate matter (PM2.5 and PM10) that are not visible to the naked eye are found at dangerous levels in many urban areas and on busy roads. Road transport causes two-thirds of NOx emissions and nearly 80% of PM emissions at the roadside.

Diesel vehicles are the main source of road-based NOx emissions in Greater Manchester, and older vehicles are typically more polluting than newer vehicles. Large

vehicles such as lorries are the most polluting from the exhaust pipe, and in general, diesel vehicles contribute the most.

Breathing in polluted air contributes to the equivalent of 1,200 deaths a year in Greater Manchester. Both long and short term exposure to air pollution are known to adversely affect health. It affects people's lungs in the short and long term, worsening respiratory issues such as asthma or bronchitis, as well as cardiovascular problems, and reduces life expectancy. Health damage caused by air pollution can begin as early as a baby's first few weeks in the womb and exposure over a long time can lead to heart and lung disease.

The most vulnerable in society are hit hardest – children, older people and those already in poor health. Everyone is at risk. But people who spend more time in areas with a high concentration of air pollution are most affected – which can include drivers. The air you breathe inside your vehicle can be dirtier than the air outside so people who spend a lot of time in their cars, taxis, vans or lorries are particularly at risk. The people living in places with the dirtiest air are often those least likely to drive, and some of the Greater Manchester's most deprived communities suffer the worst air pollution as they live close to busy roads.

In total, it is estimated that the health and social care costs of air pollution in England could reach £5.3 billion by 2035 unless action is taken. Changing the vehicles we drive and how we travel can clean up our air. This will require residents and businesses to take action, with Greater Manchester's local authorities leading the way. Action is already underway, and this Clean Air Plan will bring forward Measures to bring illegally high roadside NO₂ levels within legal limits as soon as possible.

3. Adaptation

Adaptation Actions

GCoM Common Reporting Framework Reporting Requirements for European Cities

(3.0) Please describe the main actions you are taking to reduce the risk to, and vulnerability of, your city's infrastructure, services, citizens, and businesses from climate change as identified in the Climate Hazards section.

Climate hazards

Extreme hot temperature > Extreme hot days

Action

Tree planting and/or creation of green space

Action title

IGNITION

Status of action

Monitoring and reporting

Means of implementation

Capacity building and training activities

Infrastructure development

Policy and regulation

Co-benefit area

Disaster Risk Reduction

Enhanced resilience

Enhanced climate change adaptation

Social community and labour improvements

Improved public health

Ecosystem preservation and biodiversity improvement

Sectors/areas adaptation action applies to

Building and Infrastructure

Spatial Planning

Water

Action description and implementation progress

The Urban Innovation Action programme IGNITION project, which includes organisations such as the Greater Manchester Combined Authority, Manchester City Council, the University of Manchester and the Environment Agency as partners, is ongoing. The headline objective of this project is to establish innovative NBS funding and delivery mechanisms to increase Greater Manchester's urban green infrastructure over the next two decades. The project has produced a green infrastructure baseline that will be used to better understand and plan the enhancement of this resource in Manchester.

This project, backed by €4.5 million from the EU's Urban Innovation Actions (UIA) initiative, brings together 12 partners from local government, universities, NGOs and business. The aim is to develop the first model of its kind that enables major investment in large-scale environmental projects which can increase climate resilience. By 2038 this will enable an increase in Greater Manchester's urban green infrastructure coverage by 10% from a 2018 baseline.

Activities of the project include mapping the 'baseline' of Green Infrastructure in Greater Manchester; mapping the overlay of historic flood events with the Council's capital and highways programmes and the capital programmes of United Utilities and Environment Agency; and exploring potential business models for parks including partial disconnection from mains drainage. Within this project, the Council has secured an additional allocation of £15k to provide further detail around a business case for installing exemplar Sustainable Urban Drainage on Deansgate.

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.

Finance status

Finance secured

Majority funding source

Other, please specify
EU Horizon 2020

Total cost of the project (currency)

5,000,000

Total cost provided by the local government (currency)

228,000

Total cost provided by the majority funding source (currency)

4,000,000

Web link

NB: the local government contribution is the required 20% match funding (for the 80% EU funding). The £220,000 figure is a combination of Greater Manchester Combined Authority (lead partner), Manchester City Council and Salford City Council.

The project, partnership and bid development was led by Manchester Climate Change Agency, on behalf of GMCA.

<https://www.greatermanchester-ca.gov.uk/what-we-do/environment/ignition/>

Climate hazards

Flood and sea level rise > Flash / surface flood

Action

Nature based solutions for water

Action title

GROWGREEN

Status of action

Implementation

Means of implementation

Stakeholder engagement
Infrastructure development
Assessment and evaluation activities
Monitor activities
Verification activities
Development and implementation of action plan

Sustainable public procurement

Co-benefit area

Enhanced resilience
Enhanced climate change adaptation
Social inclusion, social justice
Improved resource quality (e.g. air, water)
Improved public health

Sectors/areas adaptation action applies to

Building and Infrastructure
Water

Action description and implementation progress

GrowGreen is an €11.2m EU-funded Horizon project running from 2017-22 coordinated by Manchester City Council and Manchester Climate Change Agency to support cities to develop and implement plans to become greener and better adapted to climate change. The project will provide two key outputs for Manchester: a demonstration project in West Gorton, and; a refreshed Manchester Green and Blue Infrastructure Strategy. By working with the five EU partner cities (Wroclaw, Valencia, Brest, Modena, Zadar), Wuhan in China and the project's expert partners, GrowGreen should help Manchester to take on-board the latest best practice and provide a catalyst to embed green infrastructure throughout the city's planning, development and regeneration.

The West Gorton Community Park is a £1.4m, 14,000 sq. metre "sponge" park funded by GrowGreen which opened in July 2020. This is a new, accessible, multi-functional neighbourhood green space designed to help the climate resilience of the local area. It follows "sponge principles", incorporating sustainable urban drainage (SuDS) to allow rainwater run-off from nearby roads to be channelled and filtered through natural drainage systems, slowing and reducing the flow into the normal drainage system. The development of the community park included working and consulting with the local community in West Gorton to ensure local ideas could be incorporated into the final design. It has also provided a real-life experience of the procurement and installation process of such a NBS feature and provides a showcase location which can demonstrate NBS's in use and the potential wider business cases for future financing of such developments.

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 adapt the city to the changing climate and maximise other benefits such as improved biodiversity and health and well being.

Finance status

Finance secured

Majority funding source

Other, please specify

EU Horizon 2020

Total cost of the project (currency)

11,200,000

Total cost provided by the local government (currency)

Total cost provided by the majority funding source (currency)

11,200,000

Web link

www.growgreenproject.eu

Video link: <https://www.youtube.com/watch?v=-QYGT0LVRUI>

Climate hazards

Flood and sea level rise > River flood

Action

No action currently taken

Action title

Mayfield Development

Status of action

Pre-implementation

Means of implementation

Infrastructure development

Co-benefit area

Disaster Risk Reduction

Enhanced resilience

Enhanced climate change adaptation

Social inclusion, social justice

Improved public health

Resource conservation (e.g. soil, water)

Ecosystem preservation and biodiversity improvement

Improved access to and quality of mobility services and infrastructure

Sectors/areas adaptation action applies to

Building and Infrastructure

Spatial Planning

Water

Action description and implementation progress

The Mayfield development is a transformational mixed-use city centre regeneration project reviving a former industrial heartland into a modern innovation quarter.

Mayfield is a 24-acre brownfield site packed with heritage and the River Medlock flowing through its core. The site has an industrial history of innovation spanning back to the 1700's with previous lives as a parcel depot, relief railway station and textile mill. The site was left derelict for over 30 years before the next phase of its revival began.

The Mayfield Partnership – comprised of U+I, Manchester City Council, Transport for Greater Manchester and LCR – formed in 2016 with a shared vision to deliver a modern neighbourhood at the heart of Manchester. Overall, the brownfield site will provide over 2.3m sq ft GIA office space facilitating 16,000 new jobs, 1,500 homes, 56,000 sq ft of retail and leisure, a new 300-bed hotel and 13-acres of public realm, including Mayfield Park – the city's first new park in over 100 years.

Consent for phase one of the scheme was granted in February 2020, which will see the creation of the 6.5-acre park, office buildings, a car park and significant public realm. In August 2020 Mayfield secured £23 million in grant funding from the Government's 'Getting Building' Fund which will allow construction to commence soon, with the first buildings estimated to complete in 2022.

The key urban design principles of the Mayfield SRF are to: create a distinctive sense of place; enhance connectivity; maximise regeneration benefit; optimise sustainability; incorporate a new major urban park for Manchester, focused around the River Medlock.

Mayfield has the opportunity to be the most sustainable district in Manchester. The rejuvenation of brownfield and the ability to create new ecological habitats will educate and inspire. Bringing back to life a once derelict building, in close proximity to a major transport hub, with associated public realm improvements, gives the scheme a highly sustainable foundation which will be built upon with a holistic approach to building design to minimise energy use and emissions of CO₂ and to have a positive impact on the wellbeing of all who experience Mayfield.

This ethos of low embodied energy will extend to the use of new components for the development, with materials selected to minimise embodied energy, to maximise recycled content as far as practicable, and with consideration of responsible sourcing. Construction practices which minimise waste generation during construction (for example off-site prefabrication and matching design sizes to standard sizes) will also be considered from the outset. All buildings will at least achieve an excellent, if not outstanding, BREEAM rating.

Also, the park will bring multiple benefits. The park will be designed around the pattern of the river's flooding, protecting habitable zones from the adverse effects and improve ecological and pedestrian connections along the Medlock Valley. It will provide sustainable drainage strategies & optimise air quality. It will provide open spaces to promote health and wellbeing, for example, health and fitness facilities will be integrated into the park. It will increase ecological value along with the rejuvenating a tired industrial landscape. There will also be extensive amenities onsite, as well as safe active transport links to encourage cycling.

The remaining phases of Mayfield will be developed over the next decade, and are expected to generate in the region of £7bn of socio-economic gain – creating a thriving and exciting neighbourhood for all Mancunians to enjoy.

Finance status

Finance secured

Majority funding source

Public-private partnership

Total cost of the project (currency)

1,400,000,000

Total cost provided by the local government (currency)

Total cost provided by the majority funding source (currency)

Web link

http://www.manchester.gov.uk/download/downloads/id/27052/mayfield_srf_may_2018.pdf

Climate hazards

Action

Incorporating climate change into long-term planning documents

Action title

UK Climate Resilience: Embedded Researcher scheme, Adaptation & Resilience: Planning & Action for Manchester.

Status of action

Implementation

Means of implementation

Stakeholder engagement
Assessment and evaluation activities
Monitor activities
Development and implementation of action plan
Policy and regulation

Co-benefit area

Disaster Risk Reduction
Enhanced resilience
Enhanced climate change adaptation
Shift to more sustainable behaviours

Improved access to data for informed decision-making

Sectors/areas adaptation action applies to

Transport (Mobility)
Building and Infrastructure
Industry
ICT (Information and Communication Technology)
Spatial Planning
Agriculture and Forestry
Water
Public Health and Safety
Business and Financial Service
Social Services

Action description and implementation progress

Since 2018, MCCA has established a robust city-level and sector-level policy framework to enable action on climate change. Although concentrating on climate change mitigation to date, the Manchester Climate Change Framework 2020-25 contains this high-level objective: “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.”

However, thus far the pursuit of this policy differs from the city’s mitigation work in three respects: it requires underpinning by reviews of the latest science; it necessitates detailed engagement with stakeholders, and it requires the development of indicators to enable performance reporting over time.

This project addresses these issues, correlating closely with the Joint UKRI & Met Office Science Plan by planning for climate-related risks through adaptation and, to a lesser extent, characterising climate-related risks for Manchester. It places an academic with considerable experience in climate change resilience and adaptation research, a proven track record in developing work of policy and practice relevance, and a knowledge of stakeholder governance, to act as MCCA’s ‘Resilience and Adaptation Lead’ for the 12-month project.

Working collaboratively, and underpinned by the latest resilience and adaptation science, the researcher, the staff at MCCA and members of MCCP will establish a SMART city-level adaptation and resilience objective for the city’s climate change strategy (V. 2.0 of Manchester Climate Change Framework 2020-25) and an associated robust, trustworthy monitoring regime.

The project will also support organisations and sectors from across Manchester to develop bespoke commitments and actions and build capacity for their implementation.

To support and enable these commitments, the project will also develop the existing local policy framework and identify where new policies are required.

In 2021 , our Resilience and Adaptation Lead has produced Manchester Climate Risk: A Framework for Understanding Hazards and Vulnerability.

<https://www.manchesterclimate.com/sites/default/files/Climate%20vulnerability%20framework.pdf> and is working on developing adaptation and resilience principles for Manchester to be incorporated into Manchester Climate Change Framework V2

Finance status

Finance secured

Majority funding source

Other, please specify

Strategic Priorities Fund, UK Research and Intelligence / Natural Environment Research Council

Total cost of the project (currency)

87,500

Total cost provided by the local government (currency)

Total cost provided by the majority funding source (currency)

70,000

Web link

<https://nerc.ukri.org/funding/application/currentopportunities/uk-climate-resilience-embedded-researcher-scheme-phase-two-embedded-researchers/>

Climate hazards

Extreme hot temperature > Extreme hot days

Action

Tree planting and/or creation of green space

Action title

The Manchester Tree Action Plan

Status of action

Implementation

Means of implementation

Infrastructure development

Co-benefit area

Improved resource quality (e.g. air, water)

Resource conservation (e.g. soil, water)

Ecosystem preservation and biodiversity improvement

Sectors/areas adaptation action applies to

Agriculture and Forestry

Action description and implementation progress

Based on the successful tree planting work over the last thirteen years where over 100,000 have been planted, a new £1m 3-year programme of city-wide tree planting has been launched, with planting season now underway over winter 2020-21.

The Tree Action Plan is structured around four objectives:

1. Managing trees sustainably
2. Planting trees appropriately
3. Protecting trees strongly and
4. Involving creatively

Financial approval for the £1 million 'Tree Action MCR' tree planting programme was received in October 2020 and the current projections are that this budget will be spent over three financial years with £250,000 being spent in winter 2020/21 on street trees and orchards.

In December 2020, an avenue of mature trees was planted to help create Great Ancoats Boulevard; with 62 trees planted in total. In the same month, 33 cherry trees were planted to create a feature avenue in Old Moat; this was done on the back of a consultation and with the support of local residents, a nearby primary school and ward councillors.

The city is on track to meet this year's targets but, as the treeplanting season runs from November to March, the full and accurate figures are not yet available.

As the programme is rolled out, the target is to plant 1,000 new trees, including a mix of street trees, beacon trees, avenues, hedgerow planting and community orchards within parks.

There have been some delays in the supply of trees from nurseries due to COVID-19 and also social distancing measures preventing some community planting projects from proceeding.

Additionally In August 2020, the Council committed £50k and commissioned City of Trees and TEP to deliver a piece of work 'Managing Manchester's Trees' (MMT) which will help provide a better understanding of the cities tree resource and identify further opportunities for planting and management. The 'i-Trees' assessment of our tree stock aims to demonstrate the value of our existing 1.2 million trees to carbon storage, sequestration, climate resilience air quality and many other benefits. The tree mapping will conclude in March 2021 and will focus on the following:

- A retrospective look back at the composition, change and evolution of the City's treescape over the last 100 years.
- A sustainable and innovative plan for managing the City's existing tree resource.
- Ward specific opportunity maps indicating priorities for new tree planting, including species suitability options.
- The means to identify ward specific location for new Beacon Trees (mature) tree planting.

This work will provide the context within which opportunities for tree planting can be assessed going forward, allowing reasoned decisions to be made regarding appropriate

places to plant individual trees and woodland. It will be used to inform the ongoing active tree planting programme. To support this, the Council have committed £45k to create a 2-year part-time post to manage this internally.

Finance status

Finance secured

Majority funding source

Local

Total cost of the project (currency)

1,050,000

Total cost provided by the local government (currency)

1,050,000

Total cost provided by the majority funding source (currency)

1,050,000

Web link

https://www.manchester.gov.uk/downloads/download/6838/manchester_green_and_blue_strategy

<https://democracy.manchester.gov.uk/documents/s22688/Appendix%201%20MCC%20CCAP%20Progress%20Report%20January%202021.pdf>

<https://democracy.manchester.gov.uk/documents/s22754/MCC%20Climate%20Change%20Action%20Plan%202020-25.pdf>

Climate hazards

Flood and sea level rise > Flash / surface flood

Action

Hazard resistant infrastructure design and construction

Action title

Improving flooding protection for electricity infrastructure

Status of action

Implementation

Means of implementation

Infrastructure development

Co-benefit area

Disaster Risk Reduction

Enhanced resilience

Disaster preparedness

Improved resource security (e.g. food, water, energy)

Sectors/areas adaptation action applies to

Energy

Action description and implementation progress

Across 2023-2028, Electricity North West LTD (ENW) will build on the work completed to date, by improving flood defences to their highest voltage substations serving more than 10,000 customers, in line with the recommendations of the National Flood Resilience Review. This means implementing defences at sites identified as vulnerable through new data and by continuing their programme to improve flood defences to high voltage transformers.

This programme will increase flood protection to 21 substation sites serving 345,000 customers at a forecast cost of £4.2m. Its completion means that all of ENW's major substations will be protected to at least 1/100 year flood risk, including assumptions on future climate change impacts. Target delivery date is 31st March 2028

Finance status

Finance secured

Majority funding source

Other, please specify

Private

Total cost of the project (currency)

4,200,000

Total cost provided by the local government (currency)

0

Total cost provided by the majority funding source (currency)

4,200,000

Web link

Climate hazards

Storm and wind > Severe wind

Action

Action title

Improving storm resilience for electricity infrastructure

Status of action

Implementation

Means of implementation

Infrastructure development

Assessment and evaluation activities

Monitor activities

Co-benefit area

Disaster Risk Reduction
Enhanced resilience
Disaster preparedness
Improved resource security (e.g. food, water, energy)

Sectors/areas adaptation action applies to

Energy

Action description and implementation progress

On average, 70,000 customers ENW are currently affected by large storms every winter. Storms mainly affect the rural areas of the network which have long lengths of overhead power lines.

ENW will improve the resilience of the network reducing the number of customers affected by large storms by increasing our tree-management programme, rolling out overhead line monitoring and delivering other reliability programmes (e.g. worst served customers) to improve performance.

This work will see fewer customers affected by power cuts caused by storms by 2028. They will report annually on the number of customers affected by storms to customers and stakeholders.

ENW have investigated potential specific network resilience programmes for areas persistently impacted by storms but analysis shows that the impacts are relatively widespread and sufficiently rare in any particular location to make a targeted programme uneconomic.

Trees or branches falling onto power lines can cause power cuts and damage. For example, high winds during Storm Ciara in 2020 caused tree damage the ENW network, resulting in power cuts to 27,000 customers.

Their teams of trained tree cutters and surveyors will increase inspections of vegetation near overhead lines in ED2, and work collaboratively with landowners to prune, fell and dismantle more trees at risk of damaging our network.

They will also address the impacts of diseased trees, particularly Ash Dieback – a highly destructive disease caused by a fungus – which is rapidly spreading through the country. Ash Dieback causes ash trees to weaken and pose a greater risk of falling onto overhead lines with consequent impacts on power cuts and safety. To mitigate these impacts, ENW (together with the other network operators and bodies such as local authorities and highways agencies) will need to start proactively removing these trees before they pose a danger. The management of trees near overhead lines and addressing Ash Dieback will cost around £6,000.000 per annum.

Finance status

Finance secured

Majority funding source

Other, please specify
Private

Total cost of the project (currency)

Total cost provided by the local government (currency)

Total cost provided by the majority funding source (currency)

Web link

Climate hazards

Action

Action title

Resilient River Valleys /Our Rivers our City

Status of action

Implementation

Means of implementation

Stakeholder engagement
Infrastructure development
Assessment and evaluation activities
Development and implementation of action plan

Co-benefit area

Enhanced resilience
Enhanced climate change adaptation
Improved resource quality (e.g. air, water)
Improved public health
Resource conservation (e.g. soil, water)
Ecosystem preservation and biodiversity improvement
Shift to more sustainable behaviours

Sectors/areas adaptation action applies to

Water
Public Health and Safety

Action description and implementation progress

Groundwork Greater Manchester has been successful in this latest round of funding under the Green Recovery Challenge Fund. The £1,024,000 Resilient River Valleys project is a partnership between Groundwork Greater Manchester, City of Trees and Mersey Rivers Trust - focusing on delivering nature based solutions for climate mitigation and adaptation in Manchester's 3 river valleys and urban green spaces e.g. leaky dams and tiny forests, with the involvement of 3 local authorities, 4 housing

providers and 1 private sector landowner.

The project also contributes to:

- Nature Conversation and Restoration by inclusion of biodiverse, native species; control of INNS; creating urban stepping stones for wildlife
- Connecting People with Nature, particularly disadvantaged communities, through river and woodland nature based activities, training and volunteering.

In addition to delivering programme of physical works across a network of sites, they will be

Creating a number of new jobs (41 new jobs – 32 paid placements for young people aged 16-24 and 9 other jobs (8.8 FTE) at Groundwork and City of Trees and safeguard a further 12 jobs (8.6FTE) in our partnership - within delivery teams and for young people recruited through DWP Kickstart and NCS Youth Corps initiatives

Delivering programme of community engagement work to connect people with nature based activity within the river valleys and involvement in volunteering and maintenance of urban green space

Developing and delivering new training modules relating to nature based solutions for staff, people on employment programmes and community members, as well as specific training courses and activities relating to managing green infrastructure for community and friends of groups

They have also included a new legacy role to focus on building pipeline of work in river valleys to undertake site surveys, establish land ownership and develop work plans for priority sites identified by partners and the Our Rivers Our City Action Plans.

To complement this, Groundwork have also yesterday submitted a WEIF funding bid focused on the main river of the Irk (Source to Wince) to enable delivery of further capital measures between 2022 and 2025 and with a view to leverage of further future funding to keep momentum going.

Two further WEIF submissions – one focusing on Bradshaw Brook, and one focussed on Middlebrook have also been submitted, to align with current sub catchment planning activity which, if successful, have the potential to bring further investment into the Croal system.

Finance status

Finance secured

Majority funding source

Total cost of the project (currency)

1,024,000

Total cost provided by the local government (currency)

Total cost provided by the majority funding source (currency)

Web link

<https://www.groundwork.org.uk/hubs/greatermanchester/projects/our-rivers-our-city/>
<https://www.groundwork.org.uk/wp-content/uploads/2020/06/Our-Rivers-Our-City-June-2020.pdf>

Adaptation Planning

GCoM Common Reporting Framework Reporting Requirements for European Cities

(3.2) Does your city council, or similar authority, have a published plan that addresses climate change adaptation and/or resilience?

In progress

GCoM Additional Information

(3.2a) Please provide more information on your plan that addresses climate change adaptation and/or resilience and attach the document. Please provide details on the boundary of your plan, and where this differs from your city's boundary, please provide an explanation.

Publication title and attach the document

Greater Manchester Resilience Strategy 2020-2030

 greater-manchester-resilience-strategy-2020-2030.pdf

 Greater Manchester Resilience Strategy Delivery Plan 2021-22.pdf

Web link

<https://www.greatermanchester-ca.gov.uk/media/4542/greater-manchester-resilience-strategy-2020-2030.pdf>

Sectors/areas covered by plan that addresses climate change adaptation

Energy

Transport (Mobility)

Building and Infrastructure

Industry

ICT (Information and Communication Technology)

Spatial Planning

Agriculture and Forestry

Climate hazards factored into plan that addresses climate change adaptation

Extreme Precipitation > Rain storm

Extreme cold temperature > Extreme winter conditions

Flood and sea level rise > Flash / surface flood

Flood and sea level rise > River flood

Biological hazards > Vector-borne disease

Biological hazards > Air-borne disease

Year of adoption of adaptation plan by local government

2021

Boundary of plan relative to city boundary (reported in 0.1)

Larger – covers the whole city and adjoining areas

If the city boundary is different from the plan boundary, please explain why

Covers the whole Greater Manchester area. Work is underway to develop a more specific adaptation plan for Manchester.

Stage of implementation

Plan in implementation

Type of plan

Standalone

Has your local government assessed the synergies, trade-offs, and co-benefits, if any, of the main mitigation and adaptation actions you identified?

Describe the synergies, trade-offs, and co-benefits of this interaction

The Greater Manchester Resilience Forum has released the Greater Manchester Resilience Strategy 2020-2030 which sets out the vision for a resilient Greater Manchester. In this changing and complex world, our vision is to create one of the most resilient places where everyone can grow up, get on and age well together.

The Resilience Strategy describes five priority areas to guide our work through to 2030 and sets out key themes within these priorities. The 5 priorities are:

- Communities: Building cohesive, healthy and resilient communities
- Discovery: Enhancing resilience understanding
- Leadership: Shaping resilience within Greater Manchester
- Place: Being ready for future challenges
- Responding: Sustaining effective preparedness, response and recovery from emergencies

In addition, the Resilience Strategy:

- aligns with the Greater Manchester Strategy, helping to mitigate the impact of shocks on its outcomes.
- supports delivery of the Living With Covid Plan.
- has been developed thanks to the efforts of many different people from across Greater Manchester.
- will be delivered in partnership by agencies working across Greater Manchester.
- provides a framework for meeting our duties under the Civil Contingencies Act.
- runs to 2030 coinciding with the Sendai Framework and Making Cities Resilient 2030.

- builds on our Preliminary Risk Assessment and previous civil contingencies strategies.
- is informed by local and global learning and ideas.
- will be accompanied by an annual action plan (2021-22 action plan attached)

Primary author of plan

Other, please specify

Greater Manchester Resilience Forum (GMRF)

Description of the stakeholder engagement processes

The Plan was developed by The Greater Manchester Resilience Forum (GMRF), GMRF is a partnership of agencies from across Greater Manchester with responsibility for coordinating and overseeing emergency planning. It's overall purpose is to ensure that there is an appropriate level of preparedness to enable an effective multi-agency response to emergency incidents which may have significant impact on the communities of Greater Manchester.

Members include:

Animal & Plant Health Agency

British Telecom

British Transport Police

Department for Environment, Food and Rural Affairs

Electricity Northwest

Environment Agency

Greater Manchester Health and Social Care Partnership

Greater Manchester Fire and Rescue Service

Greater Manchester Police

Highways England

Manchester Airport

Met Office

Ministry of Defence

Ministry of Housing, Communities & Local Government

Network Rail

NHS England

North West Ambulance Service

Public Health England

Transport for Greater Manchester

United Utilities

Adaptation Goals

(3.3) Please describe the main goals of your city's adaptation efforts and the metrics / KPIs for each goal.

Adaptation goal

Manchester's Green and Blue Strategy 2015-2025

Climate hazards that adaptation goal addresses

Extreme Precipitation > Rain storm
Extreme hot temperature > Heat wave
Extreme hot temperature > Extreme hot days
Flood and sea level rise > Flash / surface flood
Flood and sea level rise > River flood

Target year of goal

2025

Description of metric / indicator used to track goal

The G&BI Strategy and Implementation Plan was prepared and is jointly owned by the Council and Manchester G&BI stakeholder group on behalf of the wider city. The vision of Manchester's Great Outdoors is: By 2025 high quality, well maintained green and blue spaces will be an integral part of all neighbourhoods. The city's communities will be living healthy, fulfilled lives, enjoying access to parks and green spaces and safe green routes for walking, cycling and exercise throughout the city. Green and blue infrastructure will be supporting Manchester's growth. Businesses will be investing in areas with a high environmental quality and attractive surroundings, enjoying access to a healthy, talented workforce. New funding models will be in place, ensuring progress achieved by 2025 can be sustained and provide the platform for ongoing investment in the years to follow.

The delivery of the strategy will mean;

Our river valleys are well managed, accessible and safe – providing a key recreational resource to residents

Our canal network is rejuvenated as a key asset for the city centre and beyond

Our parks and green spaces are attractive and accessible to residents

Our networks of smaller scale urban green connect more residents with urban nature and provide corridors and stepping stones for biodiversity

Our green spaces, both permanent and temporary, work harder, providing multiple social, economic and environmental benefits to the city.

Our growth is supported by green and blue infrastructure, as a key part of creating attractive, successful neighbourhoods

The G&BI Strategy and Stakeholder Implementation Plan are based around the following four objectives.

1. Improving the quality and function of G&BI to maximise the benefits it delivers
2. Using appropriate G&BI as a key component of new developments to help create successful neighbourhoods and support the city's growth
3. Improving connectivity and accessibility to G&BI within the city and beyond
4. Improving and promoting a wider understanding and awareness of the benefits that G&BI provides to residents, the economy and the local environment

Under each objective is a series of Headline Actions with associated projects and activities which are being delivered or investigated by the council and external stakeholders as part of the Implementation Plan.

Does this goal align with a requirement from a higher level of government?

Yes, and it exceeds its scale or requirements

Select the initiatives related to this adaptation goal that your city has committed to

Comment

The strategy is held up as a benchmark of excellence, receiving a national award in 2018 from the Chartered Institute of Ecology and Environmental Management.

The strategy and implementation plan can be found here:

https://www.manchester.gov.uk/downloads/download/6314/manchester_green_and_blue_strategy

An update against the progress as of January 2021 can be found here:

<https://democracy.manchester.gov.uk/documents/s22236/Green%20and%20Blue%20Strategy.pdf>

With a detailed breakdown of the progress of the actions against the objectives found here:

<https://democracy.manchester.gov.uk/documents/s22237/Appendix%201%20GEBI%20Progress%202020.pdf>

Adaptation goal

Climate hazards that adaptation goal addresses

Target year of goal

Description of metric / indicator used to track goal

Does this goal align with a requirement from a higher level of government?

Select the initiatives related to this adaptation goal that your city has committed to

Comment

4. City-wide Emissions

City-wide GHG Emissions Data

(4.0) Does your city have a city-wide emissions inventory to report?

Yes

(4.1) Please state the dates of the accounting year or 12-month period for which you are reporting your latest city-wide GHG emissions inventory.

	From	To
Accounting year dates	January 1, 2018	December 31, 2018

(4.2) Please indicate the category that best describes the boundary of your city-wide GHG emissions inventory.

	Boundary of inventory relative to city boundary (reported in 0.1)	Excluded sources / areas	Explanation of boundary choice where the inventory boundary differs from the city boundary (include inventory boundary, GDP and population)
Please explain	Same – covers entire city and nothing else		

(4.3) Please give the name of the primary protocol, standard, or methodology you have used to calculate your city’s city-wide GHG emissions.

	Primary protocol	Comment
Emissions methodology	2006 IPCC Guidelines for National Greenhouse Gas Inventories	Manchester uses local authority emissions data, part of the UK Greenhouse Gas Inventory produced by the Department for Business, Energy & Industrial Strategy (BEIS). The UK Greenhouse Gas Inventory compilers follow detailed guidance produced by the Intergovernmental Panel on Climate Change (IPCC). The function of the IPCC is to publish reports and guidelines relevant to the implementation of the UN Framework Convention on Climate Change. As part of this function, the IPCC produces the Guidelines for National Greenhouse Gas Reporting and these are then adopted by the UNFCCC. 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. 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. The 2021 data release is used in the rest of the report.

(4.4) Which gases are included in your city-wide emissions inventory?

CO2

GCoM Additional Information


(4.5) Please attach your city-wide inventory in Excel or other spreadsheet format and provide additional details on the inventory calculation methods in the table below.

Document title and attachment

2005 to 2019 UK local and regional CO2 emissions – data tables and MCR direct emissions report 2021

 conversionfactors2020methodology.pdf

 2005-19_UK_local_and_regional_CO2_emissions (3).xlsx

 MCCP Annual Report 2021 - Aviation section.docx

 DirectEmissionsReport20212PDH2.docx

Emissions inventory format

I have attached my inventory in a format other than the GPC

Web link

<https://www.gov.uk/government/statistics/uk-local-authority-and-regional-carbon-dioxide-emissions-national-statistics-2005-to-2019>

Emissions factors used

IPCC

Global Warming Potential

(select relevant IPCC Assessment Report)

IPCC 5th AR (2013)

Please select which additional sectors are included in the inventory

Industrial process and/or product use

Agriculture, forestry or other land use sectors

Population in inventory year

552,858

Overall level of confidence

High

Comment on level of confidence

The UK produces a breakdown of carbon dioxide emissions by Local Authority area as a subset of its annual inventory of greenhouse gas emissions this is produced by the Department for Business, Energy and Industrial Strategy each year (BEIS). Dr

Christopher Jones, Senior Research Fellow for the Tyndall Centre for Climate Change Research at the University of Manchester creates the direct CO2 emissions update for Manchester. Which was then ratified by our Zero Carbon Independent Advisory Group <http://www.manchesterclimate.com/zero-carbon-advisory-group>. This data is reported as part of the Manchester Climate Change Annual Reports <http://www.manchesterclimate.com/progress>.

GCoM Common Reporting Framework Reporting Requirements for European Cities

(4.6a) The Global Covenant of Mayors requires committed cities to report their inventories in the format of the new Common Reporting Framework, to encourage standard reporting of emissions data. Please provide a breakdown of your city-wide emissions by sector and sub-sector in the table below. Where emissions data is not available, please use the relevant notation keys to explain the reason why.

	Direct emissions (metric tonnes CO2e)	If you have no direct emissions to report, please select a notation key to explain why	Indirect emissions from the use of grid-supplied electricity, heat, steam and/or cooling (metric tonnes CO2e)	If you have no indirect emissions to report, please select a notation key to explain why	Emissions occurring outside the city boundary as a result of in-city activities (metric tonnes CO2e)	If you have no emissions occurring outside the city boundary to report as a result of in-city activities, please select a notation key to explain why	Please explain any excluded sources, identify any emissions covered under an ETS and provide any other comments
Stationary energy > Residential buildings	434,836.2		164,237.6		0	NO	All data in the section (except aviation and Waste) is from the BEIS Local and Regional Carbon Dioxide

							database for 2019.
Stationary energy > Commercial buildings & facilities	135,793.6		226,234.4		0	NO	
Stationary energy > Institutional buildings & facilities	111,294.6		61,358.2		0	NO	
Stationary energy > Industrial buildings & facilities	84,215.4		80,616.9		0	NO	
Stationary energy > Agriculture	409.7		0	IE	0	NO	
Stationary energy > Fugitive emissions		NE		NE		NE	
Total Stationary Energy	766,549.5		532,447.1		0		
Transportation > On-road	665,849.9			IE		IE	Car transport is allocated where the vehicle is driven. Resident travel outside of the boundary is captured in other LA datasets.
Transportation > Rail	7,601.4	N/A	0	IE		IE	Rail transport is allocated

							where the vehicle is driven, Resident travel outside of the boundary is captured in other LA datasets. Electricity in rail transport is included as 'commercial electricity use' emissions
Transportation > Waterborne navigation	43,394.3			NO		IE	
Transportation > Aviation	18,000	Combination of notation keys					Emissions from flights taken by Manchester residents fell by 91% from 0.19 Mt CO2 in 2019 to 0.018 Mt CO2 in 2020. MCCA Aviation report attached in question 4.5
Transportation > Off-road	0	NE	0	NE	0	NE	

Total Transport	734,836.6			Combination of notation keys		Combination of notation keys	
Waste > Solid waste disposal	52,602.97			NE		NE	We have been unable to quantify the emissions from waste this year. We have estimated this figure Based on the reported waste from the GM submission in 2020 and scaled by population
Waste > Biological treatment	0	NO	0		0	IE	
Waste > Incineration and open burning	0	NO	0		0	IE	
Waste > Wastewater	34,010.57		0		0	NE	We have been unable to quantify the emissions from waste this year. We have estimated this figure Based on the

							reported waste from the GM submission in 2020 and scaled by population
Total Waste	86,613.54		0		0		We have been unable to quantify the emissions from waste this year. We have estimated this figure Based on the reported waste from the GM submission in 2020 and scaled by population
IPPU > Industrial process	7,473.5		0	NE	0	NE	
IPPU > Product use		NE		NE		NE	
Total IPPU	7,473.5			NE		NE	
AFOLU > Livestock		NE		NE		NE	The UK has no local authority area level atmospheric monitoring of these emissions.

							Resolution to low for Copernicus data
AFOLU > Land use	-3,527.3		0		0		
AFOLU > Other AFOLU			0				
Total AFOLU	-3,527.3		0	NO	0	NO	
Generation of grid-supplied energy > Electricity-only generation		IE		IE		IE	Most local electricity that isn't zero carbon is connected to the UK national grid (like Carrington power station) and accounted in the indirect emissions of buildings.
Generation of grid-supplied energy > CHP generation		NE		NE		NE	We have been unable to quantify CHP generation emissions
Generation of grid-supplied energy > Heat/cold generation	0		0		0		
Generation of grid-	0	NO	0		0		

supplied energy > Local renewable generation							
Total Generation of grid-supplied energy		Combination of notation keys	0	NE		NE	most local electricity that isn't zero carbon is connected to the UK national grid (like Carrington power station) and accounted in the indirect emissions of buildings.
Total Emissions (excluding generation of grid-supplied energy)	2,019,779.38			Combination of notation keys		Combination of notation keys	Grand total figure from the Beis LA regional datasheet. Attached in question 4.5 Row 62 Column AK


(4.8) Please indicate if your city-wide emissions have increased, decreased, or stayed the same since your last emissions inventory, and describe why.

	Change in emissions	Primary reason for change	Please explain and quantify changes in emissions
Please explain	Decreased	Other, please specify Move away from coal to produce	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 due to Covid-19 restrictions.

		<p>electricity and COVID-19</p>	<p>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. The biggest contributor 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. 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.</p> <p>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 is not yet on track to meet a Paris Agreement aligned carbon emissions pathway for well below 2°C of global warming.</p> <p>Electricity use emissions fell 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. However the per capita transport and building heating emissions have not fallen significantly and have been largely static since 2013.</p> <p>According to the BEIS data, vehicle emissions on minor roads are an important contributor to the lack of reductions in transport. Across road transport as a whole 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. There is a wider national trend on transport emissions starting to increase pre-Covid-19 which may reflect changes in the vehicle stock towards heavier petrol and diesel vehicles.</p>
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(4.9) Does your city have a consumption-based inventory to measure emissions from consumption of goods and services by your residents?

	Response	Provide an overview and attach your consumption-based inventory if relevant
Please complete	Intending to undertake in	In November 2019 the Tyndall Centre was commissioned by MCCA to review the City’s climate change targets. As part of this review Dr

	<p>the next 2 years</p>	<p>Christopher Jones made a series of recommendations on how Manchester might measure and manage its consumption-based emissions (CBE).</p> <p>This review noted that obtaining accurate and up-to-date data for city-level footprints is a major challenge. Centrally, city-level CBE 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, effectively track our progress year-on-year or set CBE targets.</p> <p>Based on a study by the C40 and another Tyndall centre study we had previously roughly estimated that Manchester’s consumption-based footprint was around 60% greater than its production-based footprint - around 3.3 MtCO₂e for 2017.</p> <p>More recently, the Centre for Research into Energy Demand Solutions (CREDS) has developed a place-based CBE carbon calculator. CREDS estimate that Manchester residents are responsible for 5,645.3 kgCO₂e - 29% lower than the England average. https://www.carbon.place/la/</p> <p>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.</p> <p>The largest proportion of our CBE footprint is estimated to be from flying (17%), followed by food and drink (16%) and gas usage (15%). It is important to note that there are huge geographical inequalities within Manchester’s CBE footprint. The average person in Didsbury East is nearly twice that of the England average. They are estimated to have a footprint of around 14,800 kgCO₂e, over five times greater than someone living in Harpurhey (average footprint = 2,820 kgCO₂e). In this case, this difference is because of greater consumption of flying, food and drink, other goods, and recreation.</p> <p>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%.</p> <p>In February 2021 Dr Jane Wendler and Dr Joe Blakey conducted a review in to how CBE hotspots can be decarbonised in the economic recovery. Report attached</p> <p> 1, 2</p>
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 ¹Consumption MC Annual Report 2021+PDH[93] revised.docx

 ²Decarbonising Consumption in Manchester_0.pdf

City-wide external verification

(4.12) Has the city-wide GHG emissions data you are currently reporting been externally verified or audited in part or in whole?

Yes

(4.12a) Please provide the following information about the city-wide emissions verification.

	Name of verifier and attach verification certificate	Year of verification	Please explain
Please complete	Dr Christopher Jones	2021	Dr Christopher Jones, Senior Research Fellow for the Tyndall Centre for Climate Change Research at the University of Manchester created the Manchester Emissions plots from the BEIS local authority data. Which was then ratified by our Zero Carbon Independent Advisory Group http://www.manchesterclimate.com/zero-carbon-advisory-group

Historical emissions inventories

(4.13) Please provide details on any historical, base year or recalculated city-wide emissions inventories your city has, in order to allow assessment of targets in the table below.

Inventory date from

January 1, 2017

Inventory date to

December 31, 2017

Scopes / boundary covered

Scope 1 (direct)

Scope 2 (indirect)

Previous emissions (metric tonnes CO2e)

2,114,470.41

Is this inventory a base year inventory or a recalculated version of a previously reported inventory?

Recalculated version of a previously reported base year inventory

Methodology

2006 IPCC Guidelines for National Greenhouse Gas Inventories

File name and attach your inventory

Information can be found in the '2005-19-uk-local-regional-co2-emissions' spreadsheet

 2005-19_UK_local_and_regional_CO2_emissions (3).xlsx

Web link

<https://data.gov.uk/dataset/723c243d-2f1a-4d27-8b61-cdb93e5b10ff/emissions-of-carbon-dioxide-for-local-authority-areas>

Comments

base year for 2038 science-based target. There have been some changes to the methodology for producing local CO2 emissions sets. 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. The previously reported total for 2017 was 2,073.0

GCoM Emission Factor and Activity Data

(4.14) State if the emissions factors and activity data used to calculate your cities emissions are accessible within the attached emissions inventory in question 4.5. If so, please describe where these are located within the attached inventory.

Emissions factors and Activity Data Reported

Emissions factors and activity data accessibility

Emissions factors and activity data are accessible within the attached inventory in question 4.5

State the location of emissions factors and activity data within the attached inventory in question 4.5

Conversation factors and methodology document attached

5. Emissions Reduction

Mitigation Target setting

GCoM Common Reporting Framework Reporting Requirements for European Cities

(5.0) Do you have a GHG emissions reduction target(s) in place at the city-wide level?

Fixed level target

(5.0b) Please provide details of your total fixed level target(s).

Sector

All emissions sources included in city inventory

Where sources differ from the inventory, identify and explain these additions / exclusions

Manchester does not have a fixed level target we have a carbon budget for our direct CO2 emissions.

Manchester's carbon budget was calculated by the Tyndall Centre for Climate Change Research in June 2018, proposed by Manchester Climate Change Agency in October 2018, and formally adopted by Manchester City Council, on behalf of the city, in November 2018.

The adopted carbon budget relates to the total remaining amount of carbon dioxide (CO2) from energy use within the local authority area that Manchester should limit its emissions to in order to meet its goal of making a 'fair contribution' to the United Nations Paris Agreement on Climate Change. This carbon budget was set on the basis of a report by Kuriakose et al which used the latest science and the principle of equity within the Paris Agreement to determine a remaining budget for Manchester for the 2018 to 2100 period.

The report, as well as providing a quantification of the remaining carbon budget for Manchester, also includes five-yearly interim carbon budget periods and proposes an emissions reduction pathway with an average annual reduction rate. The report is based on an approach to setting local carbon budgets developed as part of the Department of Business Energy and Industrial Strategy (BEIS) funded SCATTER project in 2017/18. This underlying approach also recommended that the carbon budget is reviewed "on a five-yearly basis to reflect the most up to date science, any changes in global agreements on climate mitigation and progress on the successful deployment at scale of negative emissions technologies."

http://www.manchesterclimate.com/sites/default/files/Appendix%20%20-%20Quantifying%20the%20Implications%20of%20the%20Paris%20Agreement%20to%20Manchester%202018_0.pdf

In late-2019/early-2020 the Agency commissioned the Tyndall Centre to review the city's targets, in relation to:

- Direct emissions
- Indirect / consumption-based emissions, and
- Aviation emissions

The review and its recommendations were used to inform the development of the objectives and targets in the Manchester Climate Change Framework 2020-25. Copies of the Tyndall Centre's reviews for each scope are available from:

<http://www.manchesterclimate.com/targets-2020>

Boundary of target relative to city boundary (reported in 0.1)

Same (city-wide) – covers entire city and nothing else

Explanation of boundary choice where the assessment boundary differs from the city boundary

Year target was set

2018

Absolute emissions in year target was set

2,073

Target year

2038

Projected population in target year

623,800

Target year absolute emissions (metric tonnes CO₂e)

0.06

Percentage of target achieved so far

17

Is this target considered to be your cities most ambitious target?

Yes

Does this target align with the global 1.5 -2 °C pathway set out in the Paris agreement?

Yes - 2 °C

Select the initiatives that this target contributes towards

Global Covenant of Mayors for Climate & Energy

Cities Race to Zero

Does this target align to a requirement from a higher level of government?

Yes, but it exceeds its scale or requirement

Please describe your target. If your country has an NDC and your city's target is less ambitious than the NDC, please explain why.

The UK Government has committed to bring all greenhouse gas emissions to net-zero by 2050. Manchester has committed to be zero carbon by 2038, at the latest. But noting that the key parameter is staying within a science-based carbon budget, rather than hitting a specific zero carbon end-date alone.

Sector

All emissions sources included in city inventory

Where sources differ from the inventory, identify and explain these additions / exclusions

The headline target, set in 2009, was to reduce the city's CO₂ emissions by 41% by 2020, from 2005 levels. This target equated to Manchester's fair share of the UK's legally binding carbon reduction obligations under the Climate Change Act 2008. This equates to a reduction from levels of 3.2 million tonnes per annum (2009) to less than two million; it also equates to a reduction in per capita emissions from 7.3 tonnes to 4.3 tonnes per head. As of 2018 data (the most recent available), we have achieved 92.4% of this target, using current trends it has been projected that we will meet this target however the definitive data will not be available to 2022.

Boundary of target relative to city boundary (reported in 0.1)

Same (city-wide) – covers entire city and nothing else

Explanation of boundary choice where the assessment boundary differs from the city boundary

Year target was set

2009

Absolute emissions in year target was set

Target year

2020

Projected population in target year

563,200

Target year absolute emissions (metric tonnes CO₂e)

1,932.26

Percentage of target achieved so far

100

Is this target considered to be your cities most ambitious target?

No

Does this target align with the global 1.5 -2 °C pathway set out in the Paris agreement?

Yes - 1.5 °C

Select the initiatives that this target contributes towards

Other, please specify
UK Climate Change Act 2008.

Does this target align to a requirement from a higher level of government?

Yes

Please describe your target. If your country has an NDC and your city's target is less ambitious than the NDC, please explain why.

This target equated to Manchester's fair share of the UK's legally binding carbon reduction obligations under the Climate Change Act 2008.

(5.1) Please describe how the target(s) reported above align with the global 1.5 - 2 °C pathway set out in the Paris agreement.

Manchester, via a commission to Anthesis and Tyndall Centre, has set a pathways approach which means the selected emissions reduction pathway equates to keeping it to well within the Paris Agreement and 2 degrees, ensuring Manchester emissions reduction is a fair share.

<http://www.manchesterclimate.com/targets-2018>

https://www.research.manchester.ac.uk/portal/files/83000155/Tyndall_Quantifying_Paris_for_Manchester_Report_FINAL_PUBLISHED_rev1.pdf

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. 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 in a variety 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. 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.

(5.2) Is your city-wide emissions reduction target(s) conditional on the success of an externality or component of policy outside of your control?

Yes

(5.2a) Please identify and describe the conditional components of your city-wide emissions reduction target(s).

1. The target requires national aviation emissions to stay within a given carbon budget which assumes emissions don't continue increasing through to 2030 and start to reduce after this. If national aviation emissions were to keep growing at pre 2020 levels the carbon budget for Manchester would shrink.
2. National grid decarbonisation. The UK National Grid has stated that full grid decarbonisation is possible before 2038 and this being achieved will help meet the climate goals of the city.
3. National transport strategy. As well as other powers and resources to help decarbonise building energy emissions, Manchester needs a national transport strategy to remove diesel trains in the city and ban fossil fuel vehicles from sale so that travel into the city from outside is primarily public transport or EV.

(5.3) Does your city-wide emissions reduction target(s) account for the use of transferable emissions units?

No

Mitigation Actions

GCoM Common Reporting Framework Reporting Requirements for European Cities

(5.4) Describe the anticipated outcomes of the most impactful mitigation actions your city is currently undertaking; the total cost of the action and how much is being funded by the local government.

Mitigation action

Outdoor Lighting > LED / CFL / other luminaire technologies

Action title

Street Lighting LED replacement

Means of implementation

Infrastructure development

Implementation status

Operation

Start year of action

2017

End year of action

2020

Estimated emissions reduction (metric tonnes CO₂e)

8,400

Energy savings (MWh)

18,699.74

Renewable energy production (MWh)

Timescale of reduction / savings / energy production

Projected lifetime

Co-benefit area

Reduced GHG emissions

Improved resource efficiency (e.g. food, water, energy)

Action description and implementation progress

The £32.8 million investment programme led by Manchester City Council to replace 56,000 street lights with LED lamps was completed in September 2020 and is projected

to save over 8,400 tonnes CO₂ and resulting in over 70% less energy being consumed. Around 220 tonnes of carbon will be saved per annum.

The Council has worked with Salix Finance to fund this scheme, who provide loans to the public sector to improve energy efficiency, reduce carbon emissions and lower energy bills.

Finance status

Finance secured

Total cost of the project

32,800,000

Total cost provided by the local government

Majority funding source

Public-private partnership

Total cost provided by the majority funding source (currency)

32,800,000

Web link to action website

https://secure.manchester.gov.uk/info/500350/signs_lights_and_road_markings/7469/w_e_are_replacing_your_street_lights

<https://democracy.manchester.gov.uk/documents/s22754/MCC%20Climate%20Change%20Action%20Plan%202020-25.pdf>

<https://democracy.manchester.gov.uk/documents/s22688/Appendix%201%20MCC%20CCAP%20Progress%20Report%20January%202021.pdf>

Mitigation action

Energy Supply > Low or zero carbon energy supply generation

Action title

Civic Quarter Heat Network

Means of implementation

Infrastructure development

Implementation status

Implementation

Start year of action

2019

End year of action

Estimated emissions reduction (metric tonnes CO₂e)

1,600

Energy savings (MWh)

Renewable energy production (MWh)

Timescale of reduction / savings / energy production

Per year

Co-benefit area

Reduced GHG emissions

Action description and implementation progress

The Manchester City Council is working in partnership with Vital Energi to create the Manchester Civic Quarter Heat Network. The network will provide a highly efficient, environmentally-friendly heat and power solution for some of Manchester's most iconic buildings, making significant carbon reductions.

The scheme has been part-funded by a £2.87m grant from the Government's Heat Network Investment Project (HNIP), with MCC being one of the first local authorities to receive this funding. The total cost of the project coming to an estimated £24 million.

As of February 2021, Civic Quarter Heat Network is nearing completion with the 40 metre 'Tower of Light' installed in August 2020. Once all the buildings in the network have been connected, it will deliver over 1,600 tonnes of CO₂ savings per annum. It will initially serve 7 buildings including, Town Hall, Town Hall Extension and Central Library, Manchester Central Convention Centre, The Bridgewater Hall and Heron House.

The 3.3MW Combined Heat & Power (CHP) unit will initially run on gas, where a proportion of which will be 'green gas' and has the potential to introduce hydrogen into the mix in future to further reduce it's carbon footprint. Work will be required to identify options for a zero carbon fuel source. 2km of district heating transmission network has been installed (pipes, power and communication cables). The network has an expected operational life in excess of 50 years.

There have been some delays caused by Covid-19 including the transformation of the Manchester Convention Centre into the Nightingale Centre. The Town Hall is due to have equipment installed by September 2021 with power supply commencing in June 2022 and heat supply in November 2022.

Finance status

Finance secured

Total cost of the project

24,000,000

Total cost provided by the local government

Majority funding source

Public-private partnership

Total cost provided by the majority funding source (currency)

Web link to action website

<https://democracy.manchester.gov.uk/documents/s22754/MCC%20Climate%20Change%20Action%20Plan%202020-25.pdf>

<https://democracy.manchester.gov.uk/documents/s22688/Appendix%201%20MCC%20CCAP%20Progress%20Report%20January%202021.pdf>

Mitigation action

Buildings > Energy efficiency/ retrofit measures

Action title

Manchester City Council Phase 1 Buildings Carbon Reduction Programme

Means of implementation

Infrastructure development

Implementation status

Implementation

Start year of action

2019

End year of action

2021

Estimated emissions reduction (metric tonnes CO₂e)

1,400

Energy savings (MWh)

1.5

Renewable energy production (MWh)

Timescale of reduction / savings / energy production

Per year

Co-benefit area

Reduced GHG emissions

Improved resource efficiency (e.g. food, water, energy)

Improved resource quality (e.g. air, water)

Improved public health
Improved resource security (e.g. food, water, energy)

Action description and implementation progress

The MCC carbon reduction programme is a programme to significantly improve the energy efficiency of 13 key Manchester City Council (MCC) buildings.

Buildings in MCC's operational estate represented 68.9% of MCC's direct carbon dioxide emissions in 2018/19. The Carbon Reduction Programme (£25.2m) will invest in schemes such as combined heat and power, solar photovoltaic panels, and the use of LED lighting within MCC's estate.

There are currently 2 Phases.

- Phase 1 Buildings Carbon Reduction Programme: 1400, £7.6m (in place)
- Phase 1 (a) Buildings Carbon Reduction Programme - ERDF Supported: 400, £2.6m (in place)
- Phase 2 of Carbon Reduction Programme: 3000, £15m (priority in Capital Strategy pending final approvals)

The Council's Phase 1 Carbon Reduction Plan comprises of a £6.3 million capital investment which will deliver 1,326 tonnes of annual CO₂ savings and 1.5MW of renewable energy generating capacity installed. Installations were delayed slightly by the first COVID-19 lockdown, but have now been delivered.

A range of different measures have been installed across these buildings, based on the findings of detailed energy audits. They include 9,000 LED light fittings, building management systems, pipework insulation and a pool cover. Nine buildings have also had renewable energy generation capacity installed via solar panels.

Leisure centres are some of MCC's most energy intensive buildings and eight been upgraded with energy conservation measures this year: Wythenshawe Forum; East Manchester Leisure Centre; Hough End Leisure Centre; Arcadia Sports Centre; Moss Side Leisure Centre; North City Family and Fitness Centre; Belle Vue Sports Centre; and Manchester Tennis and Football Centre.

In addition to the leisure estate, the lighting in the Town Hall Extension, MCC's largest building, has been upgraded to LED, and new controls installed. The large buildings at the Space Project and Sharp Project are also being improved, the former with a large solar panel installation which is underway; the later with solar panels, lighting and building management systems, which will be completed the first quarter of next the financial year. Alexandra House (the largest office outside the Town Hall Complex) has been comprehensively refurbished and re-opened in February, with fabric improvements, improved mechanical and electrical systems and LED lighting which will reduce carbon emissions by 70%. Electric vehicle charging points have also been installed at the Hooper St, Hammerstone and Longley Lane Depots, to support the increasing electrification of the Council's vehicle fleet.

The improvements cover a range of measures such as upgrading to LED lighting, improving lighting controls, upgrading Building Management Systems, and installing variable speed drives, as well as solar panel installations at seven of the sites, and an energy efficient combined heat and power plant at the Wythenshawe Forum.

In addition to these measures, work continues on the delivery of longer-term projects and also on seeking additional funding where possible to support an increase in activity. In a new opportunity, the Council is piloting novel heating and hot water technology with HydroZero, a UK company. This pilot uses hydrogen and plasma to produce heat via an electrochemical reaction and has significant potential to provide a viable alternative to gas going forwards. HydroZero are currently installing a boiler at Gorton Library - at no cost to the Council - which will be complete in February 2021; at which point detailed monitoring of cost and carbon savings will commence.

Phase 1 was completed in Q4 2020/21.

Finance status

Finance secured

Total cost of the project

6,300,000

Total cost provided by the local government**Majority funding source**

Local

Total cost provided by the majority funding source (currency)

6,300,000

Web link to action website

<https://democracy.manchester.gov.uk/documents/s22754/MCC%20Climate%20Change%20Action%20Plan%202020-25.pdf>

<https://democracy.manchester.gov.uk/documents/s22688/Appendix%201%20MCC%20CCAP%20Progress%20Report%20January%202021.pdf>

Mitigation action

Waste > Improve the efficiency of waste collection

Action title

Biffa Waste Collection Fleet

Means of implementation

Infrastructure development

Implementation status

Implementation

Start year of action

2019

End year of action

2022

Estimated emissions reduction (metric tonnes CO₂e)

900

Energy savings (MWh)

Renewable energy production (MWh)

Timescale of reduction / savings / energy production

Per year

Co-benefit area

- Reduced GHG emissions
- Improved resource quality (e.g. air, water)
- Improved public health

Action description and implementation progress

In summer 2015, Biffa took over the running of the Council's household refuse collection service from Enterprise and also began running the Council's Street Cleansing services. This resulted in 28 sweepers and 40 tippers, transferring from the Council to Biffa.

This contributed to an increase in emissions from the Biffa waste fleet and a decrease in the Council fleet vehicle emissions. Since the 2009/10 baseline, emissions from the waste fleet have increased by 23.2% from 2,496 tCO₂ to 3,076 tCO₂. Since the 2015/16 contract change, emissions have increased by 19.3%. This increase has been due to additional vehicles being added to the fleet, longer collection rounds and the use of vehicles with engines that reduce NO₂ emissions to improve air quality but which use more fuel, therefore, increasing CO₂ emissions.

In 2019, Biffa started to trial the first fully electric Refuse Collection Vehicle in Manchester and the success of this trial has led to the purchase of 27 Electric Refuse Collection Vehicles due to arrive in Autumn 2020, which will deliver approximately 900 tCO₂ savings per annum. The trial is the first step in the effort to ultimately end the CO₂ emissions released from diesel fuels during waste collections and to help improve the city's air quality.

As of January 2021, The 27 Electric Refuse Collection Vehicles have been ordered and represent a £9.8 million investment. Once operational they will save approximately 900 tonnes of CO₂ per annum. Electrical charging infrastructure has now been delivered at Hooper Street Depot and Longley Lane Depot

7 x eRCVs were deployed Q1 21-22, with remaining 20 vehicles arriving in phases and expected full deployment by Q3 21-22

Finance status

Finance secured

Total cost of the project

9,780,000

Total cost provided by the local government

9,780,000

Majority funding source

Local

Total cost provided by the majority funding source (currency)

9,780,000

Web link to action website

<https://democracy.manchester.gov.uk/documents/s16315/The%20Councils%20Climate%20Change%20Action%20Plan%202020-25%20and%20Aphhttps://democracy.manchester.gov.uk/documents/s22754/MCC%20Climate%20Change%20Action%20Plan%202020-25.pdf>
<https://democracy.manchester.gov.uk/documents/s22688/Appendix%201%20MCC%20CCAP%20Progress%20Report%20January%202021.pdfpendices.pdf> &
https://secure.manchester.gov.uk/news/article/8444/electric_dreams_council_makes_huge_commitment_to_eco-friendly_bin_lorries

Mitigation action

Private Transport > Improve fuel economy and reduce CO2 from motorized vehicles

Action title

Replacement of the Council's Operational Fleet with Electric Vehicle alternatives.

Means of implementation

Infrastructure development

Implementation status

Implementation

Start year of action

2020

End year of action

2025

Estimated emissions reduction (metric tonnes CO₂e)

400

Energy savings (MWh)

Renewable energy production (MWh)

Timescale of reduction / savings / energy production

Per year

Co-benefit area

Reduced GHG emissions
Improved resource quality (e.g. air, water)
Improved public health
Shift to more sustainable behaviours

Action description and implementation progress

Manchester City Council is running a rolling replacement of current fleet vehicles with electric vehicles. As at April 2020, the Council operated 220 fleet vehicles, including 16 electric vans, one electric car, one electric people carrier and three hybrid cars.

Since the 2009/10 baseline, emissions from the Council fleet have decreased by 72.2% from 2,863 tCO₂ to 797 tCO₂. Since the 2015/16 contract change, emissions have decreased by 30.3%. A number of fleet vehicles are coming up for replacement this year and will be replaced with electric vehicles.

Work is currently underway to assess the level of charging infrastructure required across the Council's fleet and estates.

Other activities to reduce emissions from the fleet include information for drivers on fuel-efficient driving techniques, reducing fuel consumption and reducing the impact on the environment.

A number of electric and hybrid vehicles have been introduced to the fleet, as well as initiating a programme to exchange all vehicles Euro 5 or below, with Euro 6 engined ones. The completion of this will save over 400 tCO₂ per year.

As of January 2021, The Council's operational fleet comprises around 220 vehicles (numbers fluctuate over time as leases expire and are renewed) and work began several years ago to move away from traditional fuels. To date, 16 diesel vans have been replaced with 16 fully electric vans and four cars have been replaced with 1 fully electric and 3 hybrid cars. In June 2020, charging infrastructure was installed at Hooper Street depot for use by the Council's facilities teams and security contractors Engie and Mitie.

Finance status

Finance secured

Total cost of the project

Total cost provided by the local government

Majority funding source

Local

Total cost provided by the majority funding source (currency)

Web link to action website

<https://democracy.manchester.gov.uk/documents/s16315/The%20Councils%20Climate%20Change%20Action%20Plan%202020-25%20and%20Appendices.pdf>

Mitigation action

Energy Supply > Optimize traditional power/ energy production

Action title

A Local Energy Plan for Manchester via the Greater Manchester Local Energy Market project.

Means of implementation

Assessment and evaluation activities

Implementation status

Implementation

Start year of action

2020

End year of action

2022

Estimated emissions reduction (metric tonnes CO2e)

Energy savings (MWh)

Renewable energy production (MWh)

Timescale of reduction / savings / energy production

Co-benefit area

Improved access to data for informed decision-making

Action description and implementation progress

The Greater Manchester Local Energy Market (GM LEM) project forms a key part of the city region's plans for decarbonisation, set out in the '5 Year Environment Plan for Greater Manchester' and complemented by the Greater Manchester's Smart Energy Plan, together these enable GM Mayor Andy Burnham's target for a zero carbon emissions city region by 2038 announced at the Mayor's Green Summit in March 2019.

Building on Phase 1, the Greater Manchester Local Energy Market (GM LEM) project is an ambitious integrated, whole system energy vision that addresses how energy is generated, traded, transported, supplied and used across the city region. Co-ordinated by the devolved Greater Manchester Combined Authority (GMCA) it brings together a diverse array of partners from the private, public and Third sectors including, commercial and legal advisors, service design consultants, financial and regulatory specialists and the energy, technology and systems resources of Hitachi-Europe, Bruntwood, Bristol Energy, WSP, DAIKIN, Northwards Housing and leading technology provider SME Upside Energy.

The project vision combines two key themes; a place-based approach to geospatial energy system planning, harmonising the demands of the energy transition with traditional local authority-led approach to planning and enables us to understand current energy assets and networks and to plan how they may change over time; and the development of a unique new local energy market aggregation platform, integrating new smart technologies across heat, power and transport and linking into local distribution and national transmission platforms.

A user-centred design methodology puts customers at the heart of our approach, incorporating commercial property clients, early adopter owner occupiers, social housing tenants and the public sector. A Service Design approach creates an understanding of customer needs and consumption patterns and develops new value sharing propositions.

Recognising the daunting economic, environmental and societal challenges the energy transition presents, the project involves citizens, the public and private sector and seeks to protect the most vulnerable in society from the impact of rising energy bills or poor-quality homes.

GM LEM builds on the previously funded 'Prospering from the Energy Revolution' stage 1 feasibility study to accelerate from current market conditions to a Peer-to-Peer trading scenario suitable for the challenges of the mid-2020s.

A new local market will reduce carbon emissions and consumer bills, providing market confidence and leading to increased local investment with the accelerated deployment of renewable energy and storage assets.

Finance status

Finance secured

Total cost of the project

3,002,294

Total cost provided by the local government

Majority funding source

(Sub)national

Total cost provided by the majority funding source (currency)

3,002,294

Web link to action website

<https://gtr.ukri.org/projects?ref=105847>

Mitigation action

Buildings > On-site renewable energy generation

Action title

Phase 1 (a) Buildings Carbon Reduction Programme

Means of implementation

Infrastructure development

Implementation status

Implementation

Start year of action

2019

End year of action

2022

Estimated emissions reduction (metric tonnes CO2e)

415

Energy savings (MWh)

Renewable energy production (MWh)

Timescale of reduction / savings / energy production

Per year

Co-benefit area

Reduced GHG emissions
Improved resource security (e.g. food, water, energy)

Action description and implementation progress

The Council successfully attracted over £1.2 million of European Regional Development Fund (ERDF) which is being matched to the Council's capital investment to deliver a large rooftop solar scheme and battery at the Hammerstone Road depot in Gorton, and Solar PV on car ports at the National Cycling Centre/Velodrome saving 415 tonnes CO₂ per annum when complete.

415 tCO₂ additional annual savings will be generated as part of the new £5m European Regional Development Fund project, Unlocking Clean Energy in Greater Manchester. This will fund solar roofs, solar car ports and battery storage at the National Cycling Centre (in 2021-22) and Hammerstone Road depot (in 2022-23). The works are part of a wider GM project which includes the Energy Systems Catapult developing innovative business models to support greater rollout of renewable energy in future. Further carbon savings will also be created should the bid to the UK government's Public Sector Decarbonisation Scheme be successful. These funds will support additional energy efficiency and renewable energy installations in up to 13 Council buildings, potentially including the Aquatics Centre, with a focus on decarbonising heat. This is part of a Greater Manchester consortium bid.

Finance status

Finance secured

Total cost of the project

1,200,000

Total cost provided by the local government

0

Majority funding source

International (ODA)

Total cost provided by the majority funding source (currency)

1,200,000

Web link to action website

<https://es.catapult.org.uk/impact/projects/ucegm/>.

<https://democracy.manchester.gov.uk/documents/s16315/The%20Councils%20Climate%20Change%20Action%20Plan%202020-25%20and%20Appendices.pdf>

Mitigation action

Energy Supply > Low or zero carbon energy supply generation

Action title

Manchester City Council Large scale energy generation scheme

Means of implementation

Infrastructure development

Implementation status

Scoping

Start year of action

2020

End year of action

2025

Estimated emissions reduction (metric tonnes CO₂e)

7,000

Energy savings (MWh)

Renewable energy production (MWh)

Timescale of reduction / savings / energy production

Per year

Co-benefit area

Reduced GHG emissions

Improved resource efficiency (e.g. food, water, energy)

Improved access to data for informed decision-making

Action description and implementation progress

A feasibility study on the potential for large-scale renewable energy generation schemes, including solar PV, onshore or offshore wind, to support the Council's transition to zero carbon began in October 2020. The objective of the study is to identify options to save: 7,000 tonnes of CO₂ per year by 2025. The study assesses options to deploy renewables at scale on Council buildings and land, on assets owned by third parties and via different business models. The key findings are likely to set out two options: either invest directly in a large-scale solar generation scheme or enter into a Power Purchase Agreement (PPA) with an energy provider to purchase the energy directly from such a scheme. Each has different financial, risk and carbon impacts which will be considered in detail as options are taken forward for further analysis.

Feasibility study started Q3 20-21, completed Q4 20-21, findings currently being reviewed to identify next steps.

Finance status

Pre-feasibility study status

Total cost of the project

Total cost provided by the local government

Majority funding source

Local

Total cost provided by the majority funding source (currency)

Web link to action website

<https://democracy.manchester.gov.uk/documents/s22754/MCC%20Climate%20Change%20Action%20Plan%202020-25.pdf>

Mitigation action

Private Transport > Infrastructure for non-motorized transport

Action title

City Centre Triangle and Wythenshawe Cycling and Walking Improvements

Means of implementation

Infrastructure development

Implementation status

Implementation

Start year of action

2020

End year of action

2021

Estimated emissions reduction (metric tonnes CO₂e)

Energy savings (MWh)

Renewable energy production (MWh)

Timescale of reduction / savings / energy production

Co-benefit area

Reduced GHG emissions
Improved resource quality (e.g. air, water)

Improved public health
 Improved access to and quality of mobility services and infrastructure
 Shift to more sustainable behaviours

Action description and implementation progress

Manchester will receive £5.5 million of funding via the Government Active Travel Fund. £4 million will be spent on the City Centre Triangle which will see improved cycling and walking links created between the city centre's three major train stations - Deansgate, Piccadilly and Victoria, plus bus hubs at Piccadilly, Shudehill and the coach station. A further £1.5 million will be spent on cycling and walking improvements between Wythenshawe town centre, Wythenshawe Hospital and the city centre.

City Centre Triangle - The £4m scheme will see improved cycling and walking links created between the city centre's three major train stations - Deansgate, Piccadilly and Victoria, plus bus hubs at Piccadilly, Shudehill and the coach station. It will consist of key corridors between the key transport hubs and incorporate other pedestrian and cycling schemes within the city, including the Northern Quarter cycling and walking project and Deansgate, to provide a continuous route through the city for people on bikes. The scheme's final design and route are to be determined subject to public consultation.

Wythenshawe Cycling and Walking Improvements - The £1.5m Wythenshawe scheme will be developed by Manchester City Council, in partnership with Trafford Borough Council, to improve cycling links between Wythenshawe town centre, Wythenshawe Hospital and the city centre. Subject to consultation, the scheme aims to improve and provide new dedicated cycle infrastructure from Simonsway via Wythenshawe Hospital to the Bridgewater Canal, to give a continuous route suitable for all levels of cycling experience. The scheme will involve the construction of new cycle routes and parallel crossings, while existing off-highway cycleways will be widened and resurfaced, with new lighting provided. The final route will be subject to consultation.

Finance status

Finance secured

Total cost of the project

5,500,000

Total cost provided by the local government

5,500,000

Majority funding source

Local

Total cost provided by the majority funding source (currency)

5,500,000

Web link to action website

<https://news.tfgm.com/news/greater-manchester-to-deliver-24-miles-of-cycling-and-walking-routes-using-national-governments-active-travel-fund>

Mitigation action

Private Transport > Infrastructure for non-motorized transport

Action title

Chorlton CYCLOPS junction

Means of implementation

Infrastructure development

Implementation status

Operation

Start year of action

2019

End year of action

2020

Estimated emissions reduction (metric tonnes CO₂e)

Energy savings (MWh)

Renewable energy production (MWh)

Timescale of reduction / savings / energy production

Co-benefit area

Reduced GHG emissions
Improved resource quality (e.g. air, water)
Improved public health
Improved access to and quality of mobility services and infrastructure
Shift to more sustainable behaviours

Action description and implementation progress

The opening of the CYCLOPS is the latest milestone in the construction of the £13.4m Manchester to Chorlton cycling and walking route, with the first phase of the project now completed. Chorlton Road forms the northern section of the route, connecting Brooks Bar junction to off-road cycle tracks at Chester Road roundabout, which lead into the city centre.

<https://www.youtube.com/watch?v=7FBncwFDVHk>

Finance status

Finance secured

Total cost of the project

13,400,000

Total cost provided by the local government

13,400,000

Majority funding source

Local

Total cost provided by the majority funding source (currency)

13,400,000

Web link to action website

https://assets.ctfassets.net/nv7y93idf4jq/20Kq0JNhFmtp5vm9glsQn/ea4b299c69522e526b03180caaaa0b2/19-1369_CYCLOPS_technical_guide_A4_v3_Hi-Res.pdf
https://secure.manchester.gov.uk/news/article/8477/trailblazing_cyclops_junction_opens_for_safer_cycling_and_walking

Mitigation action

Private Transport > Infrastructure for non-motorized transport

Action title

The Princess Road and Medlock Street Roundabout Improvement Scheme

Means of implementation

Infrastructure development

Implementation status

Implementation complete

Start year of action

2019

End year of action

2020

Estimated emissions reduction (metric tonnes CO2e)

Energy savings (MWh)

Renewable energy production (MWh)

Timescale of reduction / savings / energy production

Co-benefit area

- Enhanced climate change adaptation
- Reduced GHG emissions
- Improved resource quality (e.g. air, water)
- Improved public health
- Ecosystem preservation and biodiversity improvement
- Improved access to and quality of mobility services and infrastructure
- Shift to more sustainable behaviours

Action description and implementation progress

The Princess Road and Medlock Street roundabout scheme is now open. The City engaged with local residents throughout the scheme and, as a result of comments received, Rockdove Gardens was saved: we changed the design so that the land was no longer needed, and also to include extra green space next to the gardens: the new design has more green spaces in place of the previous tarmac surfaces. In total, the council has committed to planting 160 new trees and more than 14,000 plants, plus around 1,500sq m of new turfing and 2,800 sq m of wildflower seeding.

The new scheme brings many benefits, including, creating a safer environment for cyclists and pedestrians and improving traffic flow.

This was achieved by:

- widening slip roads on and off the Mancunian Way
- replacing the roundabout with two branching (spur) roads, allowing traffic from Princess Parkway into the city centre
- creating a new road to provide direct access onto the Mancunian Way from Princess Road
- replacing the existing network of underpasses with new, safer access for cyclists and pedestrians
- landscaping, tree planting and providing a more pleasant environment for everyone.

As a result of this:

Medlock Street and River Street are linked by cycle routes

The section of footpath between the toucan crossing on Mancunian Way and the entrance/exit into the subway on Medlock Street is shared use for both cyclists and pedestrians

There are shared use road signs installed along this section of footway to inform both pedestrians and cyclists

Just after the entrance/exit to the subway on Medlock Street the footway is segregated for pedestrians and southbound cyclists

The segregated southbound cycle lane on the footway now begins from the junction of Medlock Street and River Street, and provides a link for southbound cyclists to use the toucan crossing on Mancunian Way

Cyclists travelling in a northbound direction are directed on the carriageway and a 2m wide dedicated cycle lane is provided. This cycle lane is protected by a build-out from the pavement, which keeps vehicles away from cyclists

The northbound on-road cycle lane continues up Medlock Street and links with the existing cycle lane just north of the junction of Medlock Street and River Street

The scheme was partly funded by the Department for Transport's National Productivity Investment Fund (NPIF) and the Greater Manchester Mayor's Cycling and Walking Challenge Fund. This is the first of the Mayor's Challenge Fund walking and cycling route whole schemes to be completed.

Finance status

Finance secured

Total cost of the project

9,100,000

Total cost provided by the local government

9,100,000

Majority funding source

Local

Total cost provided by the majority funding source (currency)

9,100,000

Web link to action website

https://secure.manchester.gov.uk/info/500352/roadworks_and_closures/7771/princess_road_and_medlock_street_roundabout_improvement_scheme

Mitigation Planning

GCoM Common Reporting Framework Reporting Requirements for European Cities

(5.5) Does your city have a climate change mitigation or energy access plan for reducing city-wide GHG emissions?


Yes

GCoM Additional Information

(5.5a) Please attach your city's climate change mitigation plan below. If your city has both mitigation and energy access plans, please make sure to attach all relevant documents below.

Publication title and attach document

Manchester Climate Change Framework 2020-2025 V1

 Manchester Climate Change Framework 2020-25.pdf

 Appendix 2 - M CCP Action Plans Summary.pdf

Web link

<https://www.manchesterclimate.com/framework-2020-25>

Focus area of plan

Climate change mitigation plan

Year of adoption of plan by local government

2020

Areas covered by action plan

Energy
Transport (Mobility)
Building and Infrastructure
Public Health and Safety
Business and Financial Service

Boundary of plan relative to city boundary (reported in 0.1)

Same – covers entire city and nothing else

If the city boundary is different from the plan boundary, please explain why and any areas/other cities excluded or included

Stage of implementation

Plan in implementation

Has your local government assessed the synergies, trade-offs, and co-benefits, if any, of the main mitigation and adaptation actions you identified?

In progress

Describe the synergies, trade-offs, and co-benefits of this interaction

Synergies and trade-offs: Version 2.0 of the Manchester Climate Change Framework 2020-25 is being produced during 2021. The steering group for the project is made up of the Manchester Zero Carbon Advisory Group and the Manchester Adaptation and Resilience Advisory Group. This approach has been designed to ensure the Framework's actions contribute to both the mitigation and adaptation and climate resilience objectives.

Co-benefits: Framework Version 1.0 includes objectives to improve Manchester residents' health and wellbeing and to improve the city's economic performance and create jobs. Version 2.0 will set out the socio-economic benefits of the required actions.

Description of stakeholder engagement process

July to October 2021: Public consultation. Part 1– setting out the city-level objectives and the actions that all residents and businesses need to take and asking two questions: 1) Which actions are you already delivering? 2) What barriers are preventing/limiting you from taking action?

Part 2 – setting out a draft Implementation Plan 2022-25, containing draft strategic

actions to remove residents' and businesses' barriers and asking: Are these the right actions to remove your barriers?

Resident and community engagement: via the Manchester Zero Carbon Communities Programme <https://www.manchesterclimate.com/content/zero-carbon-communities-programme>

Young people: via the Manchester Climate Change Youth Board <https://www.manchesterclimate.com/youth-board>

Business and organisation engagement: via the Manchester Zero Carbon Business Programme <https://www.manchesterclimate.com/zero-carbon-business-programme>

Primary author of plan

Dedicated city team

Comment

Manchester Climate Change Agency (lead)
Manchester City Council
Greater Manchester Combined Authority
Consultants

The Manchester Climate Change Framework 2020-25 is the city's high-level strategy for tackling climate change. It sets out how Manchester will 'play its full part in limiting the impacts of climate change', a commitment in the Our Manchester Strategy 2016-25. It has been produced by the Manchester Climate Change Partnership and Agency and sets out:

Our 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.

Our objectives and targets:

Staying within our carbon budgets

Climate adaptation and resilience

Health and wellbeing

Inclusive, zero carbon and climate resilient economy

Seven areas for action to meet our objectives and targets:

Buildings

Renewable energy

Transport and flying

Food

The things we buy and throw away

Green infrastructure and nature-based solutions

Supporting and enabling residents and organisations to act

Why a framework?

Manchester has adopted a different approach to most other cities. We don't have a single plan setting out how we will meet our climate change targets. Our approach is based on every resident and every organisation in the city making and delivering their own commitments and action plans. The Framework provides our overarching structure for everyone in the city to 'plug in' their plans. To help people and organisations we've developed a list of 15 actions we need everyone to take.

Governance

To make this approach work, we've established a devolved, partnership-based approach to meet our climate change commitments. It is built on two key components: Engaging and empowering Manchester residents and organisations to take action, using the Manchester Climate Change Partnership and its networks as our key engagement mechanism, and

Joint working between Manchester City Council, Manchester's strategic partners, Greater Manchester Combined Authority, UK Government, and their agencies to provide the support, incentives, standards and infrastructure residents and organisations need (each with their own bespoke plans)

6. Opportunities

Opportunities

(6.0) Please indicate the opportunities your city has identified as a result of addressing climate change and describe how the city is positioning itself to take advantage of these opportunities.

Opportunity	Describe how the city is maximizing this opportunity
Development of clean technology businesses	The Greater Manchester Business Growth Hub Offers custom advice to support small and medium-size enterprises (SMEs) in their progression towards a zero carbon future; cutting carbon emissions, improving products and processes, increasing energy efficiency and boosting profitability. The Growth Hub's approach is to empower businesses to make their Green Growth Pledge to celebrate their green commitments and implement their bespoke zero carbon action plans. From 2013 to 2020: Cost savings achieved in businesses, by improving environmental performance: 38,290,365 Tonnes of carbon dioxide equivalent (CO2e) saved: 175,826 Tonnes of solid, liquid and gaseous materials saved: 13,483 Cubic metres of water saved: 1,426,878 Tonnes of waste diverted from landfill: 165,295 Jobs Created: 68.11 Jobs Safeguarded: 19

	<p>Sales Increased (Value): 14 Sales Increased (Count): £7,996,336 Businesses Assisted (minimum of 12 hours): 143 Intensive support (12+ hours): 106</p> <p>In 2021, the Growth hub launched their 'Journey to Net Zero' Programme. The programme is designed to help senior decision makers develop a clear plan of action to net zero. Through online workshops, study material, one-to-one advice and shared learning, SMEs will be equipped with the knowledge and tools they need to:</p> <ul style="list-style-type: none"> - Understand their priorities - Implement cost and carbon cutting actions - Use data to make decisions - Build the business case for investments - Engage staff and suppliers - Build a reputation as a green business - Commit to a long term strategy <p>The first cohort of 15-20 SMEs is full and it is expected that 100 SMEs will complete the programme by the end of the year.</p>
<p>Other, please specify COVID-19 Recovery</p>	<p>In June 2020, MCCA and MCCP wrote to Manchester City Council (MCC) to set out our views on the need for a green recovery. Not only to ensure that we get on track to meet our climate change commitments, but also to ensure we realise the opportunity to make Manchester a green, healthy, fair, inclusive and socially just city where everybody can thrive. The letter also set out an offer to support the City Council in its recovery work and the Our Manchester Strategy Reset, to ensure the Climate Change Framework commitments are fully embedded. In July 2021 MCC responded positively Confirming their commitment to a green recovery and accepting the Partnership and Agency's offer of support.</p> <p>July 2020 - What do We Want from the City's Green Recovery? To start this work, and to begin to gather views from residents and businesses, the Manchester Climate Change Conference on 22nd July 2020 focused on the question 'What do we want from the city's green recovery?'</p> <p>September 2020 - Agency Response to the Our Manchester Strategy Consultation The overarching strategy for the city, the Our Manchester Strategy was being reset during 2020. To contribute to this work the Agency's 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.</p> <p>In November 2020, MCCA aided in the development of the city's Economic Recovery and Investment Plan to help further align the city's economic and</p>

	<p>climate change objectives. Further work remains to achieve full alignment but the Plan represents an important step forward, building on the Manchester Industrial Strategy of 2019. The Plan includes £290m of 'zero carbon and climate resilience' projects, from a list of approximately £800m of projects.</p> <p>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. And 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.</p>
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Collaboration

(6.2) Does your city collaborate in partnership with businesses and/or industries in your city on sustainability projects?

Yes

(6.2a) Please provide some key examples of how your city collaborates with business and/or industries in the table below.

Collaboration area	Type of collaboration	Description of collaboration
Building and Infrastructure	Collaborative initiative	<p>The Manchester Arts Sustainability Team (MAST) is a cross-sector network of cultural and arts organisations committed to working together to reduce their environmental impacts and working towards a zero carbon Manchester pathway.</p> <p>They hold a key opportunity to influence member and attendee behaviours in addition to their own buildings and transport. Manchester was recognised as an URBACT Good Practice city and is now leading an URBACT Transfer Network on best practice in the arts and culture sector to reduce emissions.</p> <p>During 20/21, the network has grown to over 50 organisations working collectively across the city-region and we have been supporting emerging networks in other cities including Leeds, Liverpool and Oxford who have been inspired by MAST's work to date. In February 2020 the Manchester Cultural Leaders Group, chaired by the city's Director of Culture, agreed to prioritise the climate and ecological crisis as well as endorse the targets set out in the Manchester Climate Change Framework 2020-25.</p> <p>C-Change – Arts and Culture Leading Climate Action in Cities sees the MAST practice applied to an 'URBACT Transfer Network', a network of five other European cities looking to learn from Manchester's approach to engaging and mobilising a city's culture</p>

		<p>sector.</p> <p>Manchester City Council, working with MAST, led the network and this has offered the opportunity to take the model to the next level. We have focused on capacity-building and leadership in the sector through training and the development of resources available via a new G(reater)MAST website. It is also aimed at other cities and their cultural sectors and will be open source.</p> <p>They co-founded a programme of cultural community engagement projects aimed and educating and inspiring behaviour change in Manchester citizens. The legacy of this project gives them new and lasting relationships with MCC.</p> <p>In September 2021 they will formally launch their new online home, 10 Years of cultural collaboration and the sector's more detailed response to the Manchester Climate Change Framework. They will look to this critical next decade in advance of COP 26 and Arts Council England's National Portfolio Round.</p>
Energy	Collaborative initiative	<p>Electricity North West is the distribution network operator ('DNO'), responsible for the administration and maintenance of the network, that distributes electricity throughout the North West of England and a member of MCCP. As the network operator, ENWL also plays a key role in the North West reaching Net Zero. ENWL launched their Leading the North West to Zero Carbon plan, which sets out plans to invest £63.5m between 2019 and 2023 to decarbonise their operations and help Manchester businesses, colleagues and customers to do the same.</p> <p>Progress in last year:</p> <p>Publication of draft business plan - the plan to ensure they continue on a pathway to decarbonise in line with GM's 2038 target as part of a £2bn investment in the region from 2023-2028. 18,500 people and stakeholders engaged on the plan in the North West.</p> <p>Committed to setting climate targets in line with limiting global temperature rise to 1.5%, joining a group of leading companies that are demonstrating the highest level of ambition on climate and becoming part of 'Race to Zero', a UN-backed global campaign.</p> <p>New partnership, 'The Trees for Climate Programme' has been launched involving ENWL partnering with City of Trees to create community forests in the North West. ENWL has committed to planting 10k trees a year in the Business Plan.</p> <p>Completed the roll out of free EV chargers on own sites – likely to increase in the number and types of chargers due to the high demand from colleagues wanting to switch to an electric vehicle.</p> <p>Events have been held in Greater Manchester on EVs and charging infrastructure for businesses needing help and advice and these will</p>

		<p>be rolled out across the North West.</p> <p>In the process of installing 400sm of solar panels across four buildings as well as a brand new solar power car port. All sites are being made energy efficient including on-site generation and heat pumps at 'exemplar' depots.</p> <p>ENWL became the world's first 'carbon literate' network operator after receiving a bronze accreditation. A Carbon Literacy training programme developed and rolled out - essential part of raising employee awareness and will help the business achieve silver accreditation.</p>
<p>Building and Infrastructure</p>	<p>Collaborative initiative</p>	<p>Bruntwood is a family-owned property company offering office space, serviced offices, retail space and virtual offices in the north of England, led by one purpose: creating thriving cities. They work with over 3,000 businesses and own over 100 landmark properties, over 25 of which are located within the city of Manchester. Bruntwood were the first UK commercial property company to sign the World Green Building Council's Advancing Net Zero commitment.</p> <p>As a member of the Manchester Climate Change Partnership, Bruntwood has signed our commitment to act and has been working collaboratively with us over the past year to nail down their climate change action plan as well as taking part in cross-cutting projects across the partnership such as the UK Climate Resilience: Embedded Researcher scheme.</p> <p>Their headline target to achieve is to reduce carbon intensity (kgCO₂e/m²) by 100% by 2030 compared to a 2017/18 baseline. They are also urgently driving to develop Science Based Targets for Scope 3 emissions and procure 100% renewable electricity for all their estate.</p> <p>During 2020/2021: In 2019 they began working with Carbon Trust to set Science Based Targets (SBTs). Since then they have reduced carbon emissions by 21%. This year they are re-baselining our SBT's, working with Carbon Intelligence. Whilst setting SBT's is an important step in reducing overall emissions, it's key that these are reviewed and re-baselined as our portfolio expands and contracts, ensuring alignment with the Paris Agreement.</p> <p>Achieved ISO 50001 certification, integrating energy management to help use energy more efficiently and set targets for reduction.</p> <p>Worked with Farm Urban to install the UK's first hydroponic edible wall in a workspace.</p>

		<p>Deployed solar PV installations at Bruntwood properties Atria, Landmark, Station House, Booth’s Park, Lancastrian, Innovation Birmingham, and Sale Point.</p> <p>Continued to roll out EV charging at a number of buildings. They are planning to continue installing EV charging points to meet customer demand for increased electric vehicle usage and as travel patterns continue to change.</p> <p>Received carbon negative certification for fit-outs at Circle Square.</p> <p>Developed a new appraisals model for net zero carbon (NZC) buildings and developed a plan for NZC 2030.</p>
<p>Industry</p>	<p>Collaborative initiative</p>	<p>Manchester City Football Club, as a member of the MCCP has been working collaboratively with Manchester to reduce its emissions. It is MCFC’s aim to be a CO2 Neutral by the end of the decade. In line with this, the Club’s action plan has been broadened to over the 11 clubs throughout City Football Group. A full audit to baseline and understand the current position of and the priorities of each CFG club and their host cities and nations has been completed so that all the clubs progress actively and learn and support each other within this important programme.</p> <p>MCFC completed a major project in 2021 to move all it’s lighting, including stadium floodlights to LED, resulting in reductions in excess of 1.75m kw/h, saving 26.9 tonnes CO2 each year. All of the Club’s electricity is procured through a PPA utilising certified renewable energy. Work to continually reduce non-essential consumption continues.</p> <p>Adding to the existing rainwater harvesting system at City Football Academy, the Etihad Stadium itself had a new water recycling system installed under the pitch in 2021.</p> <p>Completing its efforts to remove all single use plastics – over a million single use cups, cutlery and wrappings have been taken out of operations – this extended to sachets, and a range of products, whilst trials are in place to remove and find options to PET plastics.</p> <p>MCFC has a practical and credible travel and transport plan that is working and in place – emphasising active travel – for fans, staff, visitors, authorised travel reduction of 5% and fan travel by 2.3% (est). MCFC further develop their biodiversity and ecology – with year-on-year growth in habitat, wildlife and active engagement. Develop their estate and property in line with the UN SDGs and have a fully engaged, knowledgeable and innovative workforce and supported base that champions best practice.</p> <p>The Club’s ecology programme was recognised by the Institute of Groundsmanship’s national awards scheme, where City Football</p>

		<p>Academy gained the Environment/Ecology Project of the year. It was also recognised for new-to-the-north-west wildlife species and providing homes for voles and an extended bee population. MCFC reduced energy and water consumption, and continued its programme to measure and report all its environmental impact covering scopes 1,2 and 3. The Club also reports under SECR.</p>
<p>Public Health and Safety</p>	<p>Collaborative initiative</p>	<p>In Manchester, there are 9 hospitals plus GP surgeries, walk-in clinics and community healthcare facilities. These are a part of the Manchester University’s NHS Foundation Trust (MFT) which is a member of the MCCP and has been working collaboratively with the city to reduce its carbon emissions as the NHS’s footprint is directly impacted by other city sectors such as transport and housing.</p> <p>Their headline action is to reduce core carbon emissions by 33% by 2023/24 against the 2017/18 baseline. They also plan to include travel and transport sustainability criteria within key contracts and embrace new and existing digital technologies to reduce the environmental impact of care, prevent ill health and management long-term health conditions.</p> <p>MFT has continued to make progress across the sustainability agenda during 2020/21, although the COVID-19 pandemic has had a significant impact on some priorities.</p> <p>A 14% reduction in the carbon impact of anaesthetic gases has been achieved, facilitated by clinically-led behaviour change campaigns strongly encouraging the use of less carbon-intensive anaesthetic gases.</p> <p>Carbon emissions from energy have reduced by 7%, and this year a REGO-certified energy tariff has been introduced for imported electricity. The Renewable Energy Guarantees of Origin scheme provides transparency to consumers about the proportion of electricity that suppliers source from renewable generation .</p> <p>The in-house transport fleet has been upgraded with the introduction of 9 electric vans replacing diesel equivalents, and a pilot has begun to trial the use of an electric cargo bike service for transport needs within the Chorlton area.</p> <p>Continued work has taken place to remove single-use plastic from catering outlets and they supported the Greater Manchester NHS research to identify and target the top 100 single-use plastic items within the healthcare supply chain.</p> <p>Collaboration with NHS Forest has facilitated the planting of 86 trees, including a mini-orchard at Trafford General Hospital, improving the</p>

		<p>biodiversity and resilience of the site.</p> <p>£100,000 of charity funding has been secured to improve cycling infrastructure and facilitate active commuting. £7 million has been secured through the Government's Public Sector Decarbonisation Fund to further to support progress to net zero. Both of these schemes will be fully implemented in 2021/22.</p>
<p>Business and Financial Services</p>	<p>Collaborative initiative</p>	<p>Manchester Metropolitan University (MMU) is the sixth-largest university in the United Kingdom by enrolment (33,010 total students) and a Member of Manchester Climate Change Partnership. Manchester Metropolitan University is the UK's second greenest university according to the People and Planet League 2019. They are also working with Manchester Climate Change Agency with the UKRI embedded researcher scheme.</p> <p>During 2021/21: MMU approved its Carbon Management Plan (CMP) 2020-26, the first of three six-year CMPs in its journey towards zero carbon by 2038, at the latest. It also delivered Carbon Literacy to its university leaders and is launching a Carbon Literacy for Leaders programme in May 2021.</p> <p>The University's Young Enterprise programme was recognised for enhancing students' enterprise skills in a way that brings benefits to society and the environment, winning a national Green Gown Award. The University, with GMCA, Trafford Council, Carlton Power, Cadent Gas and Electricity North West will be joining forces to set up Greater Manchester's first hydrogen hub. The hub will be a new addition to Trafford Low Carbon Energy Park – a green energy storage facility, which already consists of a number of net zero industrial projects.</p> <p>The University is leading a new project that aims to define and develop the skills needed by the future workforce to support the North West's decarbonisation plans. MMU, along with partners across the region, is working to define the existing skills gaps in the sustainable energy sector and highlight where investment in infrastructure and employment is needed. A strategy will be developed to bridge these skills gaps and outline a roadmap to a low carbon future in line with the Government's targets to have net zero carbon emissions by 2050. The goal is to develop the roles required by the sector and create as many as 33,000 jobs in the UK.</p> <p>Manchester Met was named in the world top 100 of the Times Higher Education's (THE) University Impact Rankings 2021. It was the first year MMU entered THE's Impact Rankings; ranking 66th globally in the league table and 15th in the UK.</p> <p>MMU is developing its new Sustainability Strategy to 2030. The Strategy will set out the University's response to the climate crisis and commitments to support global agendas to tackle poverty, inequality</p>

		and injustice and will be launched in November 2021.
Social Services	Collaborative initiative	<p>Manchester City Council have developed their own climate change action plan for 2020-25, setting out how they will contribute to the citywide Climate Change Framework: www.manchester.gov.uk/zerocarbon</p> <p>They are one-year into delivering our ambitious Climate Change Action Plan 2020-25, which includes action from across all parts of the Council. The policies, plans, infrastructure and funding are now being put in place to support the city to transition to zero carbon. Highlights from the past 12 months include:</p> <p>Projects listed in section 5 plus,</p> <p>In March 2020, the Council’s Executive approved a new Social Value Policy, which includes a new 30% weighting for social value with 10% attributed to environment. This is being rolled out over the second half of 2021.</p> <p>The Council set an ambitious target to plant 1,000 trees, 1,000 hedge trees and 4 orchards per annum during 2020-25 and committed £1m to fund the planting programme over the next three financial years. As of April 2021, over 1,000 trees and 540 metres of hedgerows have been planted since 2020.</p> <p>The Council was awarded Silver Accreditation from the Carbon Literacy Project for training over 1,050 staff and elected members to become Carbon Literate. The training moved from face-to-face delivery to virtual delivery during 2020/21 as a result of the COVID pandemic.</p> <p>The Council's Neighbourhoods Team have been working with residents across all 32 wards to embed climate action into ward plans and have recruited three new Climate Change Neighbourhood Officers (one for each of the three area teams) to provide additional capacity to support this work.</p>
Building and Infrastructure	Collaborative initiative	<p>The University of Manchester (UofM) is the second-largest university in the United Kingdom by enrolment (40,490 total students) and the largest single-site university in the UK and is also a member of the Manchester Climate Change Partnership. The University is committed to becoming zero carbon across scopes 1 and 2 by 2038 at the latest, in line with the Manchester City Council target created in collaboration with the Tyndall Centre for Climate Change Research. This target is one of the University’s eight key performance indicators, as set out in the “Our Future” strategy.</p> <p>During 2020-25 they plan to endorse a carbon reduction pathway to zero carbon by 2038, which involves an average 13% annual reduction from a baseline 53,836 tCO₂ (2017/18) to 17,669 tCO₂ by</p>

		<p>2025. Eliminate avoidable single-use plastic from catering, stationery and laboratories by 2022. Reduce business air travel by 12% (based on km travelled) from 2014/15 baseline by 2022. Launch an engagement platform for students to take action on sustainability and continue delivering Ethical Grand Challenges and train all students and staff in carbon literacy.</p> <p>2020 was a challenging year for the University of Manchester’s sustainability plans, with COVID slowing or halting work in some areas. However, plans are gathering pace for action throughout the rest of 2021 and beyond. Funding has been approved for the University to develop a ‘Zero Carbon Masterplan’, which will inform how the University can deliver on its 2038 commitment. In addition, a new strategy will be developed which will bring together all our work in relation to the environment, including carbon, biodiversity, food, research, teaching and public engagement and more. The launch of this new strategy and accompanying action plan will give fresh impetus to our environmental sustainability work, building on the work in recent years. UofM has just been ranked number one in the world in the Times Higher Education’s (THE) University Impact Rankings 2021 for the quality and scale of their impact against the UN’s Sustainable Development Goals (SDGs).</p>
<p>Building and Infrastructure</p>	<p>Collaborative initiative</p>	<p>The Manchester Housing Providers Partnership (MHPP) brings together Manchester’s registered housing providers and are working collaboratively with Manchester through the MCCP. There are 17 registered housing providers that are all members with stock holdings across Manchester.</p> <p>In 2019/20 they have, agreed to develop investment plans to quantify the cost of making all assets zero carbon by 2025. Agreed to move to fully electrified fleet by 2025. Agreed to become a fully Carbon Literate by 2025 and agreed to develop a communications strategy to be delivered through all available channels and action plan for targeted engagement.</p> <p>The Manchester Housing Providers Partnership (MHPP) has established a collaborative approach to addressing the first year of its five year action plan. Significant progress has been against establishing a baseline position of carbon emissions for housing providers’ portfolios and estimating the level of investment needed to meet the 2038 zero carbon target. This has culminated in the development of a bid to Government through MCCA and the Council for investment to kickstart an initial 4-year retrofit programme to enable MHPP members to establish a collaborative approach to procurement and delivery of around 3,500 properties per year and</p>

		<p>funding of £260m.</p> <p>Until funding has been secured, members of MHPP have been continuing to deliver their retrofit programmes to improve the standards of their existing stock. There has considerable success in attracting external funding through the Green Homes Grants, Decarbonisation Fund and European Regional Development Fund.</p> <p>Significant progress has also been made on improving standards in new build developments with a number of organisations moving towards no gas ahead of the 2025 national target and specifying new developments at standards in excess of the current Building Regulations.</p> <p>The coming year will see the group merged with the wider Greater Manchester Housing Provider Group and an agreed shared resource will be established to focus on the key priorities in the MHPP five year zero carbon plan. The focus for 2021/22 will be to reinforce the scale of investment required to retrofit social housing, gain greater understanding of the technology and level of measures required, and to continue lobbying national government for longer term funding to start accelerating investment in homes.</p>
<p>Business and Financial Services</p>	<p>Collaborative initiative</p>	<p>On July 1st 2020, Manchester was announced as one of eight global cities selected for a new initiative to help cities and businesses work together for urgent climate action.</p> <p>The 'City-Business Climate Alliance' (CBCA) has been developed by the C40, CDP and World Business Council for Sustainable Development. Through their existing networks the partners already support over 10,000 businesses and almost 1,000 cities to take action towards the Paris Agreement.</p> <p>CBCA has been developed to build on this work and support the development of eight new city-business partnerships to accelerate local action towards meeting city, national and international climate change targets.</p> <p>Between 2020-2023, Manchester will build on the existing Manchester Climate Change Partnership and invite new sectors and organisations to join the city's zero carbon programme.</p> <p>The other partner cities include: Dallas (USA), Durban (South Africa), Lisbon (Portugal), New York (USA), Stockholm (Sweden), Tel Aviv (Israel), and Vancouver (Canada), and these cities provide Manchester with an exciting opportunity to learn from their innovative</p>

		<p>zero carbon initiatives.</p> <p>Through participating in CBCA, Manchester aims to launch a new Zero Carbon Business Programme to support Manchester-based businesses to take the necessary actions to reduce their emissions to net zero.</p> <p>In March 2021, Manchester and the CBCA partners held a workshop with key Manchester-based businesses with two key aims. Firstly, to carry out a landscape assessment of existing climate change commitments, activities and support programmes Manchester's business community are already engaged in. Secondly, to identify gaps in the existing support and begin shaping a new programme, and which could be replicated in cities around the world.</p> <p>The report from this workshop can be found here: https://www.manchesterclimate.com/zero-carbon-business-programme</p> <p>Funding bids are currently in development, with a view to the programme launching in January 2022.</p>
<p>Business and Financial Services</p>	<p>Climate Action Plan consultation</p>	<p>The 'URBACT Zero Carbon Cities project', is led by Manchester and supported by Energy cities.</p> <p>Seven European cities are involved in this project, to support them to set science-based targets and develop Zero Carbon SECAPs:</p> <ul style="list-style-type: none"> Bistrita (RO) Frankfurt am Main (DE) Manchester (UK) Modena (IT) Tartu (EE) Vilvoorde (BE) Zadar (HR) <p>The network of 7 European cities, will establish science-based carbon reduction targets, policies and action plans, including governance and capacity building.</p> <p>These action plans will enable them to contribute to the successful implementation of the Paris Agreement and the EU's strategic vision for carbon neutrality by 2050.</p> <p>At a local level, ZCC will help Manchester Conduct a refresh of its climate change action plan; the Manchester Climate Change Framework 2020-25.</p> <p>Framework 1.0 was published in February 2020 and sets out '...we</p>

		<p>know this Framework would benefit from further details on what needs to be achieved and by when. It is intended these details will be developed as part of a refreshed version of this Framework.’ Framework 2.0 is being produced in order to provide this additional detail, and to develop an accompanying Implementation Plan for 2022-25. Framework 2.0 will be made up of five key components:</p> <ol style="list-style-type: none"> 1) Aim 2) Headline objectives: CO2 reduction; climate adaptation and resilience; health; economy 3) Thematic objectives: buildings; renewable energy; transport; food; the things we buy and throw away; green infrastructure and nature-based solutions 4) Bottom-up: actions for all residents and businesses 5) Top-down / removing barriers: Implementation Plan 2022-25 <p>The project will kick-off in June 2021 and will be delivered according to the following key milestones: July 2021: project kick-off Jul to Aug 2021: ‘Thematic Objectives’ and ‘Actions for resident and businesses’ developed Aug to Sept 2021: draft Implementation Plan 2022-25 Oct 2021: Consultation. Part 1– setting out the city-level objectives and the actions that all residents and businesses need to take and asking 2 questions: 1) Which actions are you already delivering? 2) What barriers are preventing/limiting you from taking action? Part 2 – setting out a draft Implementation Plan 2022-25, asking: Are these the right actions to remove your barriers? Jan/Feb 2022: final Framework 2.0 and Implementation Plan 2022-25 published</p>
	<p>Other, please specify Youth engagement/consultation</p>	<p>Young People – Youth Board Manifesto and Programme</p> <p>The Manchester Climate Change Youth Board brings together 13-28 years olds from across the city who are passionate about ensuring Manchester plays its full part on climate change .</p> <p>Members of the Youth Board sit on the Manchester Climate Change Partnership. They represent the city's young people and ensure that Partnership members are also playing their full part on climate change.</p> <p>The Youth Board have three main workstreams for 2021/22: Manifesto Launch, Board Communications Plan and, Manifesto Implementation.</p>

		<p>Manifesto Launch The Youth Board has developed its first ever Manifesto, setting out its priorities for 2021/22. The Board have agreed an outline timetable for the Manifesto to be launched in two phases. A soft digital launch in June and July 2021 is planned via the Youth Board's social media. This will build up to the physical launch of the Manifesto via a physical event in August 2021, with young people and city leaders, COVID restrictions allowing. Further details will be shared via www.manchesterclimate.com and the Youth Board's social media channels, including Twitter @McrClimateYB.</p> <p>Board Communications Plan The Youth Board recognises that their profile is growing across the city, leading to increased social media engagements across a number of platforms, particularly with other groups and organisations within the youth-focused sector. Accordingly, the Youth Board have committed to developing and implementing a new communications plan from June 2021.</p> <p>Manifesto Implementation Following the launch of the Manifesto, the Youth Board will develop and deliver an accompanying implementation plan. The plan will set out the resources and actions required to take forward each Manifesto priority.</p>
	<p>Project delivery - Public Private Partnership</p>	<p>A new programme to help households and communities in Manchester live more sustainably in response to the Climate Emergency will be launched May 2021 thanks to significant funding secured by The National Lottery's Climate Action Fund and a collaboration between environmental charity Hubbub, Manchester Climate Change Agency, Manchester City Council with support from The Tyndall Centre for Climate Change Research and Amity CIC.</p> <p>The programme will see local initiatives to reduce our carbon footprint rolled out across Manchester - from community fridges and urban greening projects to initiatives promoting energy efficiency, cycling and walking, reuse, repair and recycling. The projects will be led by a diverse range of local people from the community including local community groups, education establishments and faith institutions and will be supported by positive city-wide communications offering residents practical steps they can take to live in ways that are better for the environment.</p> <p>The National Lottery's Climate Action Fund has awarded a development grant to the programme alongside funding from Esmée Fairbairn Foundation, Garfield Weston Foundation, Wates Family Enterprise Trust and a coalition of corporate partners including the Co-</p>

		<p>op, Suntory Beverage Food GB&I and Coca-Cola GB. The programme is seeking to bring on board further local and national partners to make this a truly collaborative, cross-sector response to the climate emergency.</p> <p>The programme will explore the potential of residents and communities to respond positively to the climate emergency, followed by the creation of a toolkit of tried and tested initiatives that can be replicated by communities across Manchester and the UK. Activities will be measured by an independent evaluation partner and results will be shared openly.</p> <p>The programme will initially focus on the areas of Hulme, Moss Side and Rusholme, Newton Heath and Miles Platting, Levenshulme, and the Northern Quarter, and will involve projects designed to help residents save money, save carbon, improve their health and wellbeing, strengthen community cohesion and resilience, make life easier and create more spaces for the community to enjoy.</p> <p>For more information visit: https://www.manchesterclimate.com/sites/default/files/Zero%20Carbon%20Communities%20Q%26As.pdf https://zerocarbonmanchester.commonplace.is/</p>
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Finance and Economic Opportunities

(6.5) List any mitigation, adaptation, water related or resilience projects you have planned within your city for which you hope to attract financing and provide details on the estimated costs and status of the project. If your city does not have any relevant projects, please select 'No relevant projects' under 'Project Area'.

Project area

No relevant projects

Project title

Stage of project development

Project feasibility

Status of financing

Financing model identified

Identified financing model description

Project description and attach project proposal

Total cost of project

Total investment cost needed

8. Energy

(8.0) Does your city have a renewable energy target?

Yes

(8.0a) Please provide details of your renewable energy target(s) and how the city plans to meet those targets.

Scale

City-wide

Energy sector

All energy sectors

Target type

Renewable energy consumed (percentage)

Base year

2019

Total renewable energy covered by target in base year (based on target type specified in column 3)

69,486.43

Percentage renewable energy of total energy in base year

2.6

Target year

Total renewable energy covered by target in target year (based on target type specified in column 3)

100

Percentage renewable energy of total energy in target year

100

Percentage of target achieved

Comment

All energy consumed in the city

Scale

Local government operations

Energy sector

All energy sectors

Target type

Total installed capacity of renewable energy (in MW)

Base year

2019

Total renewable energy covered by target in base year (based on target type specified in column 3)

Percentage renewable energy of total energy in base year

Target year

2024

Total renewable energy covered by target in target year (based on target type specified in column 3)

Percentage renewable energy of total energy in target year

Percentage of target achieved

Comment

Target set at a Greater Manchester Level
Increase local renewable energy generation adding at least a further 45MW by 2024.
Decarbonising how we heat our buildings adding at least a further 10TWH of low carbon heating by 2024
Increasing the diversity and flexibility of our supply, adding at least a further 45MW of diversity and flexible load by 2024. See section 3.3.3 for details of energy targets and actions set out in Five Year Environment Plan
https://www.greatermanchester-ca.gov.uk/media/1986/5-year-plan-branded_3.pdf

(8.1) Please indicate the source mix of electricity consumed in your city.

 This is the mix at Greater Manchester level

Electricity source

Coal

3

Gas

39

Oil

1

Nuclear

22

Hydro

1

Bioenergy (Biomass and Biofuels)

16

Wind

8

Geothermal

1

Solar (Photovoltaic and Thermal)

2

Waste to energy (excluding biomass component)

4

Other sources

3

Total - please ensure this equals 100%

100

Total electricity consumption (MWh)

2,608,248.162

Year data applies to

2018

What scale is the electricity mix data

Regional/State mix reported

Comment

Data from Digest of UK Energy Statistics 2020 and Sub-national total final energy consumption statistics 2020.

(8.1a) Please indicate the source mix of thermal energy (heating and cooling) consumed in your city.

Thermal energy consumption

Coal

0.2

Gas

95.6

Oil

0.6

Bioenergy (Biomass and Biofuel)

3.3

Geothermal

0

Solar (Thermal)

0

Waste to energy (excluding biomass component)

0

Other sources

0.3

Total (auto-calculated)

100

Total consumption (MWh)

3,901,304.3

Year data applies to

2018

What scale is the thermal energy mix data

Regional/State mix reported

Comment

Local authority level data from UK BEIS Sub-national energy consumption dataset.

 Subnational_total_final_energy_consumption_statistics.xlsx

(8.2) For each type of renewable energy within the city boundary, please report the installed capacity (MW) and annual generation (MWh).

	Installed capacity (MW)	Annual generation (MWh)	Year data applies to	Comment

Solar PV	21.8	21,215.072	2019	Data from UK BEIS - Renewable electricity by local authority
Solar thermal			2019	Data from UK BEIS - Renewable electricity by local authority
Hydro power	0		2019	Data from UK BEIS - Renewable electricity by local authority
Wind	0		2019	Data from UK BEIS - Renewable electricity by local authority
Bioenergy (Biomass and Biofuels)	9.67	48,271.366	2019	Data from UK BEIS - Renewable electricity by local authority
Geothermal			2019	Data from UK BEIS - Renewable electricity by local authority
Other, please specify			2019	Data from UK BEIS - Renewable electricity by local authority

(8.3) Does your city have a target to increase energy efficiency?

Yes

(8.3a) Please provide details on your city's energy efficiency targets.

Scale

City-wide

Energy efficiency type covered by target

Other, please specify

Retrofit over 11,500 of Manchester's 226,640 homes per year

Base year

2018

Total energy consumed/produced covered by target in base year (in unit specified in column 2)

Target year

2038

Total energy consumed/produced covered by target in target year (in unit specified in column 2)

Percentage of energy efficiency improvement in target year compared to base year levels

Percentage of target achieved

Plans to meet target (include details on types of energy in thermal /electricity)

Retrofit over 11,500 of Manchester's 226,640 homes per year

Please indicate to which energy sector(s) the target applies (Multiple choice)

Residential buildings

(8.4) Please report the following energy access related information for your city.

Energy access

Electrification ratio of the city

100

Average electricity consumption per commercial establishment (MWh/annum)

Average electricity consumption per residential household (MWh/annum)

3.67

Average unit price of electricity (Currency unit as specified in 0.4/MWh)

Percentage of electricity distributed, but not billed

Percentage of city population with access to clean cooking

100

Comment

Electricity losses due to theft are not available down to the city scale. Nationally this is a nominal % of total electricity supplied therefore 0% is assumed here. Clean cooking figure of 100% is based on lack of evidence that cooking methods with poor combustion characteristics are routinely used in the city.

**(8.5) How many households within the municipal boundary face energy poverty?
Please select the threshold used for energy poverty in your city.**

Energy Poverty

Number of households within the city boundary that face energy poverty

42,845

Threshold used for energy poverty

Other, please specify

Link to Methodology:

https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/981817/sub-regional-fuel-poverty-subregional-2021-methodology.pdf

Comment

Figure from the Sub-regional fuel poverty data 2021 published by BEIS for the year of 2019. Link to data: <https://www.gov.uk/government/statistics/sub-regional-fuel-poverty-data-2021>.

10. Transport

(10.0) Do you have mode share information available to report for the following transport types?

Passenger transport

(10.1) What is the mode share of each transport mode in your city for passenger transport?

Please complete

Private motorized transport

29.23006196

Rail/Metro/Tram

29

Buses (including BRT)

25.03576777

Ferries/ River boats

Walking

15.13329464

Cycling

1.865925581

Taxis or shared vehicles (i.e. for hire vehicles)

Micro-Mobility

Other

Comment

The 2020 Manchester Key Centre Cordon Surveys were undertaken in February and March and some, in particular the rail surveys (see below) and the surveys in the NOMA district, were affected by the measures taken to combat the pandemic. From the week commencing 16th March 2020 schools and universities closed, many non-essential businesses started closing and many companies started asking employees to work from home. This was followed by a nationwide lockdown in the UK from 23rd March 2020.

Average made from table 27 the report linked below

[https://gmtu.gov.uk/reports/transport2019/SRAD%20Report%202040%20Transport%20Statistics%20Manchester%202019-2020%20Key%20Centre%20Section%20\(Feb%20&%20March%202020\).xlsx](https://gmtu.gov.uk/reports/transport2019/SRAD%20Report%202040%20Transport%20Statistics%20Manchester%202019-2020%20Key%20Centre%20Section%20(Feb%20&%20March%202020).xlsx)

(10.3) Please provide the total fleet size and number of vehicle types for the following modes of transport.

	Number of private cars	Number of buses	Number of municipal fleet (excluding buses)	Number of freight vehicles	Number of taxis	Transport Network Companies (e.g. Uber, Lyft) fleet size	Customer-drive carshares (e.g. Car2Go, Drivenow) fleet size	Comment
Total fleet size	24	12	106	83				Column 4 contains 16 freight vehicles over 3500kg
Electric	2		20					As of June 2021, the Council operated 227 fleet vehicles, including 20 electric vans (increasing to 25 in July), one electric car, one electric people carrier and three

								hybrid cars.
Hybrid	3							
Plug in hybrid	3							
Hydrogen								

(10.5) Does your city have a low or zero-emission zone or restrictions on high polluting vehicles that cover a significant part of the city? (i.e. that disincentivises fossil fuel vehicles through a charge, a ban or access restriction)

Yes

(10.5a) Please provide more details about the low or zero-emissions zone and/or restrictions on high polluting vehicles that cover a significant part of the city.

	Size (sq. km)	Stipulations and any plans to expand
Please complete		<p>Greater Manchester Clean Air Plan is in the final stages of approval by Manchester City Council and other nine Greater Manchester authorities. A charge will be introduced for the most polluting commercial vehicles from 2022.</p> <p>A Category C Clean Air Zone will be introduced . The Zone is anticipated to be introduced on Monday 30 May 2022.</p> <p>Vans, buses, coaches, taxis, private hire vehicles, minibuses and heavy goods vehicles that do not meet emission standards would pay a daily charge to travel in the Zone. Private cars, motorbikes and mopeds are not included.</p> <p>The Clean Air Zone is designed to improve air quality by encouraging upgrades to cleaner vehicles.</p> <p>The following daily charges are proposed for non-compliant commercial vehicles:</p> <p>Buses and heavy goods vehicles (HGV) – £60 (from 30 May 2022) Coaches – £60 (temporary exemption until 31 May 2023) Taxis and private hire vehicles – £7.50 (from 30 May 2022, temporary exemption for Greater Manchester-licensed vehicles until 31 May 2023) Light goods vehicles (LGV) such as vans and minibuses – £10 (temporary exemption until 31 May 2023)</p> <p>https://cleanairgm.com/</p>

12. Food

Food Consumption

(12.0) Report the total number of meals that are annually served and/or sold through programs managed by your city (this includes schools, hospitals, shelters, public canteens, etc.).

Total meals served or sold through programs managed by your city

Number of meals

3,262,082

Cities facilities

Other, please specify

Manchester Fayre supplies 75 locations across the city, primarily schools

Comment

989,382 Primary School meals plus approx. 156,699 High School meals, plus approx. 2,272,700 Manchester Foundation Trust (NHS) meals. Primary and High School meals annual total for 2020-2021 (lower than usual due to COVID-19).

Manchester Fayre (MF) is the City Council's in-house catering provider. As the largest school meal provider, the company employs approximately 400 staff based at 75 locations across the City

The service works in neighbourhoods and with communities to promote healthy eating through educational workshops and other engagement activities delivered by MF's nutrition team. Their proactive nutrition team check all ingredients, recipes and menus before approval for use in schools, which ensures they meet legislative standards and fulfil the requirements of their Bronze Food for Life Catering Mark award.

As a result of the Food for Life bronze achievement, 75 MF catered primary schools have received a certificate to proudly display in school. These were presented to Unit Managers at MF's annual training carousel where they also received a briefing session about Food for Life, delivered by representatives from the Food for Life Catering Mark team.

MF has won a number of awards recently including the Association of Public Service Excellence (APSE) Best Performer for Education Catering in 2014/15 and 2015/15. The provider has also won the 2016 Lead Association for Catering (LACA) Change4Life award in recognition for their strategic approach to gradually reduce sugar on the menu and for supporting health promotion lessons with pupils.

(12.1) What is the per capita meat and dairy consumption (kg/yr) in your city?

Meat consumption per capita (kg/year)

Kg/Year/Capita

Year data applies to

Is your city calculating emissions associated with this consumption?

Comment

Manchester Fayre:

This year we have been unable to quantify meat and dairy consumption in the city. However we have been encouraging a reduction of intake within our schools.

For over 10 years we have operated 'Meat Free Mondays' for our primary school menu, which is part of our commitment to reducing the carbon footprint. Due to the multicultural nature of our customers, our menus feature a wide range of non-meat and vegetarian dishes, and so feature very few meat based dishes. When a meat dish is featured, schools have the flexibility of choosing the meat popular with their customers and anecdotal evidence indicates that poultry is the preferred meat option in many schools.

In line with School Food Standards, meat dishes must be featured at least three menu days each week; when a meat dish is featured, schools have the flexibility of choosing the meat popular with their customers and anecdotal evidence suggests that poultry is the preferred meat option in many schools.

Manchester Foundation NHS Trust:

Unfortunately we don't currently collect information on the kg of meat or dairy consumed per year, but collecting this information may begin in future years.

In addition, the senior dietitian confirms that meat consumption is not currently part of the Trust's Nutrition & Hydration Policy/strategy.

Dairy consumption per capita (kg/year)

Kg/Year/Capita

Year data applies to

Is your city calculating emissions associated with this consumption?

Comment

Manchester Fayre:

As above this year we haven't been able to quantify the cities dairy intake. However to give some indication of the dairy consumption that is occurring in our schools.

In line with the School Food Standards, a portion of milk or dairy food must be available each menu day, as such semi-skimmed milk is available as a drink option at lunch and a locally produced lower fat cheese features as a sandwich/jacket filling and in some main meals.

Also in line with the standards, a portion of non-dairy protein must be available for vegetarian customers at least three menu days each week which does encourage caterers to not rely on cheese-based main meal dishes for vegetarians.

Sustainable Food Policies and Actions

(12.3) Does your city have any policies relating to food consumption within your city? If so, please describe the expected outcome of the policy.

	Response	Please describe the expected outcome of the policy
Please complete	Yes	<p>Manchester Food board established 2019. Manchester Food Board policy statement has been published, along with an Action Plan.</p> <p>Manchester City Council is the local government body for the Manchester Food Board. The delivery of healthy and/or sustainable food for our communities is firmly embedded in a range of city policy and strategies:</p> <ol style="list-style-type: none"> 1. The Manchester Strategy: The Manchester Strategy sets a long-term vision for Manchester’s future and describes how this will be achieved. It provides a framework for actions by our partners working across Manchester – public sector organisations, businesses, the voluntary sector and communities. The Manchester Food Board was invited to feed into the refresh of this strategy, to explore and embed sustainable food in the long-term vision for Manchester. These contributions are captured in the "Our Manchester Strategy- Forward to 2025" document. 2. The Green and Blue Infrastructure Strategy (G&BI) aims to reposition the appreciation and value of green spaces in Manchester. Its 3-year action plan aims to capture and signpost green infrastructure-related activity from a broad range of partners, with a key objective being to improve the quality and functionality of green space. A cross-sector stakeholder implementation plan is in place with key partners who deliver excellence in food growing in the City, such as Hulme Community Garden Centre & Sow the City. As such, sustainable food growing plays a key role in improving the functional value and usefulness of our green spaces, with the G&BI resourcing £85,000 investment to improve allotment spaces and annually increase the number of new orchards planted per year. 3. Manchester Climate Change Framework 2020-25 is the city's framework for tackling climate change and reducing the city's carbon footprint. It includes food as a priority area for action.

		<p>Also food features in a range of policies and strategies to promote food security, health and wellbeing, such as the Family Poverty Strategy, Our Children: Manchester's Children and Young People's Plan 2016-2020, and Manchester's Early Help Strategy 2015-2018. Food also plays a key role in the quality and review of our commissioned services in care homes, home care and supported living for our older generations.</p>
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(12.4) How does your city increase access to sustainable foods?

Do you subsidise fresh fruits and vegetables?

Action implemented

No

Please provide details and/or links to more information about the actions your city is taking to increase access to sustainable foods

Although we do not subsidise fresh fruits and vegetables, we do have at least one portion of fruit and one portion of vegetables each day available to school customers in line with the School Food Standards, and furthermore operate an unlimited access salad bar that features a variety of seasonal fruits and vegetables (during non covid times). Please refer to the Good Food Greater Manchester Strategy
<https://www.goodfoodgreatermanchester.org/manchester-sfc> &
https://www.sustainablefoodplaces.org/Portals/4/Documents/SFC_Manchester_Application_FINAL_PDF.pdf

 Sustainable Food Cities_ Manchester.pdf

Do you tax/ban higher carbon foods (meat, dairy, ultra-processed)?

Action implemented

No

Please provide details and/or links to more information about the actions your city is taking to increase access to sustainable foods

Unfortunately, we do not tax/ban higher carbon foods (meat, dairy, ultra-processed). For examples of the projects and initiatives Manchester does have please refer to the Good Food Greater Manchester strategy
<https://www.goodfoodgreatermanchester.org/manchester-sfc> and
https://www.sustainablefoodplaces.org/Portals/4/Documents/SFC_Manchester_Application_FINAL_PDF.pdf

 Sustainable Food Cities_ Manchester.pdf

Do you use regulatory mechanisms that limit advertising of higher carbon foods (meat, dairy, ultra-processed)?

Action implemented

No

Please provide details and/or links to more information about the actions your city is taking to increase access to sustainable foods

Unfortunately, we do not use regulatory mechanisms that limit advertising of higher carbon foods (meat, dairy, ultra-processed). For examples of the projects and initiatives Manchester does have please refer to the Good Food Greater Manchester strategy <https://www.goodfoodgreatermanchester.org/manchester-sfc> and https://www.sustainablefoodplaces.org/Portals/4/Documents/SFC_Manchester_Application_FINAL_PDF.pdf

 Sustainable Food Cities_ Manchester.pdf

Do you use regulatory mechanisms that limit the sale of higher carbon foods (meat, dairy, ultra-processed)?

Action implemented

No

Please provide details and/or links to more information about the actions your city is taking to increase access to sustainable foods

Do you incentivise fresh fruit/vegetables vendor locations?

Action implemented

No

Please provide details and/or links to more information about the actions your city is taking to increase access to sustainable foods

We do not incentivise fresh fruit and vegetables however please see earlier response in 12.4 where we positively encourage fruit and vegetable consumption with children via unlimited access salad bar. Please refer to the Good Food Greater Manchester Strategy <https://www.goodfoodgreatermanchester.org/manchester-sfc> & https://www.sustainablefoodplaces.org/Portals/4/Documents/SFC_Manchester_Application_FINAL_PDF.pdf

 Sustainable Food Cities_ Manchester.pdf

Do you have programs/policies/regulations on food surplus - either food surplus recovery and redistribution, or food waste avoidance programs (i.e. Love Food/Hate Waste)?

Action implemented

Please provide details and/or links to more information about the actions your city is taking to increase access to sustainable foods

FareShare GM is part of FareShare, the UK's largest food redistribution charity. FareShare Greater Manchester was set up by the environmental charity EMERGE in 2008. Over the course of lockdown, they redistributed over 1,319 tonnes of food, around 3,118,203 meal portions, to foodbanks, pantries, and communities across Manchester.

The Manchester Family Poverty Strategy includes an action to: "Work with FareShare

GM and other food charities to divert as much surplus food as possible to low income families with children. Encourage more sustainable food help such as food cooperatives and penny pantries that encourage healthy eating and weekly budgeting".

The Manchester Climate Change Framework 2020-2025 includes an action to: "Waste less food, both individually and commercially".

13. Waste

(13.0) What is the annual solid waste generation in your city?

	Amount of solid waste generated (tonnes/year)	Year data applied	Please describe the methodology used to calculate the annual solid waste generation in your city
Please complete	163,411	2019	<p>2018/19 Financial Year. From https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/849135/LA_and_Regional_Spreadsheet_1819.ods</p> <p>The 2019/20 release was delayed due to reporting difficulties experienced by some local authorities during the Covid-19 epidemic in 2020. The next update to this National statistics notice and accompanying datasets is scheduled to be in November/December 2021.</p>

14. Water Security

Water Supply

(14.0) What are the sources of your city's water supply?

Surface water, from sources located fully or partially within city boundary

Ground water

Primarily Manchester is supplied (for potable uses) from rainwater transferred into treatment works via aqueducts and other infrastructure (stored in local reservoirs). The majority of this comes from water supply sources outside of Manchester. However United Utilities, the water company, operates an integrated water supply management zone with ability to transfer within this, the wider supply mix also includes other local storage, other remote bulk storage and supply and other sources such as groundwater. there are also private supply. This makes the wider NW river basin, within which Manchester is supplied (primarily from a smaller number of large sources) quite sophisticated and complex with redundancy, interdependence and other opportunities and sometimes pressures on supply within and outside of Manchester's boundary.

(14.1) What percentage of your city’s population has access to potable water supply service?

100

(14.2) Are you aware of any substantive current or future risks to your city’s water security?

Yes

(14.2a) Please identify the risks to your city’s water security as well as the timescale and level of risk.

Water security risk drivers	Anticipated timescale	Estimated magnitude of potential impact	Estimated probability of impact	Risk description
				<p>Link to united utilities water supply resilience technical report - https://www.unitedutilities.com/globalassets/z_corporate-site/about-us-pdfs/wrmp-2019---2045/final-wrmp19-technical-report---water-supply-resilience.pdf</p> <p>https://unitedutilities.annualreport2020.com/strategic-report/our-risk-management/principal-risks-and-uncertainties.html</p> <p>United utilities have identified 15 operational risks.</p> <ol style="list-style-type: none"> 1. Water pollutions 2. Contamination 3. Leakage 4. Environmental/regulation risk 5. Structural failure of water retain structures 6. Interruptions to supply 7. Poor water quality 8. Process safety risks (water) 9. Odour nuisance 10. Process safety risk (wate water) 11. Failing waste water treatment works 12. Unsatisfactory sludge disposal 13. Pollution of bathing waters 14. Wastewater pollution 15. Sewer flooding <p>https://www.unitedutilities.com/globalassets/z_corporate-site/pr19/supplementary/s4003_corporate_risk_manageme</p>

				nt_framework.pdf
Inadequate or ageing water supply infrastructure	Medium-term (by 2050)	Serious	Medium-high	<p>The largest resilience risk that United Utilities have identified is associated with numerous potential single points of failure on their regional aqueduct system, which supplies water to Manchester and Pennine areas. These aqueducts transport potable water from the Lake District through Cumbria, Lancashire and south to Greater Manchester. It also provides critical support to the south of the zone and can be used to offset supply from the River Dee and Lake Vyrnwy, including during an outage event if we experienced contamination in the River Dee.</p> <p>The long distance aqueducts that supply Manchester have been the subject of investigation and refurbishment since the 1990s. Considerable planning and investment in enabling works was required to complete a 4 week outage of a 109 km potable water supply aqueduct commissioned in the 1950s. The findings from this outage investigation, completed in the winter of 2016, indicate that there are a number of risks that could affect the resilience of service to customers. These risks arise mainly from degradation of concrete lined tunnel sections of the aqueduct. The Manchester and Pennine Resilience risk could, in the future, result in a widespread water quality incident or loss of supply to many thousands of properties for an extended period. United Utilities have carried out extensive risk analysis covering a range of failure modes and consequences, with the risk increasing as the asset ages and deteriorates over the coming years. For the purposes of customer research and consultation we have simplified this into three indicative events to represent the overall baseline system risk over a future 10 year period:</p> <ul style="list-style-type: none"> • 65% probability that 1.2 million properties could be affected by water quality problems for at least one week • 35% probability that 120,000 properties could be affected by supply interruptions for up to three months • 10% probability that 240,000 properties could be affected by supply interruptions for up to two weeks <p>These represent the baseline risk in the absence of any options which are discussed in the following sections. The baseline risk ranks highly when assessed alongside other water assets in accordance with the company risk assessment process.</p>

				<p>https://www.unitedutilities.com/globalassets/z_corporate-site/about-us-pdfs/wrmp-2019---2045/final-water-resources-management-plan-2019.pdf</p>
Severe weather events	Medium-term (by 2050)	Serious	Medium-high	<p>United Utilities identifies severe weather events as water service risks with a potential to cause a failure to provide a secure supply of clean, safe drinking water and the potential for a negative impact on public confidence in water supply. With key impacts being: Danger to public health caused by poor water quality; The impact on communities caused by interruptions to water supply.</p> <p>They also identify severe weather as a wastewater security risk. Identifying failure of wastewater network and sewer Flooding as one of the company's most significant event-based risks.</p> <p>Significant impacts: Pollution incidents, interruptions to drainage services and sewer flooding could lead to damage to the natural environment, disruption to businesses and domestic customers</p> <p>Flooding, particularly involving sewers, can have profound impacts on physical health, and in severe cases may cause a risk to life and can impact on stress levels and mental health and destruction and Contamination of habitats and ecosystems within Manchester</p> <p>Cold spells, although predicted to be less common, can also cause disruption due to freezing water causing burst pipes.</p>
Drought	Long-term (after 2050)	Less Serious	Medium	<p>United Utilities identifies drought as a water service risk with a potential to cause A failure to provide a secure supply of clean, safe drinking water and the potential for a negative impact on public confidence in water supply. With key impacts being danger to public health caused by poor water quality and The impact on businesses communities caused by interruptions to water supply.</p> <p>They have also identified Water scarcity and water trading as an emerging issue due to the proposed strategic transfer of water from the North West to the South East of</p>

				England and the associated service, commercial and reputational impacts.
Pollution incidents	Medium-term (by 2050)	Less Serious	Medium	<p>United Utilities have identified of wastewater assets (serious pollution) as one of the company's most significant event-based risks.</p> <p>Risk exposure: The unintended introduction of pollutants (including sewage) into the environment, due the capacity and capability of wastewater assets. Flooding overrunning the capacity of the sewer network causing, Interruptions to drainage services and sewer flooding leading to damage to the natural environment, disruption to businesses and residents and risks to public health</p> <p>They have also identified plastics and biosolids as new and emerging risks.</p> <p>Plastics: Implications associated with the current attention on single use plastics and microplastic pollution in water, wastewater effluent discharge and sludge disposal (see biosolids recycling to agriculture).</p> <ul style="list-style-type: none"> • Biosolids recycling to agriculture: The practice of disposing of biosolids to agriculture could be banned (partially or in full) in the UK based on similar actions within Europe. <p>Page 36 https://www.unitedutilities.com/globalassets/documents/pdf/united-utilities-27052021.pdf</p>
Change in land-use	Current	Less Serious	Medium	<p>United Utilities have identified changes in permeable areas (urban creep) as a water security risk driver. Urban creep arises from the conversion of existing permeable areas, for example gardens, verges and paths to impermeable areas. There has been a significant increase in the proportion of front gardens that are completely paved over in the Northwest, up 4% in 2005 to 21% in 2015, usually to provide space for car parking. Such changes increase the volume of surface run-off and the speed of which it discharges to the sewer. Though pace of urban creep is negligible in Manchester city centre it is much more significant in the suburbs and the areas in greater Manchester and beyond in the catchment areas of the Irk, Irwell and Medlock that pose a flooding risk in Manchester and pose a substantial risk to the resilience of the wastewater network and treatment processes.</p>

Water Supply Management

(14.3) Please select the actions you are taking to reduce the risks to your city's water security.

Risks

Severe weather events

Adaptation action

Nature-based solution

Status of action

Monitoring and reporting

Action description and implementation progress

The West Gorton Community Park is a £1.4m, 14,000 sq. metre "sponge" park funded by GrowGreen which opened in July 2020. This is a new, accessible, multi-functional neighbourhood green space designed to help the climate resilience of the local area. It follows "sponge principles", incorporating sustainable urban drainage (SuDS) to allow rainwater run-off from nearby roads to be channelled and filtered through natural drainage systems, slowing and reducing the flow into the normal drainage system. The development of the community park included working and consulting with the local community in West Gorton to ensure local ideas could be incorporated into the final design. It has also provided a real-life experience of the procurement and installation process of such a NBS feature and provides a showcase location which can demonstrate NBS's in use and the potential wider business cases for future financing of such developments.

Risks

Pollution incidents

Adaptation action

Investment in existing water supply infrastructure

Status of action

Implementation

Action description and implementation progress

United Utilities invested £117 million in a programme of work to install automatic shutdown and 'start-up to waste' at all their water treatment works. They will be the first water company in England and Wales to have this in place at all their water treatment sites. They've also developed a more robust approach to testing service reservoirs which is now considered industry best practice. By the end of 2021 they'll have UV treatment at 24 high risk water treatment works and pipework to enable emergency deployment at a further 14. The investments are coupled with a reviewed risk

management processes at water treatment sites and improved automation and telemetry controls at strategic sites.

They have invested in a fleet of 'Water on wheels' 13 tankers to pump treated drinking water into the local network in the event of a water outage. By the end of 2021 they will have 44 large tankers and 5 smaller tankers on standby at all times, capable of reducing the customer impact of large water supply interruptions.

Following the flood events they have improved resilience when reinstating damaged assets by, for example, increasing culvert capacity. They also developed a catchment resilience strategy, putting natural flood management at the heart of our sustainable catchment management programme.

Risks

Change in land-use

Adaptation action

Conservation awareness and education

Status of action

Operation

Action description and implementation progress

United Utilities are working with the Royal Horticultural Society (RHS) to raise awareness, educate and promote the boarder benefits of retaining green space such as the RHS 'Greening the Grey' initiative. They are promoting the use of permeable paving alternatives to demonstrate that car parking space can be provided without contributing to increased flood risk, this was demonstrated by United Utilities award winning garden at the RHS Flower Show Tatton in 2017

Page 36.

https://www.unitedutilities.com/globalassets/z_corporate-site/pr19/supplementary/s4003_corporate_risk_management_framework.pdf

Risks

Drought

Adaptation action

Other, please specify

Researching and planning for the implications of a changing climate

Status of action

Operation

Action description and implementation progress

Flooding and drought have been identified as the forerunners to longer term climate change impacts in terms of water security risk drivers by United Utilities (UU). UU have

recognised the ongoing need to improve their understanding of climate risks. They have adopted a 25- year planning horizon (to 2040) to ensure the resilience of water resources and enable the sustainable future management of drainage systems. In 2011, they published their first climate change adaptation report that explained to government how they are preparing for a changing climate and set out how they intend to manage material risks associated with climate change and their second report, published in 2015, builds on this and reports progress on their actions. Consumption of water is higher during 'hot' and 'dry' periods, mainly due to a significant increase in the watering of gardens. The higher demand for water. Associated with this increase in consumption, is often termed 'dry year' demand. They worked with the Met office to understand how weather metrics, like temp and rainfall, affect the consumption of water by looking back at historical records that allows them to understand the likely increase in demand for dry years and apply an uplift to customer consumption to account for this and appropriately manage water supply in periods of drought.

The draft United Utilities drought plan 2022-27 can be found here:

<https://www.unitedutilities.com/globalassets/documents/pdf/draft-drought-plan-2022.pdf>

Risks

Severe weather events

Adaptation action

Other, please specify

Researching and planning for the implications of a changing climate

Status of action

Implementation

Action description and implementation progress

The key risks associated with severe weather is the flooding due to the predicted increase in more intense rainfall across the region. The sustainable management of surface water is vital in adapting to this risk and current work to improve its management by United Utilities include:

- Working with Defra, DCLG, Lead Local Flood Authorities and developers to promote the implementation of Sustainable Drainage Systems (SuDS)
- Working with Lead Local Flood authorities and the Environment Agency to develop Surface water Management plans across the region
- Embedding UU partnership approach with Local Authorities, the Environment Agency and others.

They have also conducted modelling of climate change in wastewater networks to assess the impact increased frequency and magnitude of rainfall and storm events and plan to integrate these results in to their business plan.

The document below sets out the service enhancement and activity United Utilities will take through 2020-2025 to deliver improvements to the drainage system and reduce the

risk of sewer flooding:

https://www.unitedutilities.com/globalassets/z_corporate-site/pr19/supplementary/s6034_enhancement_wastewater_8.pdf

(14.4) Does your city have a publicly available Water Resource Management strategy?

Not intending to undertake, please specify why

Water resource planning (and regulation) is the responsibility of privatised water company United Utilities. https://www.unitedutilities.com/globalassets/z_corporate-site/about-us-pdfs/wrmp-2019--2045/final-water-resources-management-plan-2019.pdf

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