



Manchester Climate Change
Strategy 2017-2050 and
Implementation Plan 2017-2022

Annual Review 2018

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INTRODUCTION FROM THE CHAIR OF THE MANCHESTER CLIMATE CHANGE BOARD



Gavin Elliott, Chair of MACF Steering Group
Image courtesy of Andy Haslam

Climate change is a real and present threat to the planet caused by excess greenhouse gas emissions released into the atmosphere as a result of human action (and in-action).

However, despite the overwhelming scientific evidence that supports this and (with a few ignoble exceptions) world leaders are in unanimous agreement that climate change is happening, and has the very real potential to cause catastrophic harm to the world as we know it. All while the scale of action being taken to mitigate this threat is woefully small, compared to the gravity and urgency of the threat.

Against this background, it is probably inevitable that the city's report is rather repetitive with our own message largely unchanged from year to year. There is undoubtedly good work going on and emissions are reducing, but it pales into insignificance compared to what is actually required to halt climate change through a large and substantive reduction in our greenhouse gas emissions. And all the while more and more

greenhouse gases continue to be emitted as each day goes by ...

With this in mind, it is interesting to ask the question - why is an issue which (unlike most) actually does represent an existential threat to our collective way of life so little discussed, and even less acted upon.

Perhaps the issue is simply too big, or too complicated, or too abstract, or too scientific, or too frightening for people to want to think about it. Or maybe, like the apocryphal 'frog in boiling water', we are not mentally attuned to recognise and deal with slow creeping threats until it's too late - unlike immediate threats which can galvanise the community to action.

In this context one of the difficulties we have faced is translating science based carbon reduction targets into scalable action 'on the ground'. We have known we need to reduce carbon emissions, and to some extent we have always known the sorts of things that would be necessary to achieve those measurable reductions. Now as the new city-wide carbon budgets are being

developed it is becoming far clearer what needs to happen and when.

The 'good news' is that most of the things that we (as a city) need to do are things that most world-class cities would aspire to; extensive low-carbon energy infrastructure, local renewable power generation, a great public transport network, wide-spread adoption of 'EVs' and the infrastructure to maintain them, energy efficient homes and buildings, a city designed for pedestrians and cyclists, clean air, extensive green spaces and clean waterways, and so on.

The science says that we can't afford to wait for these things to simply 'happen' - through some kind of organic, market-led process. Rather we need to act together to make them happen, and we need to do it now.

This is why this year's Annual Report will be accompanied by three other things.

Firstly a proposed carbon budget that sets out how much CO₂ Manchester is 'allowed' to emit to contribute towards the successful delivery of the Paris Agreement.

Secondly, the launch of a six-month 'science-based' planning process with key Manchester organisations to agree the actions they will deliver to help ensure the city stays within its budget.

And thirdly, a programme of communications with the city's residents to set out the benefits of Manchester becoming a zero carbon city by 2038 and how they can secure their share.

Right now cities around the world are shifting their focus from the age-old mission of 'jobs and growth' to 'good jobs and inclusive, sustainable growth'. The question for Manchester is not do we agree - rather it is do we want to be a leader or a follower in this global shift?

I'm hoping that next year's report will answer that question.

Gavin Elliott, Chair,
Manchester Climate Change Board

“Through the Manchester Climate Change Youth Board, we aim to act as a voice for the young people of the city, to drive change across a number of sectors for a green and healthy future for ours and future generations.”

Tudor Baker, Manchester Climate Change Youth Board member

Manchester Climate Change Youth Board

The Manchester Climate Youth Board was established in November 2017 through an open application process. Made up of six talented 16-25 year olds who are studying and working in Greater Manchester, the Youth Board are vital members of the city's Climate Change Board, bringing energy and driving youth action in the city.



PART 1

THE MANCHESTER CLIMATE CHANGE BOARD AND AGENCY

The MACF Steering Group's priority for 2017-18 was to establish the required governance structure for the successful implementation of the Manchester Climate Change Strategy 2017-50.

In February 2018 a new Manchester Climate Change Board was established, building on the work of the Steering Group from 2010 to 2017. The Board is part of the city's wider Our Manchester governance structure, made up of a family of thematic boards with responsibility for driving forward action in relation to their area of the Our Manchester strategy. This approach enables the Board to focus specifically on the city's climate change priorities, at the same time as working with other groups to integrate climate

change as an issue that cuts across all areas of the Our Manchester strategy, from health and quality of life, to jobs and economic success.

Building on the previous MACF Steering Group, one of the new Board's priorities is to maximise engagement with the diverse range of business sectors and communities that exist across the city. To underpin this work the Board's membership is made up of a diverse range of representatives from organisations and sectors.

The Board's current membership is outlined at manchesterclimate.com/MCCB.

As a group acting on behalf of and in the interests of the city's residents and organisations, the Board has committed to report publicly on its activities. The Board's meetings minutes are available from

www.manchesterclimate.com and formal accounts are available from Companies House at beta.companieshouse.gov.uk/company/09761661.

BOARD AND AGENCY ACTIVITIES

The Board are currently working to finalise their aim and objectives. Once finalised, the Agency's role is to support the delivery of these objectives, working with the Board and other partners to help the city to achieve its climate change commitments.

Further development can be expected over the second half of 2018 but, at the time of writing, the following draft priorities have been set out for the Board and the Agency:

Draft aim:

Work with partners to create a citywide movement for action on climate change.

Draft objectives:

1. POLICY AND POLITICAL DECISIONS

Support and influence policy-making and political decisions to be consistent with the Paris Agreement, the latest climate science and stakeholders views.

2. ENGAGE, INFLUENCE AND SUPPORT MANCHESTER CITIZENS AND ORGANISATIONS

Engage, influence and support Manchester citizens and organisations to take action on climate change, including through initiating and supporting new projects and programmes.

3. HONEST COMMUNICATION AND REPORTING

Honestly and transparently report and communicate the city's progress against its climate change commitments.

4. KNOWLEDGE SHARING

Share our experiences, learn from others, and contribute to a global movement of cities acting on climate change.

Our current membership is:

Chair

Gavin Elliott, BDP

Sector Leads

Arts and culture
Simon Curtis*,
Manchester Arts Sustainability
Team / Royal Exchange Theatre

Energy
Helen Seagrave*,
Electricity North West

Faith and communities
Dean Rogers Govender,
Our Faith, Our Planet /
Manchester Cathedral

Health
TBC, Manchester Health and
Wellbeing Board

Housing
Ian Thomson, Manchester Housing
Providers Partnership / Johnnie
Johnson Housing

Media
Steve Connor, Creative Concern

Property
Chris Oglesby, Bruntwood

Sport
Pete Bradshaw,
Manchester City Football Club

Youth Board

(appointed through a public
application process)

Ash Farrah
Hannah Mitchell
Amelia Gilchrist

Dan Walsh
Jonathan Keen
Tudor Baker

Public appointee

(appointed through a public
application process)

Dom Goggins, Policy and
Communications Consultant

Previous MACF Steering Group members

Ali Abbas, Manchester CO₂
Monitoring Group & Manchester
Friends of the Earth

Dave Coleman, Cooler Projects
Holly Bonfield, Federation of
Small Businesses
Dr Jeremy Carter,
University of Manchester

* note that Simon Curtis and Helen
Seagrave are also members of the
former MACF Steering Group.

Manchester City Council

Councillor Angeliki Stogia,
Executive Member for Environment
Sara Todd, Deputy Chief Executive

Universities

Prof James Evans,
University of Manchester
Prof Callum Thomas, Manchester
Metropolitan University

PROGRESS IN 2017-18

1. POLICY AND POLITICAL DECISIONS

Greater Manchester: the Agency was a member of the GM Green Summit Steering Group to support the GM Mayor and GMCA with the organisation of the 2018 Summit. The Group also provided a sounding board to help inform the development of GMCA climate change policy in the run up to the Summit. This role will continue into 2019 to support the organisation of next year's GM Green Summit and the associated work to develop carbon neutral policy for the city-region.

Manchester: following the GM Green City Summit in March 2018, the Board and Agency have been working to establish how Manchester can make its fair contribution to the Paris Agreement. The Board's proposal to the city on a science-based carbon budget and carbon reduction is being launched alongside this report, at the Manchester Climate Change Conference 2018.

EU and UN: the Agency has participated in several sessions to support the development of EU and UN climate change policy since 2015. Further details below in 'Knowledge Sharing'.

2. ENGAGE, INFLUENCE AND SUPPORT MANCHESTER CITIZENS AND ORGANISATIONS

Three priorities have been taken forward over the last twelve months, aligned with the sectors and communities represented on the Board, plus a fourth priority on 'greening the city'.

Arts and culture: the Manchester Arts Sustainability Team was established in 2010 to engage the sector in climate change action. Last year the group reported on their progress to date and set out their priorities going forward, including aligning themselves with the city's new zero carbon goal, expanding their membership, and working with other cities to share knowledge and experiences. In late-2017 MAST were awarded an EU 'Good Practice' award for their work and were subsequently successful in their application to further develop their work and collaborate with other cities. As a result the 'C-Change' project was launched in May 2018. Funded by the 'URBACT Transfer Network' programme, the 2.5-year project will see Manchester working with Mantova (Italy), Wroclaw (Poland) and others still to be confirmed, to help all cities' arts and culture sectors on their journeys to zero carbon.

manchesterclimate.com/involved/MAST

Faith: the Our Faith, Our Planet initiative was established by the Dean of Manchester Cathedral and the Carbon Literacy Project in 2016 as an inter-faith initiative to engage and support faith communities to understand and take action on climate change. The Agency has been involved in this work over the last two years. Work is now underway between OFOP, the Agency and local charity Groundwork to scope out next steps for the initiative, with a view to building a new programme of funded activity to support faith groups and their wider communities to act on climate change. Outputs from this work are expected in early-2019

manchesterclimate.com/ourfaithmcr

Young people: our young people have the biggest stake in the city's future success. By creating jobs in the low carbon economy, cleaning our air, providing access to green spaces and enabling travel by walking, cycling and public transport, the city will prosper over the short term and into the future. Which is why the Board and the Agency have established a new Manchester Climate Change Youth Board, to provide a platform for Manchester's young people to develop their own youth-led climate change initiatives. Following planning work in the first half of 2018, new initiatives are expected to emerge in late-2018.

Greening the city – GrowGreen: creating and maintaining green spaces and waterways is key to Manchester's aim to become resilient to the changing climate, as well as achieve wider benefits such as improved health, increased biodiversity, and supporting job creation. Manchester's Great Outdoors: a Green and Blue Infrastructure Strategy for Manchester⁰¹ sets out the city's plans in further detail. To support the implementation of this strategy, the Agency and Manchester City Council are jointly leading the delivery of the €11.2m EU-funded GrowGreen project. Working with twenty partners across Europe and China until 2022, the project aims to support cities to develop and implement strategies for citywide greening. Since the project's launch in June 2017 the first year has focused on kicking off the demonstration projects in Manchester at West Gorton, Valencia (Spain), Wroclaw (Poland) and Wuhan (China).

growgreenproject.eu

3. HONEST COMMUNICATION AND REPORTING

This report is part of the Board and Agency's ongoing communication and reporting activities. Honesty and transparency provide the underpinning principles for this work, to shine a light on areas where the city needs to make improvements as well as recognising and showcasing activities that are going well. This year our communications have produced:

- Over 60 web articles on our Facebook page
- Developed new social media to target a younger demographic (via Insta)
- Conducted over 100 Climate Conversations and interviews producing video content for our social media streams.
- Via our Twitter feeds an average monthly profile visits of 1156 and average monthly impressions of 37,000.

4. KNOWLEDGE SHARING

Where the city is making progress we want to share our experiences to help others on their journey. Equally, there will always be areas where we can learn from other cities to accelerate our work. In 2017-18 the Agency has participated in seven international events to share knowledge with other cities and to support the development of EU and UN policies. This takes the total for the city to 14 since the Agency was established. Highlights include the Green Growth Annual Conference with the World Bank and UN in November 2017⁰², the UN Climate Change Conference in May 2018⁰³, and the Global Covenant of Mayors Innovate4Cities mayors' roundtable in May 2018⁰⁴.

01 www.manchester.gov.uk/info/500002/council_policies_and_strategies/7061/green_and_blue_infrastructure

02 www.manchesterclimate.com/news/2017/12/time-cities-lead-way-climate-action

03 www.manchesterclimate.com/news/zero-carbon-uk-plan-time-talk-fijian

04 www.manchesterclimate.com/global-covenant-mayors-cities%E2%80%99-innovation

PART 2

MEETING OUR OBJECTIVES: REVIEW OF PROGRESS AGAINST THE STRATEGIC OBJECTIVES






Parts 2 and 3 of this report cover the progress Manchester has made against the city's climate change strategy for 2017-50 and the Implementation Plan for 2017-22.

The Strategy sets out five strategic objectives that we are aiming to achieve on our way to becoming a prosperous, liveable, zero carbon city. This means healthy residents of all ages, a sustainable and inclusive economy that is resilient to a warmer, wetter climate, buildings that provide more energy to the Grid than they use, a low cost transport system that runs on renewables, and green spaces and waterways that contribute to our health, biodiversity and the local economy. To achieve these objectives, the Strategy sets out six thematic areas for action. These areas are listed opposite.

An initial set of KPIs have been established to enable progress to be measured against the strategic objectives and the thematic actions. These will be further developed as part of developing the city's carbon budget and pathways to zero carbon. 2017/18 is the first full year to report upon since the Strategy and Implementation Plan were launched in December 2016.

Part 3 provides a brief overview of progress against the actions in the Implementation plan. The reporting here is less detailed than in Part 2, however, the Board's commitment to honesty and transparency remains a key underpinning principle; if there has been no action this is stated.

STRATEGIC OBJECTIVES

- 1 Sustainable economy and jobs 
- 2 Healthy communities 
- 3 Resilience to climate change 
- 4 Zero carbon objective 
- 5 Culture change objective 

THEMATIC AREAS OF ACTION

- 1 Buildings 
- 2 Energy 
- 3 Transport 
- 4 Resources and waste 
- 5 Food 
- 6 Green spaces and waterways 

STRATEGIC OBJECTIVES





Sustainable economy and jobs

VISION 2050:

Action on climate change will become an increasingly important part of the city's sustainable, dynamic and competitive economy.

Manchester-based businesses and universities will be playing a strong and growing role in delivering solutions locally and to cities around the world.

The city's businesses will have access to a rich pool of Carbon Literate local talent, fed by our world-class universities and our excellent schools and colleges.

All Manchester businesses will save money and improve their performance by increasing their energy and resource efficiency. Businesses, workers and visitors will come from around the world to experience our liveable, resilient, green city.



WHY WE SET THIS OBJECTIVE

Our strategic objective and vision to 2050 is based upon a sustainable economy with benefits beyond the need to reduce emissions. Higher quality, more energy efficient buildings are healthier places to live and work.

Reducing energy waste will reduce costs in the short term and make our businesses more resilient to the impact of rising energy prices in the future.

Reducing traffic congestion will make journeys more reliable, and changing to more active ways of travel across the city will lead to a healthier and more productive workforce.

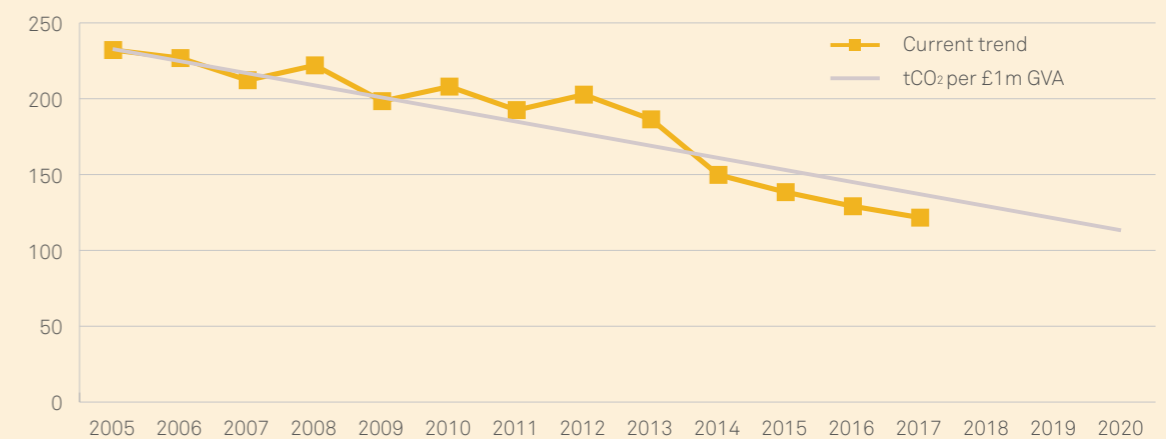
WHAT OUR INDICATORS SHOW

There are four key components to building a sustainable economy and jobs – a thriving Low Carbon and Environment Services sector (LCEGS), ensuring local people have the skills to secure local jobs, improving the energy efficiency and resource use of all

Manchester businesses whilst building their resilience to a changing climate, and utilising technological advances and research to develop appropriate solutions.

Our indicators show that while Manchester's economy has grown by 25% since 2005, its carbon intensity (how much carbon is emitted per £1m of GVA) has almost halved over the same period.

Carbon emissions per £1m GVA



Source: 2005-2016 figures from BEIS. 2017 figure estimated based upon national trends in CO₂ figures in BEIS data. GVA figure from Greater Manchester Forecasting Model 2014.

Indicator	2009	2010	2011	2012	2013	2014	2015	2016	2017*
Manchester's CO ₂ emissions per £1m GVA*	198	208	193	203	186	150	138	129	122

* Source: 2005-2016 figures available from BEIS. 2017 figure estimated based on national trend in CO₂ figures in BEIS data. GVA figure from Greater Manchester Forecasting Model 2014.

Manchester's CO₂ emissions per £m GVA

Carbon Intensity is the amount of carbon that is emitted per unit of economic activity. Manchester's economy is projected to grow at around 3% a year. Our data shows the economy produced 121 tonnes of CO₂ per £1m GVA (Gross Value Added) in 2017. This is a reduction of 48% on 2005 levels and a 5.8% reduction over the past year.

As the city's economy continues to grow it is expected that by 2020 the city's carbon intensity will need to fall to around 99 tonnes of CO₂ per £1m GVA; which is a 57% reduction on 2005 levels.

Low Carbon and environmental goods and services sector (LCEGS)

The Low Carbon and Environmental Goods and Services sector is defined as areas of the economy engaged in low carbon technologies, environmental protection and resource management. This includes energy efficiency, renewable and low carbon energy, waste management and recycling, water management, low carbon finance, low emission vehicles and infrastructure, smart grids and environmental monitoring and management.

Annual rate of growth of the LCEGS sector

Research shows that the UK low carbon economy could grow by an estimated 11% per year between 2015 and 2030 – 4 times faster than the rest of the economy. Across Greater Manchester this sector is growing at a rate of 6% a year. This level of growth means that clean growth can play a central part in our low carbon economy – building on our strengths to drive inclusive growth and boost earning power across the country.

Number of employees in the low carbon and environmental goods and services (LCEGS) sector

Data from the Office of National Statistics shows that in the UK green goods and services were responsible for 335,000 jobs by 2015- a rise of more than 30,000 in 5 years. The Greater Manchester LCEGS sector employs 38,000 people across 2,043 businesses.

Separate research looking specifically at the low carbon and renewable energy sector, which includes activities outside the scope of environmental goods and services, revealed that it was worth £42.6 billion to the UK economy in 2016 - five per cent higher than in 2015.

Value of sales in the LCEGS sector

The UK LCEGS sector could deliver between £60 billion and £170 billion of export sales of goods and services by 2030. The sector achieved annual sales of over £5.4 billion across Greater Manchester in 2013. There is a growing realisation of the need for all business to reduce their carbon emissions, increase resource efficiency and reduce water and energy use to lower operational costs and increase profitability. This year has also seen a significant rise, especially in the beverage and hospitality sector, in companies working with their supply chains to reduce single use plastics such as packaging waste and switch to recyclable and bio degradable materials, leading to increasing sales for the environmental services sector.

The Greater Manchester Growth Company

The Growth Company provides tailored support to help small and medium sized businesses in Greater Manchester boost profitability, cut carbon emissions, improve energy efficiency, and improve products and processes. The Hub also helps companies in the green technology and services sector to capitalise on opportunities for growth. These include providing specialist advisors and services including a virtual Low Carbon Network to help find local suppliers, a fortnightly Green Intelligence e-bulletin of environmental news and information, and; the Green Growth Pledge, which helps companies to celebrate their green commitments and create action plans to reduce their impact.

LOOKING TOWARDS 2020 AND BEYOND

In 2017/18 Hub has supported:

82 Manchester businesses received environmental business support, helping to identify annual savings of over £400k and 1,500 tonnes of carbon dioxide equivalent (CO₂e).

50 Manchester companies also received specialist low carbon sector support, helping to create 5 new jobs.

The GC Business Growth Hub has secured EU funding to deliver resource efficiency, eco innovation and sector support until December 2018 and are currently in the process of identifying funding which will enable support to continue until 2021, helping hundreds more companies start their journey to a zero-carbon economy.

www.green-growth.org.uk

Looking towards 2022 and beyond

Manchester is developing its own Local Industrial Strategy with the ambition to create a competitive, inclusive and sustainable economy based upon clean growth – growing our economy whilst cutting carbon emissions. This follows on from the UK Government's Industrial Strategy which aims to create an economy that boosts productivity and earning power throughout the UK by seizing the opportunities that new technology and innovation brings to the economy – many of which will have lower carbon intensity than traditional manufacturing industries.

An opportunity now exists for Manchester to continue to take advantage of the technological innovation and jobs in the low carbon and environmental goods (LCEGS) sector, as well as using the city's strengths – science, advanced materials, culture and digital – to strengthen and grow our low carbon economy.

Healthy communities objective

VISION 2050:

Manchester's residents will lead increasingly healthy lifestyles that are underpinned by access to high quality parks and green spaces, clean air, healthy local food, safe walking and cycling routes, energy efficient homes, affordable supplies of energy and an understanding of how they can help to reduce local flood risks and exposure to heat stress.



WHY WE SET THIS OBJECTIVE

Good health and well-being is a vital part of all successful societies; enabling us to reach our full potential, contribute to and benefit from the city's success. By 2050 we want everyone in Manchester to have access to the basics – quality housing, great education and rewarding jobs, healthy food, clean air, good quality green spaces and protection from the potentially dangerous impacts of future climates, such as flooding and heat stress.

There are negative health impacts of climate change – such as heat exhaustion caused by a warmer climate, the physical and emotional impacts of flood damage on people's homes and health, as well as poorly insulated homes causing damp and unhealthy housing conditions.

The benefits to dealing with the basic needs of our residents provide positive outcomes for the environment and climate – people look after and care for the environment when they feel connected to nature, creating green neighbourhoods and energy efficient homes saves residents money and contributes to overall better health and wealth outcomes.



Percentage of households in fuel poverty

16.2% of Manchester households were in fuel poverty in 2016, the last year we have data for. This is an increase of over 2,340 households in fuel poverty from the year before, indicating that heating homes is an issue for some vulnerable residents. There are now a number of initiatives across GM and Manchester that aim to signpost residents to better energy deals such as the Big Clean Switch which also sources renewable energy suppliers.

To ensure all our new homes are built to a good standard the Manchester Residential Quality Guidance published in 2016 provides clear direction on delivering sustainable homes and encourage excellence in design. This includes guidance on sustainable designs that reduce energy demand such as passive heating, natural lighting and cooling, improved insulation and glazing and the use of low or zero carbon energy generating technologies.

The Green Health Alliance (GHA)

The Green Health Alliance (GHA) is the collaboration of Greater Manchester’s community food growers who are committed to working with some of the most vulnerable communities, connecting people and places to nature and improving health and mental wellbeing outcomes for all. Outcomes for GHA volunteers include reducing social isolation, anxiety and depressive illnesses. The GHA also provides social

support networks through shared experiences, improves self-esteem, and offers significant life skills: increasing knowledge, healthy eating, growing food and physical activity. The alliance creates a mutually supportive and financially robust ‘green wellbeing’ network – working together on larger Manchester wide contracts.

Twitter: @GreenHealthGMcr

Cycle index –trips into Manchester city centre by bicycle

The Sustrans report Bike Life 2017 reports that 69% of people in Greater Manchester think the city region would be a better place to live and work if more people cycled. Across Greater Manchester around 5% of people cycle to and from work every day against the GM target of 10% of journeys to be made by bike by 2025. The figures for Manchester show that 1.8% of trips are made by bicycles. On Oxford Road where cyclists and pedestrians are priorities over other forms of transport, the digital “totem pole” cycle counter shows an average count of over 1,000 bikes a day, with some days reaching over 5,000 bikes a day.



Made to move

Chris Boardman was appointed as GM’s first Cycling and Walking Commissioner in the summer of 2017 and delivered his report ‘Made to Move’ a few months later. The plan aims to transform the city region into a region for walking and cycling with a £1.5 billion infrastructure fund for walking and cycling and requires integration and partnership working from Greater Manchester Combined Authority, TfGM, Greater Manchester Health and Social Care Partnership (GMHSCP), Sport England and GM’s charity Greater Sport.

www.gmcc.org.uk/2017/12/made-to-move-chris-boardmans-plan-for-gm/

Indicator	2010	2011	2012	2013	2014	2015	2016	2017*
% of Manchester households in fuel poverty *	22.4	13.3	15.9	14.9	14.5	15.3	16.2	Data available in June 2019
Number of trips into Manchester key centre by bicycles (7:30 am – 9:30am) **	1,143	1,190	1,476	1,542	1,638	1,648	1,781	1,892
Cycling levels ***	15.6	16.9	16.3	17.9	19.2	18.2	16.9	Data available July 2018

* www.gov.uk/government/statistics/sub-regional-fuel-poverty-data-2018

** Source: TfGM © Crown Copyright 2016

***refers to millions of kilometers cycled on A and B roads in Manchester

WHAT OUR INDICATORS SHOW

The latest Government data on households in fuel poverty estimate that there were over 34,000 Manchester households in fuel poverty in 2016 – which is 16.2% of all households. Reducing fuel poverty is therefore a priority for the city. Around 80% of Greater Manchester’s 1.1 million homes are more than 40 years old and highly energy inefficient. As Manchester’s domestic properties are responsible for 27% of the city’s total direct CO₂ emissions, it is essential to build homes to be zero carbon and in some cases carbon positive by generating more renewable energy than they need.

Greater Manchester’s ambition is for 10% of journeys to be made by bike by 2025, with 5% already met, however Manchester falls well below the GM average – at around 1.8%. Evaluation of the data such as in Bike Life 2017 shows there is a need to build better cycle routes in co-operation with local communities, as well as supporting people to cycle more as the appetite for cycling increases across the city along with demand for more and better cycle routes.

LOOKING TOWARDS 2020 AND BEYOND

HIGHLIGHTS INCLUDE:

- Manchester Housing Strategy recognises that poor quality high energy, low energy efficient housing is a determinant and is working with partners to address energy inefficient housing stock and ensure that new housing is energy efficient and climate resilient.
- The 2017 “Bike Life GM” report highlights that 76% of residents would like to see more investment in cycling in Greater Manchester.
- Initiatives such as the £22m Cycle City Ambition Grant 2 (CCAG2) is now being spent on improvements across Manchester including the Wilmslow Road Cycleway, Chorlton Road Cycles way and Oxford Road “Dutch Boulevard” renovation networks that link local communities and employment opportunities.

- There are a number of projects such as Green Minds - a therapeutic horticulture project run by Sow the City providing activities to aid recovery from mental ill health at North Manchester General Hospital and with local community gardens. Other projects include those run by Hulme Community Garden Centre, Growing in the City/Men’s Shed Project, Hulme Community Garden Centre, Wythenshawe Community Housing Group’s Real Food Wythenshawe, Debdale Eco Centre and Social Farms & Gardens.

LOOKING TOWARDS 2022 AND BEYOND

There are a number of key opportunities that can provide health benefits for Manchester residents whilst reducing the city’s carbon footprint:

The devolution of health care budgets to Greater Manchester has resulted in new opportunities to transform the healthcare system and move the region from one with some of the worst health outcomes to the best. There is a new focus on working with the voluntary sector and it is hoped that community food growing projects could be one of many interventions being significantly upscaled.

Joined up public services and information for service users under the Greater Manchester Health and Social Care plan means that access though self-referral is becoming easier and health services are moving to a model of intervention and prevention. The benefits of connecting with the environment and outdoor activities on improving our health are now recognised, leading to funding for initiatives such as outdoor volunteering, growing and gardening and environmental activities that have benefits for people and planet.

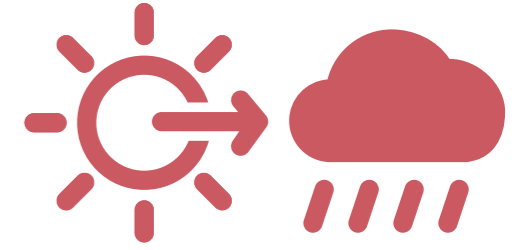


3

Resilience to climate change

VISION 2050:

The city's communities, public sector, businesses and third sector will become increasingly resilient to the changing climate.



WHY WE SET THIS OBJECTIVE

Global greenhouse gas emissions reached record highs in 2017. These emissions are driving climate change which can be observed as our planet gets steadily warmer, sea levels rise, and extreme weather events become more common and intense. Globally, greenhouse gas emissions are anticipated to continue to rise 'locking in' further climate change for the coming decades. Manchester is projected to experience warmer and wetter winters, drier and hotter summers and more frequent and intense and extreme weather such as heatwaves and heavy rainfall leading to flooding. It is crucial that Manchester develops strategies and implements actions to adapt and build the resilience of its natural environments, communities, businesses and infrastructures to the changing climate.

The EcoCities Project identified three themes for adapting Greater Manchester (GM) to climate change: 'safeguarding our future prosperity', 'protecting the most vulnerable in our society', and 'building the resilience of our essential infrastructure'⁰⁵. These themes are also relevant for the city of Manchester and provide a useful guide to adaptation priorities. The RESIN project⁰⁶, which includes GM as a case study city, has been looking in particular at climate change risk and adaptation responses to infrastructure. This project has identified impacts associated with floods and storms as presenting the highest risks to GM's critical infrastructure, and to energy infrastructure in particular. Flooding to other forms of infrastructure, including roads and buildings, is also identified as a prominent risk.

An assessment of climate change adaptation and resilience research and data across Greater Manchester published in July 2017⁰⁷ shows that the city has made progress in understanding climate impacts and what makes a climate resilient city. This provides a useful foundation for further progress, bolstered by the political commitments that have been made to addressing climate change. The next step is to develop the set of actions that would best support the city to adapt and build resilience to climate change.

Knowing what to do in the event of an extreme weather emergency, such as a heatwave, drought or flood is important for individual households and businesses, especially if they are located in a flood risk area. Here, awareness raising and emergency response are key priorities. However the city also needs to build long term resilience to climate impacts. This requires responses including spatial planning, designing buildings for a changing climate, and adapting infrastructure (e.g. transport, electricity, and water) and natural environments. It is also important that individuals and organisations from across the public sector, business and local communities are involved in developing and implementing action plans that can make Manchester better adapted and more resilient to the changing climate.

05 www.adaptingmanchester.co.uk/ten-minute-read

06 www.resin-cities.eu/home/

07 www.resin-cities.eu/resources/gm-baseline/research/

WHAT OUR INDICATORS SHOW

The number and quality of resilience plans and strategies

A recent RESIN project assessment on adaptation and resilience policy shows that the UK has a relatively well-developed framework of legislation and guidance for making progress on climate change adaptation, especially with regards to critical infrastructure. Manchester has a climate change strategy and implementation plan in place, as does GM. However, there remain challenges to address in order to implement adaptation and resilience response in Manchester for reasons including:

- Mechanisms for funding adaptation and resilience action are not well defined.
- Adaptation and resilience are not statutory duties for local authorities, which removes an incentive for taking action.
- In key sectors such as critical infrastructure (transport, water, energy) responsibilities are split between the public and private sectors, and between national and local levels of decision making.

Despite these challenges, recent progress related to strengthening adaptation and resilience in Manchester (and GM) includes:

- Greater Manchester has been selected as the UK's 'Urban Pioneer City Region'. This initiative will inform the implementation of the government's 25 year Environment Plan, launched in January 2018.

Projects that are supporting and feeding into the 'Urban Pioneer' project include Natural Course, the RESIN project and other joint working with the Environment Agency North West.

- Greater Manchester is now part of the Rockefeller '100 Resilient Cities' network and has appointed a Chief Resilience Officer. They have responsibility for working with the Greater Manchester Combined Authority (GMCA) and leaders across the private and public sectors to find solutions to the challenges that the city region faces – from climate change, poverty and homelessness, to flooding and life-threatening emergencies.
- The Greater Manchester Resilience Forum continues to work across the city region to understand, plan and manage current and future climate risks.
- In March, the Mayor of Greater Manchester held a 'Green Summit' which helped to raise climate change up the agenda in the city.
- The Manchester Residential Design Quality Guidance sets out considerations for high quality residential development within sustainable neighbourhoods, which developers will need to satisfy or exceed. A key element of the guidance is to make new developments 'future proof' to the energy demand and supply that a zero carbon city requires, and commits Manchester to moving towards a more resilient and adaptable built environment.

The extent, quality and productivity of green spaces and tree cover

Manchester maintains its commitment to conserve, protect and enhance biodiversity wherever it can, in compliance with the Natural Environment and Rural Communities (NERC) Act 2006. Manchester has eight Local Nature Reserves (LNR) covering 392 Hectares, of which Heaton Park is both the city's largest and only designated Country Park. Manchester has 38 Sites of Biological Importance (SBI) covering 309 hectares, of which 57.89 % (22) are in active conservation management.

See page 09 for information on the EU funded GrowGreen project.

www.manchester.gov.uk/info/500002/council_policies_and_strategies/7061/green_and_blue_infrastructure/2

Number of properties in flood warning area

Manchester has a number of river valleys; the Manchester Ship Canal and other bodies of water in Manchester as well as a number of flood plains that mean that whilst the flood risk for Manchester remains low there is still a risk to both properties and lives.

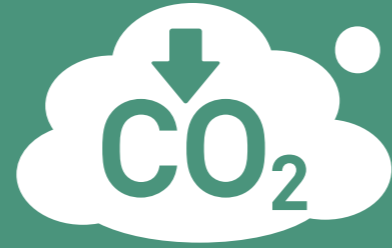
Indicator	2017
Number of properties in Flood Warning Areas in Manchester*	16,526

LOOKING TOWARDS 2020 AND BEYOND

Looking towards 2022 and beyond

Although making progress on climate change adaptation and resilience is not currently a statutory duty for Manchester City Council, this does not mean that it is a 'nice-to-have'. It is central to future visions for the city where high quality of life for its residents and future prosperity are key aspirations. Other countries including Germany and Austria do mandate their cities to take action on climate change, and it is important that Manchester does not lag behind. This will require concerted planning, action and investment of time and resources from organisations across the city.

A key 'switch' that needs to be recognised, acknowledged and acted on is that adapting and building resilience to climate change will not and should not happen in isolation from initiatives targeting other challenges facing Manchester. These include the need to improve air quality, enhance health and wellbeing and strengthen public transport provision, all of which can be supported and enhanced by measures targeting climate change adaptation and resilience. The next step is to integrate climate change adaptation and resilience more closely and effectively across a range of policy agendas in order to move this crucial issue closer to the mainstream.



Zero carbon objective

VISION 2050:

Manchester will adopt and stay within a scientifically robust carbon budget that is consistent with the Paris agreement to limit global average temperature increase to well below 2°C, ultimately resulting in Manchester becoming a zero carbon city by 2050.

Manchester’s carbon budget, pathway and timescales for becoming zero carbon will be kept under ongoing review and will be subject to revision, to ensure that the city plays its full role as part of the Paris Agreement.

WHY WE SET THIS OBJECTIVE

As part of the SCATTER project⁰⁵, the Tyndall Centre for Climate Change Research has recently assessed Greater Manchester’s fair share of global emissions in line with the Paris Agreement.

They calculated a total carbon budget of 71 million tonnes CO₂ between 2018 and 2100. The majority of the budget - 67 million tonnes - is allocated to a series of 5 year carbon budgets for the period 2018 to 2038, with the remaining 4 million tonnes allocated to the period 2038 to 2100. This means that Greater Manchester’s annual carbon emissions will need to fall to near zero (below 0.6 Mt CO₂) by 2038 in order to stay within the total carbon budget.

Using the same methodology, a Paris-aligned carbon budget for Manchester has been calculated as 15 million tonnes CO₂. This will require us to reduce our carbon emissions by an average of 13% per annum to stay within the budget.

Previously our carbon budgets have been based on scope 1 and 2 emissions (point-source or ‘direct’ carbon emissions and those from our energy supply respectively). SCATTER builds upon this; also counting other carbon-intensive processes that the city’s inhabitants play a role in, including emissions from the city’s waste and residents’ transportation⁰⁶ beyond the city boundary. As well as extending what we count, SCATTER will help Manchester to develop science-based pathways toward these sources of emissions becoming carbon neutral.

We look forward to sharing more on this at the Manchester Climate Change Conference 2018. In the meantime, it is still vital to consider scope 1 and 2 emissions, which will comprise around 65% of the city’s SCATTER footprint.

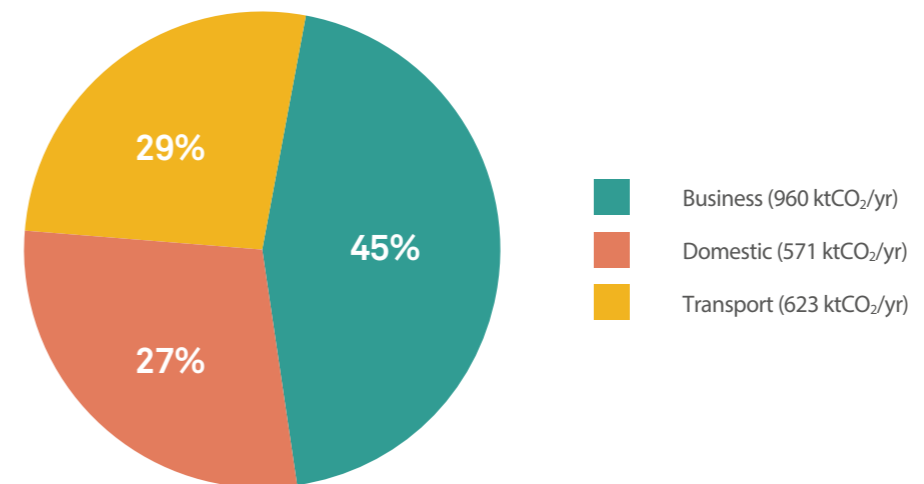
Manchester’s Scope 1 and 2 emissions

Manchester’s scope 1 and 2 carbon emissions are made up of 45% from the business sector (industrial and commercial), with 29% from transportation and 27% from domestic energy use. Over the last year domestic energy use is estimated to have seen the biggest reduction in emissions. The business sector remains the greatest source of carbon emissions.

⁰⁵ SCATTER (Setting City Areas Targets and Trajectories for Emission Reductions) is underpinned by the Greenhouse Gas Protocol for Community Scale Greenhouse Gas Emissions (GPC). For more information, see info.anthesisgroup.com/scatter-green-cities

⁰⁶ Aviation emissions are accounted for at a national level under SCATTER.

Manchester’s scope 1 and 2 emissions by sector in 2017 (estimated)



WHAT OUR INDICATORS SHOW

The Manchester Climate Change Strategy 2017–2050 commits Manchester to be a zero carbon city by at least 2050 to support the Paris Agreement. Our analysis of the latest Government figures shows that over the last year the city's carbon emissions have fallen from 2.2 million tonnes in 2016 to 2.1 million tonnes in 2017 – a 2.7% reduction. To date the city has achieved a 34% reduction against the 41% target and is projected to achieve a 38% reduction in carbon emissions by 2020.

If we continue decarbonising at this rate, our scope 1 and 2 emissions will be close to zero by 2045. However, the introduction of SCATTER will make this more challenging, introducing further emission sources that the city must decarbonise ahead of 2050. It is also vital to continue acting on reducing the carbon impact of our consumption along with aviation and shipping.

Indicator	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016*	2017*
Manchester's total CO ₂ emissions (million tonnes)	3.27	3.36	3.22	3.23	2.88	3.03	2.74	2.95	2.85	2.40	2.30	2.21	2.15
Percentage change in CO ₂ emissions (per annum)	n/a	+2.8%	-4.2%	+0.4%	-11.0%	+5.1%	-9.6%	+7.7%	-3.4%	-15.8%	-4.1%	-3.6%	-2.9%

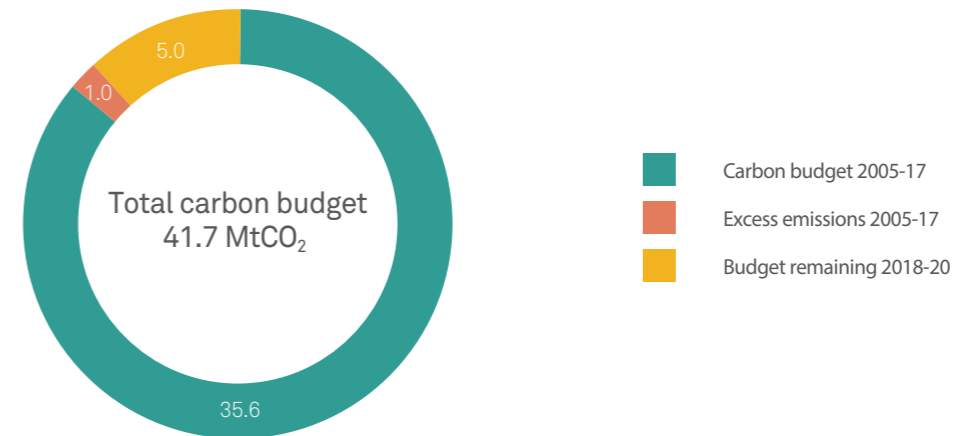
* 2016 and 2017 figures estimated based on national trends in GHG Emissions www.gov.uk/government/collections/uk-greenhouse-gas-emissions-statistics

Manchester's Carbon Budget 2020

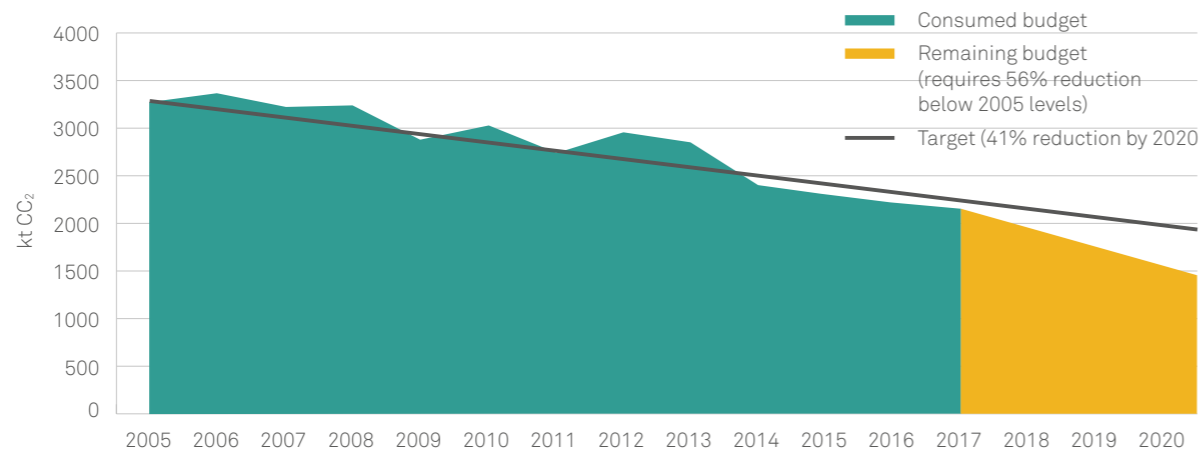
carbon budget for Manchester's scope 1 and 2 emissions in the period 2005 – 2020 was 41.7 million tonnes CO₂. Since 2005 we have emitted 35.6 million tonnes CO₂ - this is 1 million tonnes more than budgeted. We now have 5 million tonnes CO₂ left in the budget. Our new SCATTER-based carbon budget for Manchester from 2018 to 2050, in line with the Paris Agreement, has been calculated as 15 million tonnes CO₂. This will require average emission reductions of 13% per annum to stay within the budget.

Comparison with other cities

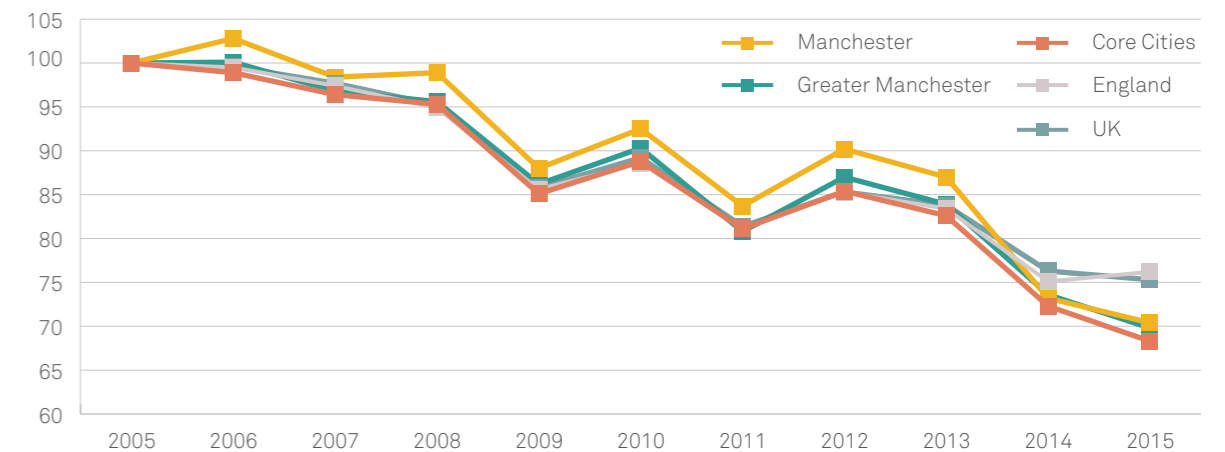
Further analysis by the CO₂ Monitoring Group of Manchester's CO₂ emissions against other cities and the GM region shows that between 2014 and 2015 (the latest year for which comparative data is available) Manchester's emissions fell by 3.8%, compared to the average across GM of 5.2% and a Core Cities average of 5.5% and a UK average of just 1.3%. Moreover, the data shows that whilst previously lagging behind GM and national trends, Manchester's emissions reductions have now caught up, overtaking the national average but lagging slightly behind the Core Cities average.



Percentage reduction in total CO₂ emissions from 2005 levels



Comparative emissions reductions since 2005



Manchester International Airport

On a global scale, emissions from flights are the second most-polluting form of transport after the diesel car. However, the projected growth of aviation makes it a major concern across the planet – and this is the case for Manchester too. In 2015, 23 million passengers passed through Manchester International Airport and this is projected to double by 2050. It is vital that we work to reduce the emissions associated with aviation. However, the responsibility for the airport is not Manchester’s alone - people travel from Greater Manchester and beyond to use the airport and it supports global tourism and the region more broadly. Nonetheless, the City of Manchester owns a 35.5% share in the airport, it is located within the city bounds and it drives a significant part of the local economy. As such, there is no one ‘correct’ way of accounting responsibility for these emissions and it is for this reason that they have not been included in our carbon budgets.

However, we recognise that it is vital to measure and manage the emissions associated with the airport. The CO₂ Monitoring Group has been working to account for aviation emissions separately. Responding to the difficulties outlined above, we have opted to report multiple perspectives on the city’s aviation footprint.

This helps us to think through where the city can best target its actions and to track the emissions of the airport over time. Importantly this footprint cannot be used to compare Manchester International Airport to other airports as reporting methodologies are often inconsistent. Drawing on passenger data, we have modelled the emissions from all departing passenger flights from Manchester International Airport, taking into account the whole duration of the flight. At present, we have accounted the emissions for 2014 and 2015 and hope to continue updating this alongside the new SCATTER-based carbon budget.

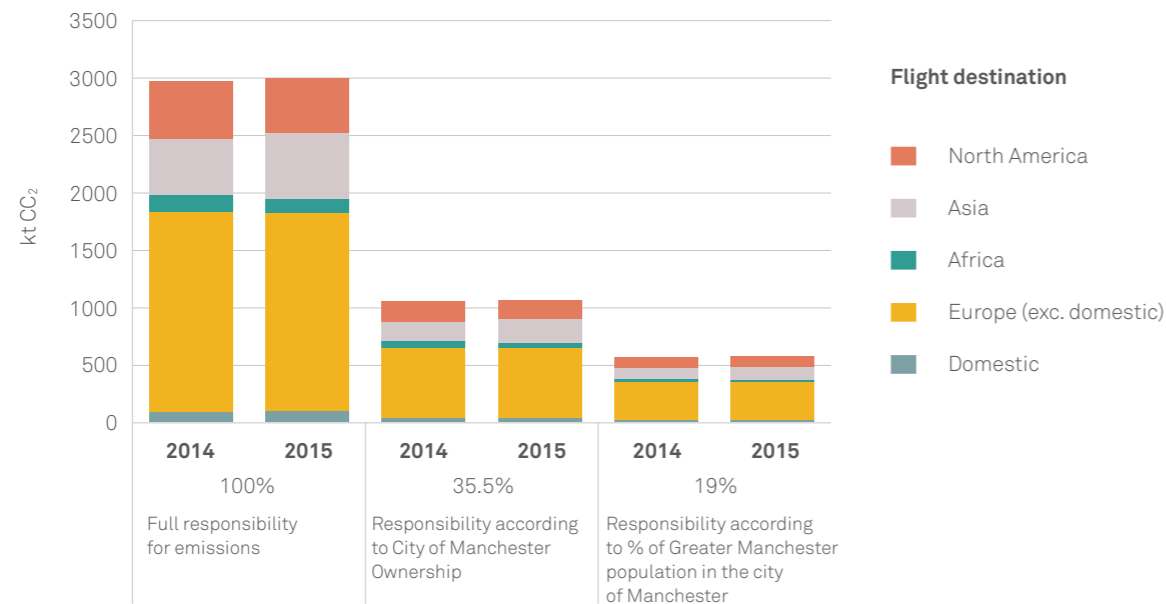
Across 2014-2015 the emissions from these flights collectively rose 2% to around 3 million tonnes CO₂e. Flights destined for Europe (including domestic emissions) comprised 60% of these emissions. These are the journeys that are most easily replaceable by other modes of transport and are a key area of intervention now and in the future. The greatest emissions per passenger, however, are from those flying to North America and Asia. Whilst flights departing for European, North American and African destinations fell slightly between 2014-2015, emissions from journeys to Asia rose 22% in this period.

LOOKING TOWARDS 2020 AND BEYOND

The development of a carbon budget 2018-2100 for Manchester and corresponding 5-year carbon budgets in line with the Paris Agreement by the Tyndall Centre will mean that the city has a robust methodology upon which to measure our progress.

The Manchester Climate Change Board will launch the proposed budget at the Manchester Climate Change Conference in July 2018. This will be followed by a eight-month period of work with key partners to begin to develop our plans to become zero carbon and work with residents to engage and support them to take action. We will also work with Manchester City Council with the aim that the carbon budget will be formally adopted as policy for the city before the end of 2018.

Estimate of Emissions from Passenger Flights Departing Manchester International Airport





Culture change objective

VISION 2050:

Climate-positive and climate resilient decision making and behaviour will become progressively incentivised and embedded within the lifestyles and business operations of the city, helping to lead to practical actions that reduce the city's CO₂ emissions and increase our climate resilience.



WHY WE SET THIS OBJECTIVE

Culture is hard to define, but can be said to be made up of 'the values, underlying assumptions, attitudes, and behaviours shared by a group of people'. Culture is the behaviour that results when a group arrives at a set of generally unspoken and unwritten rules for working together. Therefore developing a low carbon culture is vital if we are to achieve the scale of change a zero carbon city demands.

The on-going growth of Carbon Literacy, the award-winning Real Junk Food Project, the continued success of Fare Share, the expanding citizen funded Greater Manchester Community Renewables, the growing City of Trees, and the continued success of Carbon Co-op and many more, are all expressions of our growing low carbon culture. All sectors have a responsibility to engage and find practical ways to encourage residents, workers and visitors to Manchester into personal engagement with low carbon.

The arts, cultural and creative industries in Manchester have worked particularly hard to engage and enable their staff to change their own actions, develop their own learning and expand their creative imagination. Manchester has been recognised as being a leader in this field having been awarded URBACT Good Practice city status in 2017 and is now leading an URBACT Transfer Network: a collaboration with Manchester Arts and Sustainability Team (MAST), the City Council and a number of other European cities to share and showcase best practice linking arts, culture and climate change. Manchester Museum recently co-hosted an international symposium on climate change for their sector and is funding pilot work into Carbon Literacy for their visitors. The Museum is the world's first Carbon Literate museum and HOME holds that title for arts venues.

The Carbon Literacy project

The Carbon Literacy Project launched in 2012 in response to the city's very first climate change action plan and is now established as an independent registered charity; The Carbon Literacy Trust. Approximately 8000 citizens are now Carbon Literate and of these approximately 5000 live, work or study ("belong") in Manchester. The Project is a mass low-carbon-culture-change project, and founded in Manchester, its scale and approach remains unique worldwide.

Key initiatives include:

- The continued growth and expansion of Carbon Literacy for Registered Providers of social housing (CL4RPs) a consortium of over 20 housing providers committed to Carbon Literacy. Over 2300 social housing staff are now certified, most in Manchester, and many housing providers are now Carbon Literate Organisations (CLOs), including Northwards Housing at the highest Platinum level.
- The launch of the Salford city-wide Carbon Literacy consortium and the first Carbon Literate NHS organisation (Salford CCG)

- Pioneered by Manchester City Council, in total five GM local councils are now either already delivering or developing Carbon Literacy training for their staff.
- The expansion of Carbon Literacy into communities and cities across Scotland, Wales, Amsterdam, and locations across Europe.
- There are now 22 Carbon Literate Organisations of which 10 are in Manchester. The Carbon Literate Organisation (CLO) accreditation is the visible 'badge' that showcases an organisation as (i) committed to Carbon Literacy, (ii) having a substantial number of people who are Carbon Literate, and (iii) having a commitment to support its Carbon Literate people and maintain its low carbon culture.

www.carbonliteracy.com

WHAT OUR INDICATORS SHOW

- There are now almost 8000 Carbon Literate citizens and an estimated 5000 of these live work or study in Manchester.
- There are 22 Carbon Literate Organisations, of which 10 belong to Manchester.

Eco Schools Programme in Manchester

96% of Manchester schools are now registered as Eco schools with an increase in 4 registrations over the past year. However, the number of top level Green Flag schools and Silver Flag schools declined, possibly due to the budgetary squeeze on the cost and time resource required to maintain higher status Green Flag and Silver Flag status.

- 54 schools are at Bronze level, 48 are at Silver level and 8 are Green Flag schools,
- Over the past year the number of Bronze award schools has increased by 5 whilst the number of schools at the Silver award and Green Flag schools have both declined by 2 each

- 96% of Manchester Schools are Eco-Schools.
- Manchester is a "Good Practice" city for sustainability in the arts and culture sector.

Manchester Environmental Education Network (MEEN)

MEEN provides termly Green Teach Meet sessions for schools, practitioners and other interested parties from across Greater Manchester to come together to share practice and explore ideas. MEEN also provides a termly newsletter full of local, regional and national news and opportunities and delivers conferences and projects around specific issues, this year having a particular emphasis on the importance of soil.

www.meen.org.uk

Manchester Arts and Sustainability Team (MAST)

MAST is a network of around 30 organisations that meets regularly to share best practice and develop new joint initiatives. MAST's latest report predicts a 34% reduction in emissions by 2020 and a large increase in activities that engage the citizens of the city with climate change. See Arts & Culture section on pg 6 for more details of MAST.

Other Low Carbon Culture Change highlights include:

- Cultural organisations Manchester Museum and HOME have now certified 100% of staff trained as Carbon Literate. Manchester based Museum Development NW has trained Carbon Literacy trainers for the sector across the North of England.
- In 2018 Manchester Metropolitan University earned the accolade 'UK's Greenest University', for the second time, after it was ranked first in the People and Planet University League and was Highly Commended in the UK's Green Gown awards. The awards highlighted MetMunch; a global award-winning, student-led social enterprise based at MMU and its cascade of Carbon Literacy to students and external organisations.
- The University of Manchester's 10,000 Actions Programme aims to provide all 10,000+ members of University staff with the opportunity to engage in a programme of learning and positive action on sustainability. 40% of staff have committed to over 25,000 actions on the programme. The University also won a Green Gown award in 2017.

Looking towards 2022 and beyond

The indicators shown here are almost all positive but if we are to reap the benefits of climate solutions and avoid the very worst of impacts, action by organisations and individuals needs to be wider deeper and much quicker.

Work in Manchester by the Tyndall Centre has already made it clear that to hit UN Paris agreement targets to keep global warming below 2°C all areas of Greater Manchester need to reduce their emissions by 13% every year until we reach zero.

Change is now taking place at an unprecedented rate. The consolidation of renewable energy as the biggest sector in UK electricity production, the rapid rise in the ubiquity of electric vehicles, the widespread manufacturer announcements of the end of fossil-fuelled vehicle manufacture within the next 10 years, the continuing growth in local solar electricity generation, the adoption of home-based battery technology, the recognition of the environmental damage being caused by plastics and the new focus on reducing their use - all of these changes will result in significant societal shifts - much faster than most people realise or are yet prepared for.

The routes to a zero carbon city are now all there, and by and large the solutions are low cost, replicable and popular, but they need to be applied. If Manchester is to not just cope, but thrive in a lower carbon world, our work to deliver a low carbon culture is now more vital than ever.

Eco schools in Manchester*

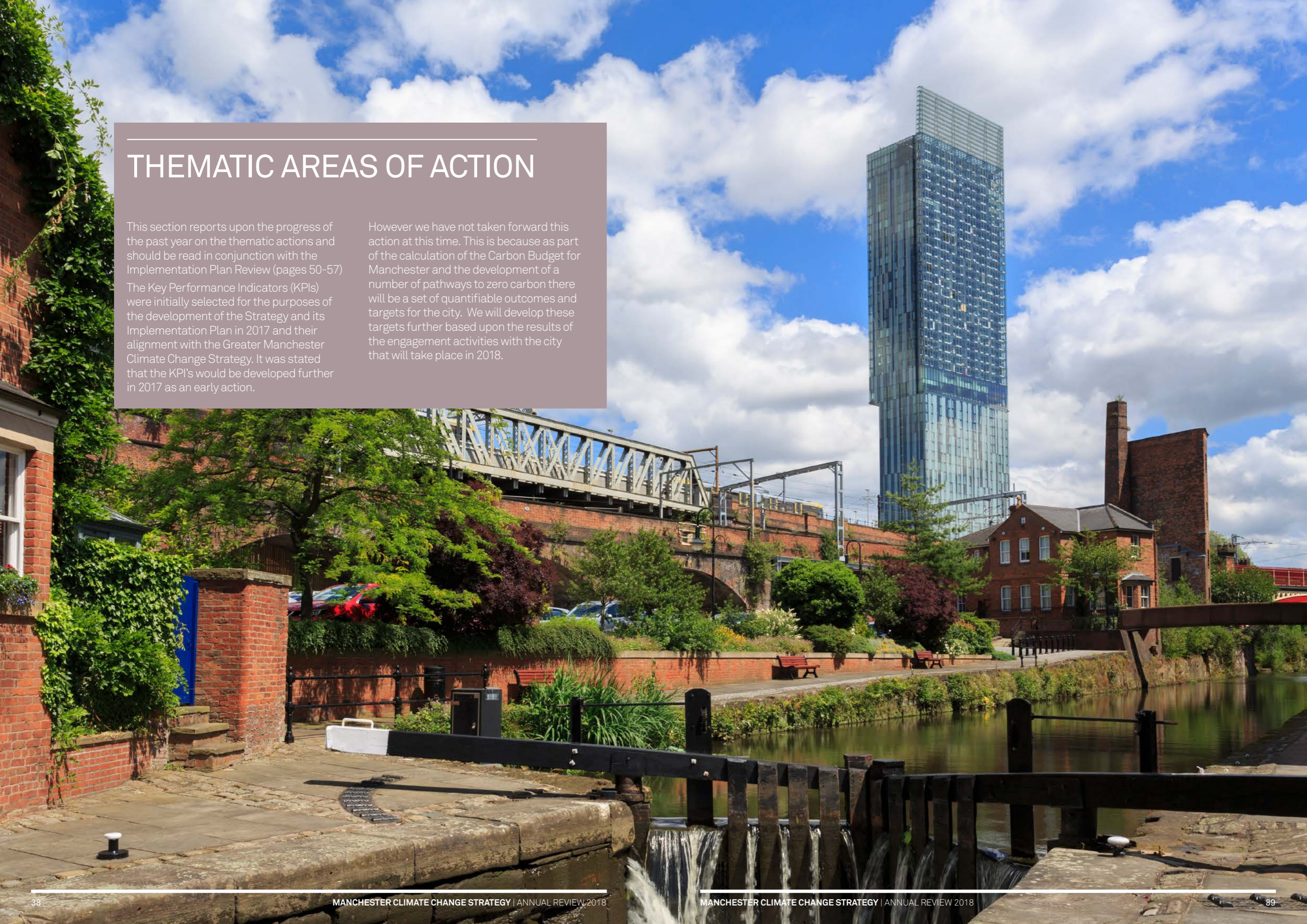
Indicator*	2009/10	2010/11	2011/12	2012/13	2013/14	2014/15	2015/16	2016/17	2017
No. registered Eco Schools	136	137	142	137	147	153	161	187	191
% total no schools registered	82%	82.5%	85%	82%	88%	87%	92%	94%	96%
Green Flag schools	5	9	14	15	15	13	13	10	8

* Statistics for reporting Eco-Schools programme in Manchester include private nurseries, state funded schools, pupil referral units, academies and sure start centres that have previously had support from Manchester City Council but not independent schools.

THEMATIC AREAS OF ACTION

This section reports upon the progress of the past year on the thematic actions and should be read in conjunction with the Implementation Plan Review (pages 50-57). The Key Performance Indicators (KPIs) were initially selected for the purposes of the development of the Strategy and its Implementation Plan in 2017 and their alignment with the Greater Manchester Climate Change Strategy. It was stated that the KPI's would be developed further in 2017 as an early action.

However we have not taken forward this action at this time. This is because as part of the calculation of the Carbon Budget for Manchester and the development of a number of pathways to zero carbon there will be a set of quantifiable outcomes and targets for the city. We will develop these targets further based upon the results of the engagement activities with the city that will take place in 2018.



1

BUILDINGS

The type of energy we use to heat and power the city's buildings is important as some fuels are more carbon intensive than others. Whatever type of energy a building uses the aim should be to use as little as possible and to ensure the building is powered by the least carbon intensive fuel possible. This is the aim of the net-zero built environment – buildings that consume less energy than they generate.

The energy we use in our homes, offices, schools, shops, hospitals and factories makes up 71% of Manchester's direct carbon emissions at a total of 1.53 million tonnes of CO₂ in 2017.



DOMESTIC BUILDINGS

The emissions from heating, lighting and cooking in our homes accounts for 27% of Manchester's carbon emissions. The sector has seen the largest reduction in carbon emissions of 5.3% from 2016-2017 and we estimate that by 2020 this will result in a 69.8% reduction from 2005 levels.

As the majority of Manchester's housing stock will still be in use in the 2030's – the need to retrofit current stock is vital. The Manchester Housing Strategy 2016 – 2021 recognises that good quality, highly energy efficient and sustainable housing stock is vital for residents' health and to sustain economic growth. However there is not currently a domestic retrofit strategy for the city and energy efficiency and retrofit improvement programmes for home owners and private rented occupiers are limited to Energy Company Obligation (ECO) funding which runs until 2019.

Residents of Registered Social Landlords across Manchester are in a better position as most including Northwards, Great Places Housing, Southway and Wythenshawe Community Housing Group (WGHG) have significant home improvement programmes including a range of energy efficient and retrofit activity.

At the Greater Manchester Green Summit in May 2018, Andy Burnham committed to all new homes built across Greater Manchester to be net-zero carbon by a yet-to-be-specified date. In addition The UK Green Building Council (UKGBC), a national charity that works with the UK building industry to embed sustainability is working with GM to launch a new local network to support sustainable buildings.



NON-DOMESTIC BUILDINGS

The Business sector (Industrial and Commercial) is the greatest source of carbon emissions in Manchester; we have estimated that businesses emitted 960,000 tonnes in 2017 equating to 45% of total emissions. However the Business sector has seen the lowest emissions reduction - 1.8% reduction over the last year, and is projected to achieve a 57.3% reduction from 2005-2020.

Manchester is now starting to see new cutting edge work spaces with net-zero emissions. This is primarily being driven by the property sector such as Bruntwood in partnership with the universities at a local level.

The city's Oxford Road Corridor now has a number of buildings under the Manchester Science Partnerships (MSP) flag with refurbished and new buildings such as Mi-IDEA that incorporate eco innovation with smart building technologies.

The UK government scrapped the Zero Carbon Standard for Non Domestic Buildings in 2016 and this will continue to be an ongoing debate after Brexit given that the target for all new buildings to be "Nearly Zero Carbon" by 2020 was an EU Directive adopted by the UK Government in 2010.

WHAT OUR INDICATORS SHOW

The data below shows a percentage reduction in domestic CO₂ emissions from 2005 levels. There has been an estimated 5.3% reduction in CO₂ emissions from our homes over the past year. Our projections estimate that there will be a 69.8% reduction from 2005-2020.

CO₂ emissions from domestic buildings (kilotonnes)

2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
1019	1029	1005	1000	896	951	832	897	862	715	693	603*	571*

The data below shows a percentage reduction in commercial and industrial CO₂ emissions from 2005 levels. There has been an estimated 1.8% reduction over the last year, and the sector is projected to achieve a 57.3% reduction from 2005-2020.

CO₂ emissions from Business (industrial and commercial) (kilotonnes)

2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
1478	1580	1457	1508	1273	1383	1220	1379	1328	1018	934	978*	960*

*2016 and 2017 figures estimated based on national trends in GHG Emissions www.gov.uk/government/collections/uk-greenhouse-gas-emissions-statistics



The energy consumption for Manchester for the last year we have data for shows that overall energy consumption has increased by 2% in the period 2014 to 2015. Around 40% of the city's energy is used by businesses (commercial and industrial sector), followed by our homes at 34% and transport with 26%.

For the city to become zero carbon the energy that the city uses will need to be decarbonised by switching from fossil fuels to renewable energy sources, and electrifying heat and transportation. This will require new technologies such as battery storage to deal with fluctuating supply and demand alongside the use of SMART energy technologies.

Due to Manchester's geography locally generated renewable energy will only ever make up a proportion of our energy needs. UK Government therefore needs to ensure complete decarbonisation of the National Grid to enable Manchester and the rest of the UK meet targets to become zero carbon.

The GM Sustainable Urban Development Plan (GM SUD) and allocation of £21 million of European funding through ERDF provides resources for the development of a systemic approach to some of the Low Carbon Innovation challenges that Greater Manchester faces. The priority areas identified for Manchester are storage technologies, Low Carbon Heat, system Integration and flexible networks.

www.greatermanchester-ca.gov.uk/downloads/file/305/greater_manchester_sustainable_urban_development_plan

Greater Manchester is continuing with plans for a public energy company as part of the GM Climate Change and Low Emissions Implementation Plan (2016 – 2020). This will have a significant impact on the rate and scale of decarbonisation that can be achieved across the city region and enable renewable energy to be deployed across the city such as large scale Solar PV, community renewables, and others outside Manchester's city boundary such as on-shore wind and tidal.

WHAT OUR INDICATORS SHOW

The Government closed the initial Feed-in Tariff scheme on 14 January 2016 and a new scheme opened on 8 February 2016, with a lower generation tariff and a limit on the number of installations supported. However the scheme still remains popular with a total of 6,500 installations with a total capacity of 20.7MW of energy in Manchester. The table below shows the total cumulative number of renewable energy installations registered for the Feed-in Tariff.

Total number of renewable energy installations registered for the Feed-in Tariff (cumulative number)

2010	2011	2012	2013	2014	2015	2016	2017
42	685	2326	2707	3077	5878	6365	6500

Total generating capacity of renewable energy installations registered for the Feed in Tariff (cumulative in Megawatts)

2010	2011	2012	2013	2014	2015	2016	2017
0.2	2.1	7.0	8.6	10.1	18.2	19.6	20.7

3



TRANSPORT



Transportation is repeatedly ranked as a priority area for the people of Manchester; public consultation on the “Our Manchester” strategy reported that people wanted to have a clean city with one of the best public transport systems in the world, whilst 44% of the public who contributed to the Climate Change Strategy identified transportation as a key area for action. Access to affordable transport across the city is a common challenge for the city’s young population.

There has been significant investment and progress in public transport schemes and electrification of rail and car travel but these gains have been offset by increased demand for private car journeys. The uptake of Ultra Low Emission Vehicles is steadily increasing; however lack of a comprehensive charging/ fuelling infrastructure Greater Manchester has committed to a doubling the size of the city region’s electric vehicle charging network, moving to a completely emissions-free bus fleet and investing up to £1.5 billion in walking and cycling infrastructure.

WHAT OUR INDICATORS SHOW

Transportation accounts for 29% of the city’s carbon emissions and 26% of the city’s energy is consumed by transportation of people and goods and or delivering services. The data shows that there has been an estimated 2.2 % reduction over the last year in CO₂ emissions from transportation and this is projected to achieve a 35.7 % reduction from 2005-2020.

Levels of walking, cycling and public transport patronage are increasing steadily year on year, although cycling and walking remain a very small percentage of the overall figure. The data for journeys made into the city centre at peak travel times (between 07:30am and 09:30am) shows that cycling accounts for 1.8 % of all traffic whilst people walking accounts for nearly 12% in 2017. Public Transport (trams, trains and buses) patronage is increasing steadily year of year and accounts for nearly 2 out of 3 of all journeys made into the city centre at peak times. The remaining share – being motorised private vehicles accounts for 23% of journeys.

GM Electric Vehicles

In 2013, The Greater Manchester Electric Vehicle (GMEV) Charging Network was installed to support residents, business and visitors to travel by plug-in hybrid or fully electric vehicles. The network is well used with 2051 members in 2018. TfGM on behalf of the GMCA has secured Early Measures Intervention Funding that will cover the costs of new rapid charging infrastructure and is currently initiating a new tender exercise for the GMEV charging

infrastructure network to maintain the existing network and expand with new infrastructure. <http://ev.tfgm.com>

The key to decarbonising the transport system in Manchester is to encourage a shift to walking, cycling and public transport, electrify the transport infrastructure - cars, vans, buses and trains – and reduce the need to travel by using technologies such as videoconferencing and supporting more flexible working patterns.

Transport CO₂ emissions (kilotonnes)

2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
775	755	760	728	711	694	686	675	660	667	675	637*	623*

* 2016 and 2017 figures estimated based on national trends in GHG Emissions www.gov.uk/government/collections/uk-greenhouse-gas-emissions-statistics

% of journeys by walking, cycling and public transport*

Mode	2009	2010	2011	2012	2013	2014	2015	2016	2017
Walking	10.0%	10.7%	10.3%	12.1%	10.7%	10.7%	10.9%	11.4%	11.6%
Cycling	1.2%	1.3%	1.3%	1.6%	1.6%	1.7%	1.7%	1.7%	1.8%
Public transport	58.3%	57.3%	58.4%	57.9%	60.1%	60.9%	61.6%	62.5%	63.4%
Total non-car share**	69.5%	69.3%	70.0%	71.6%	72.4%	73.3%	74.2%	75.6%	76.8%

* Morning peak figures (07:30am – 09:30am) for Manchester Regional Centre
 ** Totals may not be normalised due to rounding

4



RESOURCES AND WASTE



One of the biggest influences for many people to reduce, reuse and recycle has come from the media. For example, the “Blue Planet” effect helped the drive to reduce single use plastic. Blue Planet II, first shown in October 2017, has been seen by 14 million people and has led to a change in the public’s mood on ocean plastic which has not gone unnoticed by those sat in Parliament. In December 2017, the Environmental Audit Committee (EAC) published a report on plastic litter: ‘Plastic bottles: Turning back the Plastic Tide’, noting the ‘increasing public appetite for urgent action in this area’, and recommended a deposit return scheme (DRS) on plastic bottles, placing a deposit on the price of bottled product which is refunded upon return.

Greater Manchester has followed suit with a ‘Plastic Free Greater Manchester’ campaign presented at the GM Green Summit in March 2018. This aims to reduce and eventually eradicate single-use plastics by 2020, and is by 43 hospitality businesses. A Green City Business Consortium will bring together Greater Manchester businesses looking to make change from single-use plastic to reusable, plastics and other alternative materials.

Circular Economy Club Manchester

The circular economy consists of recycling and reuse of waste, harnessing renewable energy, biomimicry (mimicking nature) and utilising sustainable eco-effective manufacturing methods and materials. The CEC was launched by the W2RIN (Waste to Resource Innovation Network) of Manchester Metropolitan University, which provides business and industry with a cross-collaborative multi sectorial approach to drive forward a zero waste circular economy.

www2.mmu.ac.uk/environmental-science-research/waste-to-resource-innovation-network/

A Rubbish Night at the Museum

In April 2018 Manchester Museum hosted ‘A Rubbish Night at the Museum’, presented by Upping It, a Moss Side/ Rusholme organisation that works to clean alleys, reduce fly tipping and increase recycling. Conversations, readings and opportunities to discuss the practical problems and possible solutions to solve Manchester’s rubbish ‘crisis’ were debated between waste industry experts, academics, students and public.

www.uppingit.org.uk/rubbish-night-museum/

To achieve Manchester’s aims to be a zero carbon and zero waste city will require us all to completely rethink what we buy and how we use and dispose of what can become a valuable and reusable resource.

WHAT OUR INDICATORS SHOW

Manchester’s recycling rate has increased by 7% over the past 2 years due to the change in refuse bin size for properties with their own containers, the amount of waste not being recycled has also decreased. This is good news for the city as it means that residents are recycling more as well as throwing away less waste. This is due to the City Council’s Policy of reducing the size of the black bins that was implemented in 2016, the 17/18 figures are the first full year of this service.

Amount of residual waste generated per household per year

The amount of waste that people are putting in the black bins is reducing – each household has reduced their waste by 46 kilograms. This is equivalent to 110 tins of beans by weight.

Percentage of domestic waste recycled or composted

Manchester’s recycling rate has increased from 36% in 2016/17 to a 39% in 2017/18.

Indicator	2009	2010	2011	2012	2013	2014	2015	2016	2017
Amount of residual waste generated per household per year (kg)	701	631	518	481	485	506	503	482	436
Percentage of domestic waste recycled or composted	19%	26%	34%	37%	35%	32%	33%	36%	39%



The Manchester zero carbon ambition does not at the moment include embedded emissions, such as those emitted in the growing, production, processing and distribution of food. However analysis of the total carbon footprint of Greater Manchester in 2013 calculated that around 20% of a Mancunian's personal carbon footprint results from food they purchase and consume. The type of food we eat contributes enormously to our carbon footprint; meat and dairy are the most carbon intensive. There is now a perceivable shift in public attitudes towards vegetarian and vegan diets – which is good news for the planet and people's health.

We have not yet defined what the Key Performance Indicator for food should be – this will be developed in conjunction with the Manchester Food Board and the Sustainable Consumption Institute at the University of Manchester.

Manchester Food Board

Manchester has had a Food Strategy and partnership since 2003, when it established an informal collaboration between Manchester City Council and the NHS resulting in Food Futures programme. In 2014 a new Manchester Food Board was commissioned as part of the city's commitment to address a number of health and environmental concerns including food inequality and obesity, and to promote a health and sustainable diet across the city. The Food Board is currently going through a tender process for a Manchester Food Board provider.

Real Junk Food Manchester

Real Junk Food Manchester is a not for profit project organisation opened in 2017 as Manchester's first pay-as-you-feel restaurant serving 100% food that would otherwise go to waste, sourcing it from supermarkets, wholesalers and other businesses. In its first 6 months of operation the project stopped over 15 tonnes of food from going to waste and served over 12,000 meals to people from all walks of life in Manchester.

Twitter: @realjunkfoodmcr

Real Food Wythenshawe

Real Food Wythenshawe continues to facilitate community growing. The past year has seen the community learning about Aquaponics and Hydroponics. Participants at the Geodome have experimented with different crops to identify which plants have a higher yield growing so much last year that they could supply the Real Food Kitchen with a continual supply of ingredients.

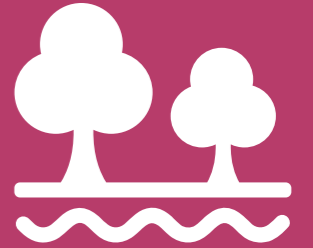
www.realfoodwythenshawe.com/case-studies

Growing Manchester

The Growing Manchester programme helps individuals and communities to access the support they need to develop successful food growing projects in their area. Since this original pilot programme in 2011, Growing Manchester has grown rapidly to include up to 88 growing groups, located across the city and over 1,000 residents have been engaged through activities.

www.sowthecity.org





Manchester's green spaces and waterways breathe life into the city, acting as habitats for biodiversity and nature, providing a buffer for areas prone to flooding and limiting the impact of heatwaves. Access to green space improves mental wellbeing and spending time in green spaces has been shown to produce levels of brain chemicals associated with low stress with positive impacts on blood pressure. For our resident population as well as visitors to the city; the river valleys, parks, orchards, allotments, gardens, rivers and canals provide a vital green and blue infrastructure for outdoor activities such as walking and cycling.

Highlights over the past year include:

- EU-funded GrowGreen demonstration project in West Gorton is a neighbourhood project with international focus, where innovative nature based solutions will be piloted to improve climate resilience.
- My Back Yard Project has provided a "citizen science" approach to collecting and interpreting data about the important role that domestic gardens play in our City. Over 1000 people took part in surveys citywide and the report on findings and action plan was published in February 2018, and can be downloaded from: mybackyard.org.uk/finalresults.php
- Connecting Collyhurst", the Groundwork Trust helped develop and deliver 5 walking routes including fitness trails and a safe route to schools which were launched in July 2017.
- The Tale of Two Cities, England's flagship

Wildflower project reached its climax in July 2017, celebrating the creation of large scale wildflower landscapes in both Manchester and Liverpool, creating biodiversity linkages, important for pollinators including bees, as well as connecting communities and developing cultural links between both cities.

- The "Tree Musketeers" volunteer programme and conservation society managed by the University of Manchester and student co-ordinators have helped to improve numerous sites across Manchester, and had one project nominated at the 2017 North West in Bloom Community Awards.
- Bridgewater Basin Floating Ecosystems completed in August 2017 provides floating islands that improve the biodiversity, water quality, visual amenity and function of this previously underused water body.
- Heroes Wood is a community-focussed tree planting project, in Debdale Park, Gorton, developed collaboratively by City of Trees. The project is one of many national commemorative events taking place between 2014-2018 to mark 100 years since the beginning of the First World War. The project is a demonstration of how green infrastructure can be used imaginatively, sensitively and boldly to link people and places to significant events.

WHAT OUR INDICATORS SHOW

4941 trees have been planted, including 4 orchards and 1585 hedge trees, through development schemes, in parks and along highways and through partnership organisations such as City of Trees.

Number of trees planted per year in Manchester

2010	2011	2012	2013	2014	2015	2016	2017
8,120	10,515	9,400	10,106	12,967	4,767	2,962	4,941
20% of Manchester is covered with trees							

Manchester maintains its commitment to conserve, protect and enhance biodiversity wherever it can, in compliance with the Natural Environment and Rural Communities (NERC) Act 2006. Manchester has eight Local Nature Reserves (LNR) covering 392 Hectares, of which Heaton Park is both the city's largest and only designated Country Park. Manchester has 38 Sites of Biological Importance (SBI) covering 309 hectares, of which 57.89 % (22) are in active conservation management.

The improvement, maintenance and promotion of the city's green and blue infrastructure (GI) is recognised as a vital component of both the Climate Change Strategy and the Our Manchester Strategy. Progress continues to be made on improving GI across the city, with successful projects ranging in scale from small projects such as a community orchard planting to multi-million pound landscape scale initiatives such as GrowGreen in West Gorton.

More information on the Council's G&BI Strategy, including Case Study Downloads, can be found at: www.manchester.gov.uk/info/500002/council_policies_and_strategies/7061/green_and_blue_infrastructure

PART 3

REVIEW OF PROGRESS AGAINST MANCHESTER CLIMATE CHANGE STRATEGY IMPLEMENTATION PLAN 2017-2022

ENABLING ACTIONS						UPDATE 2017-18
BY 2022, UNLESS STATED, WE WILL.....						
THEME	REF	ACTION	LEAD	PARTNER	UPDATE ON ACTION IN 2017-18	
Educating and Engagement	EA1	Deliver citywide campaigns to inspire and motivate stakeholders to act.	MCCA	MCC, universities, housing providers.	MCCA leads on Climate Conversations, an interactive, social media led campaigning capturing short, inspiring videos from people about their thoughts and actions on climate change. The Hulme Youth Climate Initiative was a 7 month campaign focusing on empowering youth to deliver environmental projects. Manchester Climate in Pictures is a monthly news update using photojournalism to tell stories about what is happening across the city and launched in 2018.	
	EA2	Use arts and culture to engage people in new and interesting ways to take action on climate change.	Manchester Cultural Partnership	MCC, universities, Manchester Youth Council, MCCA	In 2017 Manchester was recognised as a 'Good Practice City' under the EU's URBACT programme. The city is now leading an URBACT Transfer Network with a number of other cities to showcase best practice on arts and climate change.	
	EA3	Roll out Carbon Literacy training to residents, students and businesses in Manchester.	Carbon Literacy Project	Housing providers, universities, MCCA.	There are around 5,000 citizens certified as Carbon Literate.	
Investing in our young people	EA4	Deliver a skills and employability programme to link school, college and university leavers with local training and employment opportunities.	MCCA	MCC, universities, schools, New Economy, MCC, Manchester Youth Board	This action is to be developed more fully, however following on from a number of workshops with educators and young people in Manchester led by MCCA, Groundwork MTSS were successful in securing funds from Manchester Play Fund to run a programme that links action on the environment with skills and social action.	
	EA5	Support young people to actively participate in climate change policy-making in Manchester and assist them in delivering climate change campaigns to influence their peers and other stakeholders in the city.	Manchester Youth Council	MCC, MCCA, universities, UpRising, MEEN, Carbon Literacy Project	Manchester Climate Change Youth Board is a group of six 17 – 25 year olds established in 2017. To date they have run a 'listening event' capturing the views of youth to feed into the Greater Manchester Green Summit and a workshop with UpRising environmental leaders regarding their campaigns. The Youth Board is part of the Manchester Climate Change Board.	
Innovation, investment and business growth	EA6	Provide support to help Manchester business to develop and supply the goods and services needed to create a zero carbon, zero waste, and climate resilient city.	Manchester Growth Company	GMCA, Chamber of Commerce, Federation of Small Businesses, universities.	82 Manchester businesses received environmental business support saving over £400k and 1,500 tonnes of carbon dioxide equivalent (CO ₂ e). 50 Manchester companies also received specialist low carbon sector support, helping to create 5 new jobs.	
	EA7	Establish Manchester Climate Change Partnership (2017) and other initiatives to create the spaces and secure the resources	MCCA	MCC, universities, New Economy, private sector partners.	The Climate Change Partnership is currently being developed.	

Enabling and incentivising institutional investment	EA8	Establish incentives (policy and funding) to support investment by public and private organisations to deliver exemplar low carbon, climate resilient improvements in their estate.	GMCA	MCC	GMCA launched a £15 million Greater Manchester Low Carbon Fund which has been allocated from the 2014-2020 European Regional Development Fund to support implementation of the GM Sustainable Urban Development Strategy GM SUDS.
Supporting our businesses	EA9	Establish a business support programme(s) to assist businesses to improve their energy resource efficiency and to build their resilience to climate change	Manchester Growth Company (MGC)	Carbon Literacy Project	MGC'S Business Growth Hub has secured EU funding to deliver its resource efficiency support until December 2018. They hope to secure future funding to continue the programme until at least 2021.
Spatial planning, development and infrastructure investment	EA10	Develop a framework of clear policies and guidance to support and enable the city's development partners to deliver technically viable and commercially viable low carbon, climate resilient developments and infrastructure, consistent with Manchester's climate change objectives.	MCC	GMCA, developers, UK Green Building Council	The Carbon Budget pathways for Manchester will aim to support policy development for a zero carbon city.
	EA11	Work to influence the development of the Greater Manchester Spatial Framework so that it will support the development of Manchester's climate change objectives.	MCCA	UK Green Building Council	UKGBC launched the GM Local Network in the wake of the GM Green Summit in March. They will lead a work stream to assess how our current building stock can be retrofitted at an affordable cost, potentially generating new jobs for the region.
	EA12	Establish Manchester as a beacon for sustainable design through industry awards and promotion of low carbon, climate resilient development and infrastructure projects.	Developers	MCC, GMCA, developers, UK Green Building Council	UKGBC are strengthening their presence in the city opening a new office in Manchester in partnership with Bruntwood and Peel Land & Property.
Joined up public services	EA13	Continue to develop the local evidence base and understanding of the benefits of joined up action on health and climate change.	Green and Healthy Manchester Partnership	Universities	Projects such as the GHIA (Green Infrastructure and the Health and Wellbeing Influences on an Ageing Population) continue to explore the impact of GI on a range of social and health outcomes for residents.
	EA14	Deliver the Green & Healthy Manchester Programme of joined up action on health and climate change	Green and Healthy Manchester Partnership	Housing Associations.	The Green & Healthy Manchester Partnership continues to work with public health organisations and charities such as Manchester Mind to promote the benefits of GI and outdoor and environmental activities.
Resident-led solutions and the voluntary and community sector	EA15	Build capacity and leadership in communities to foster the delivery of community-led activities that deliver positive climate change outcomes and improve local quality of life.	Manchester Green Leaders Programme	Manchester Community Central, MCCA	The Green Leaders Programme includes 10 local environmental organisations who work across the city in conjunction with communities to deliver quality environmental projects and improved health and social outcomes for residents.
Digital technologies and data	EA16	Deliver the Triangulum and CityVerve smart city projects and use lessons learned as the basis of further work to use digital technologies and data to support climate positive decision making.	MCC		The "Everything is Connected" Conference took place in Manchester in 2018 reporting the findings of aspects of CityVerve and other smart city projects. CityVerve has collaborated with the private sector to engineer smart street lighting solutions whilst Triangulum has worked with MMU to develop a smart city battery.
Working with GMCA, UK Government and devolution	EA17	Work with GMCA to inform the development of the Greater Manchester Climate Change Strategy for 2020+, with a view to it including long term objectives that are consistent with the Paris Agreement (2017-2020).	MCCA	GMCA, all Manchester stakeholders	The GM Climate Change Strategy runs to 2050. However, with the development of the GM Carbon Budget, GM has committed to bringing forward the date by which we make Greater Manchester carbon neutral by at least a decade to 2040.
	EA18	Encourage GMCA to work with UK Government to establish a Greater Manchester Carbon Budget that is consistent with the UK's contribution to the Paris Agreement, and establish devolved powers and funding required to help meet the budget.	MCCA	GMCA	GM has worked with the Tyndall Centre to develop a science-based Carbon Budget approach to evaluating carbon targets and trajectories. Manchester is developing its own version.
THEMATIC ACTIONS					
Buildings	B1	Support Manchester's development sector to work with Manchester City Council to set clear policies for development that is consistent with the city's climate change objectives and build capacity to enable them to help deliver the policies.	UK Green Building Council	MCC, MCCA	The Manchester Residential Quality Guidance published in 2017 provides guidance on sustainable homes for planners and developers.
	B2	Investigate options and feasibility for developing new and expanding existing Council initiatives to incentivise and enable domestic retrofit e.g. energy efficiency linked to Council tax bandings, expansion of HELP (Home Energy Help Loan) for energy efficiency improvements etc.	Carbon Co-op	MCC, MCCA	Carbon Coop have secured 4 years of funding to explore new opportunities in expanding their market, including a low interest loan fund in conjunction with local businesses.
	B3	Work with GMCA to investigate the potential to adopt a Greater Manchester domestic retrofit strategy and city-wide programme that would result in existing homes becoming zero or very low carbon, and climate resilient in line with Manchester's climate change objectives.	MCCA	MCC, GMCA, Carbon Co-op, housing providers, universities	Carbon Co-op, in partnership with Energy Democracy GM, established a prospectus for a GM Energy Futures enterprise. Existing schemes from around the world were used as inspiration for what retrofit policy could look like in Manchester by 2035.

Buildings (continued)	B4	Identify and secure funding opportunities to invest in energy efficient programmes, particularly focussing on fuel poverty challenges for the city's residents. Including securing / influencing ECO funding to enable maximum benefit to Manchester residents.	GMCA	MCC, UK Government, Carbon Coop, energy companies	There is not a domestic retrofit strategy for Manchester at the moment. Energy efficiency and retrofit improvement programmes for home owners and private rented occupiers are limited to Energy Company Obligation (ECO) funding which runs until 2019.
	B5	Encourage non domestic retrofit and promote initiatives that support owners, landlords and tenants to improve energy performance and climate resilience of existing buildings.	GMCA	UK Green Building Council	Public sector building retrofit in Manchester is continuing for example as part of MCC and MMU's Estate plans.
Energy	E1	Ensure Manchester participates fully in the programme of energy activities in Greater Manchester Climate Change Strategy Implementation Plan.	MCCA	MCC, GMCA	Manchester is a key player in the GM CCS plan and will continue to push for decarbonisation of the grid with GMCA.
	E2	Deliver the Civic Quarter Heat Network and develop the next phases of city central heat development deployment.	MCC	GMCA	Planning permissions for alterations to key civic buildings were conditionally approved in March 2018. Specifics of the project, including network route, structural design and consultations with stakeholders were all finalised.
	E3	Develop the evidence base and route map to enable 100% clean energy to be supplied to Manchester by 2050.	MCCA	GMCA, MCC, Greater Manchester Community renewables, universities, ENW	Greater Manchester is exploring the establishment of an energy company to invest in energy generation, storage and control technologies to generate revenue from 'grid balancing'. Electricity North West is leading on a work stream to find out how Greater Manchester can generate more energy locally from smart, renewable sources.
	E4	Work with UK Government to develop a framework that ensures that Manchester plays an active role in deciding where, when and how Government backed funding programmes are implemented on the ground.	GMCA	MCC	As part of an investment programme to support low carbon economy and GM Sustainable Urban Development Strategy GMCA was awarded over £20M of ERDF funding in 2017 for the delivery of low carbon projects in 2018
	E5	Establish leadership with public sector estates for development of renewable energy in / on buildings in Manchester.	Corridor Manchester	MCC, University of Manchester, Manchester Metropolitan University, Central Manchester Hospital, RNCM	In line with their 2015 Strategy MMU have improved energy efficiency and reduced energy demand on site. Investment into on-site renewable energy generation through a carbon and energy management programme has exceeded £150k.
Transport	T1	Implement Manchester's five-year local transport delivery plans and work with TfGM and local stakeholders to identify options for further potential additions and improvements to the plans and the Greater Manchester Transport Strategy 2017-20, to ensure alignment with Manchester's climate change objectives. In particular recognising the city's views and commitment to shift from private car use and make Manchester a walking and cycling city, aiming to secure £320 per person per year for long term investment in these areas.	MCC	TfGM, MCC, GMCA, MCCA	The Final Greater Manchester Transport Strategy 2040 published in 2017 recognised the role transport plays in providing access to healthcare and reducing social isolation and a renewed focus on the night time economy. GM has committed to doubling the number of electric vehicle charging points as well as moving to an emissions-free bus fleet. The Made to Move cycling plan aims to invest up to £50m per year for three years to transform cycling and walking in the city-region.
	T2	Undertake research to identify how Manchester can best prepare for the introduction of an international agreement on aviation emissions and carbon management options available in the meantime.	Manchester Metropolitan University	Manchester Airport	The GM Carbon Budget Report by Tyndall Centre concludes that Manchester's emissions from flights out of its airports should level off until 2030, and then reduce to zero by 2075.
Resources and waste	R&W1	Undertake research to investigate the feasibility of Manchester becoming a zero carbon waste city by 2050 and the development of a delivery plan.	MMU Waste 2 Resources Innovation Network (W2RIN)	GMCA	The W2RIN at MMU provides academic expertise, research and practical experience to help businesses transition to zero waste by embedding the principles of Circular Economy. The Circular Economy Club Manchester was set up by W2RIN in 2017 to provide networking and baseline activities.
	R&W2	Implement carbon related objectives in the Greater Manchester Joint Waste Development Plan.	GMCA	MCC	GMWDA reaffirmed their commitment to achieving their strategy plan to reduce landfill waste to zero by working to renegotiate their PFI Contract after citing efficiency savings were not viable under their existing contract with Viridor Laing.
	R&W3	Provide guidance to home owners on reducing waste and improving resource efficiency.	MCC, GMCA	MCCA	In summer 2017 calendars were delivered to 157,000 low rise households which included information about collection days and materials that go in each bin.
Food	F1	Investigate the pathways to assist citizens to adopt more sustainable and healthy food habits, including the potential to reduce meat consumption to sustainable levels.	University of Manchester	Manchester Food Board	The management and delivery of the Manchester Food Board is currently going through a tender process.

Green Spaces & waterways	G&B1	Oversee and champion the successful delivery of the Manchester Green and Blue Infrastructure Strategy 2015 - 25 and Implementation Plan 2015 -18 and 2019 -22.	Manchester Green & Blue Infrastructure Group.	Various	GI Strategy won the Knowledge Exchange Category at the Chartered Institute of Ecology and Environmental Management (CIEEM) National Awards in 2018 and the strategy continues to be used positively across the city.
	G&B2	Establish how much carbon is sequestered by Manchester's green infrastructure and a mechanism for ongoing monitoring.	Universities	Manchester Green & Blue Infrastructure Group.	No action undertaken at this time.
ACTION BY ALL STAKEHOLDERS					
Residents & communities	S1	Provide information and support for residents and communities and share best practice to help inspire action across the city.	MCCA	MCC, housing providers	The Carbon Literacy Programme works with Registered Providers of Social Housing (CL4RPs) to train staff. Over 2300 social housing staff are now certified enabling them to work with residents to lower their carbon footprint and reduce energy bills.
Businesses	S2	Provide information and support for business and share best practice to help inspire action across the city.	Manchester Growth Company (MCG)	MCCA, Chamber of Commerce, Federation of Small Businesses	MGC provides a number of resources including a Green Intelligence bulletin and a number of case studies are available for Manchester. www.green-growth.org.uk/case-studies
Schools and colleges	S3	Provide information and support for schools and colleges and share best practice to help inspire action across the city.	MEEN	Manchester Youth Council, MCC, MCCA, Carbon Literacy Project	MEEN provides termly Green Teach Meet sessions for schools and practitioners who share practice and explore ideas. MEEN provides a termly newsletter of local, regional and national news and opportunities, and delivers conferences and projects around specific issues.
Universities	S4	<p>Across the three main areas of university activities embed action on climate change as a core activity for University of Manchester and Manchester Metropolitan University:</p> <ul style="list-style-type: none"> - Teaching and student experience to create Carbon Literate graduates with strong prospects and routes to employment, - Research to help create innovative solutions to climate change and track the city's progress, - Estates and processes – towards becoming zero carbon, zero waste, and climate resilient organisations. 	UoM, MMU	MCC, MCCA, GMCA	MMU was ranked first in the People and Planet University League in 2018. Over 50% of their vehicle fleet is electric or low-emissions and 49% of waste was reused or recycled. UoM was credited with an AUDE Award for Impact Initiative of the Year in 2017 for its 10,000 Actions and Ethical Grand Challenges projects. The University Caterer's Organisation also credited UoM with a sustainability award, as well as achieving maximum ratings from the Sustainable Restaurant Association. The joint "Give it don't bin it" project by UoM and MMU won an AUDE Award for Reaching Higher in 2018.
GOVERNANCE, REPORTING AND PLANNING					
Governance	G1	Undertake periodic reviews of the strategy's governance structure to ensure it best supports and enables the strategy's successful implementation.	Our Manchester Forum	MCCA	The Manchester Climate Change Board will meet 3-4 times a year, with smaller sub groups being established as required. The Board will review its Governance and Membership periodically.
Monitoring and Reporting progress	G2	Monitor and communicate progress through an ongoing basis through www.manchesterclimate.com and through a publicly available annual report.	MCCA		Annual report is available in a downloadable PDF version at www.manchesterclimate.com News section of the website is updated with articles from interviews, conferences, opinion pieces and events are shared on social media. Manchester Climate in Pics circulated monthly.
Updating the strategy, Implementation Plans and Carbon Budgets.	G3	Develop 5 year carbon budgets for the three scenarios set out in the strategy and adopt the GPC Protocol (2017).	Manchester CO ₂ Monitoring Group	Universities, GMCA, MCCA	The Manchester CO ₂ Monitoring group is developing the Carbon Budget for Manchester in 2018.
	G4	Develop the Key Performance Indicators to enable progress against the strategies objectives to be monitored. (2017)	MCCA	Universities, GMCA	The KPI's will be developed as part of the Carbon Budget pathways work in 2018
	G5	Refresh the strategy to take account of developments in international and national climate science and policy, to include an overall carbon budget for Manchester, and the carbon budget for 2023-27.	MCCA, Manchester CO ₂ Monitoring Group	All Manchester stakeholders	The Strategy will be refreshed before the next 5 year implementation plan for 2023.

PART 4

PRIORITY ACTIONS FOR 2018-19

Manchester Climate Change Board and Agency Priorities

In the delivery of all actions the Board and Agency will work with partners wherever possible.

1. AIM AND OBJECTIVES:

Publish a finalised aim and objectives, setting out how the Board and Agency will help Manchester to develop and achieve its climate change commitments.

2. GOVERNANCE:

Continue to develop the governance structure for the Manchester Climate Change Strategy 2017-50, including the appointment of the first set of 'Climate Change Ambassadors' to complement the Board's engagement work.

3. DIVERSITY:

Establish plans to improve the diversity of the Board in terms of its membership and the stakeholders engaged through their activities and those of the Agency.

4. SCIENCE-BASED CARBON BUDGET AND REDUCTION PATHWAY:

Propose a science-based carbon budget and reduction pathway that would align Manchester with the Paris Agreement and work with Manchester City Council and partners to put in place the policies, plans and resources to adopt and stay within the budget. Work will also be delivered with partners to engage residents in the city's zero carbon journey.

5. ACTION:

Engage and support organisations and communities across the city to take action to help make Manchester a zero carbon, zero waste, climate resilient city.

6. AGENCY DEVELOPMENT:

Establish plans for the development of the Agency to enable it to support the Board and the city to achieve its climate change commitments.

CITYWIDE PRIORITIES

Let's keep this simple, two priorities for 2018-19:

1. CLIMATE LEADER OR FOLLOWER?




At the Annual Conference 2018, the Board are launching a proposal for the city to adopt a science-based carbon budget and reduction pathway that would align Manchester with the Paris Agreement. Essentially, the question for Manchester is not 'if' – we've already committed to 'playing our full part' and ultimately all cities will need to adopt a Paris-aligned budget – the question is 'how'. From 17th July to 12th October 2018 the Board and partners will be holding a Climate Conversation with the city to ask people and businesses what they can do and what support they need to help deliver Manchester's commitments in line with the Paris Agreement.

2. ACT NOW!

Whether this year or another, Manchester will ultimately need to act in line with the Paris Agreement. The sooner we start the greater our ability to stay within our carbon budget – and the sooner we'll be able to have cleaner air, improved health, more jobs, improved competitiveness and the many other benefits that will come from creating a zero carbon, future-proofed, sustainable and greener Manchester. All households and organisations have a part to play and the potential to achieve these benefits.

To get involved

There are many ways that you can get involved. You can follow MCCA on social media at

-  facebook.com/McrClimate
-  twitter.com/McrClimate
-  instagram.com/McrClimate

For further information, visit manchesterclimate.com/involved

Feedback on this report

We welcome your feedback. If you have any comments or thoughts on this report please email MCCA at info@manchesterclimate.com

Tips to contribute to a zero carbon city (found here)

1. Become a Carbon Literate person or organisation
2. Switch to a greener tariff or invest in renewable energy www.carboncoop.com and www.gmcr.co.uk
3. Get a smart meter and use it
4. Use less energy at home
5. Sign your business up to the Green Growth support programme
6. Use public transport, cycle or walk
7. Follow the waste hierarchy of prevention, minimisation, reuse, recycle, recovery, disposal
8. Choose local, sustainable and seasonal food. Make sure to eat less meat and waste less
9. Plant a tree
10. Sign your school up and work through the Eco Schools Bronze, Silver and Green Flag levels