



MANCHESTER: A CERTAIN FUTURE

Strategic Report 2010-2017

Key facts

In 2017 Manchester's population is estimated at

549,500*



There were

19,965**

businesses in Manchester in 2016



On average

73%



of journeys into the city centre are by public transport or bike in 2016/17

Manchester covers an area of

11,564

hectares



There were

399,600

people working in Manchester in 2016

Over

5,000

individuals are certified as Carbon Literate



Manchester has

32

electoral wards split into



3 neighbourhoods in the north, south and centre

There are



198***



schools in Manchester of which

94%



are Eco-Schools in 2016/17



Manchester recycled

36%

of its household waste in 2016/17

Approximately



20%



of Manchester is covered by trees

* Manchester City Council Forecasting Model (MCCFM) 2016.

** VAT/PAYE registered businesses.

*** Includes state funded Primary, High, Special Schools, Pupil Referral Units (PRU), Free Schools and Academies.

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INTRODUCTION FROM THE CHAIR OF THE MACF STEERING GROUP

It's clear that Manchester is a city committed to action on climate change. Over 3,000 Manchester residents and organisations have been involved in setting this ambitious commitment, and the strategy for achieving it. The Manchester Climate Change Strategy 2017-50 was launched at the end of 2016. It builds on the climate change commitments in the *Our Manchester* Strategy, and sets out how the city will play its full part in contributing to the Paris Agreement on climate change, at the same time as creating healthy local communities and a thriving zero carbon economy.

As we now prepare to embark on this next phase of the city's climate journey, it's important that we understand where we have been so far. Since the launch of the city's first climate change strategy *Manchester: A Certain Future (MACF)* in 2009, the last seven years have seen a wide range of activities delivered. A dynamic and growing movement for community-based action has been established, driven by local people working to improve and celebrate the places where they live. Across the private sector climate action is bringing growing levels of commercial, reputational and financial benefits. And in

the public sector where, either driven by, or aligned with the need for financial savings, climate change action is becoming core business in our hospitals, universities, schools and within Manchester City Council.

The individual stories and case studies within these communities and sectors are important; they help bring this agenda to life in a way that makes it real to people and organisations within the city and beyond. However, it's important that we also understand the totality of these activities; what they add up to, what has worked well that we can build on, where progress has been slow or lacking, and which barriers still need to be addressed. And fundamentally are we, or are we not, on the right trajectory to successfully deliver our new strategy for 2017-50?

When I joined the MACF Steering Group in 2013 I set out to bring clearer definition to the city's climate change priorities, the structures in place to help achieve them, and the extent to which they were or were not being achieved. I believe we have made good progress against these aims over the last four years. The final part of this work will be to establish a new Manchester Climate Change Board in 2017. Building on the work of the MACF Steering



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

Group, the new Board will be established to reach yet more of the city's communities and business sectors, seeking to ensure that over time everybody will become part of the city's collective efforts on climate change.

On that basis this will be my last year as chair, working with my MACF Steering Group colleagues until we have established the new Board and appointed a chair to drive forward the city's ambitious new strategy for 2017-2050. It has been a great privilege to have been part of the Group's work over the last four years. Exciting, challenging but most of all rewarding, it has been a pleasure to be part of Manchester's fast-growing climate change agenda. I would like to take this opportunity to thank everybody who I have had the pleasure of working with over this period, and to the many who are working hard to make Manchester a zero carbon, zero waste, climate resilient city. I wish you all luck in your many efforts and look forward to seeing our shared successes continue to grow in the years to come.

Gavin Elliott, Chair,
Manchester: A Certain Future
Steering Group

“Manchester will become a zero carbon, zero waste, climate resilient city by 2050, or sooner, if necessary to make our full contribution to the Paris Agreement.”

BACKGROUND AND SUMMARY OF KEY DEVELOPMENTS 2010-17

When *Manchester: A Certain Future* (MACF) was produced in 2009 it marked a departure from the traditional process of Council-led policy-making, to an approach that sought to even more fully represent the views of the city's residents and organisations, and to provide a more effective platform for the successful implementation of local policy.

It recognised that, given the scope of city-level action on climate change – from the activities of multinational private sector businesses, to the everyday behaviours of Manchester

residents – it would not be possible for the City Council alone, or even the City Council acting with a group of local partners, to bring about the level of action required. To be consistent with the scale of the challenge, Manchester's strategy on climate change would need to mobilise all residents, businesses, public and third sector organisations. The result was a 'stakeholder-led', rather than a 'Council-led' approach to the development of Manchester's first ever climate change strategy, involving over 200 individuals and 100 organisations in its production.

Since 2009 there have been a number of key developments that have shaped and provided wider context for the delivery of the MACF strategy. It is beyond the scope of this report to describe them in detail, however, a brief summary is provided to give the reader a sense of how the climate change agenda has evolved since 2009, and the context that Manchester now operates in. Further details are available in previous MACF reports at www.manchesterclimate.com/progress and at other relevant sources.

2009

- Manchester City Council issues a 'Call to Action' for the city's stakeholders to work together to develop the city's first ever climate change strategy.
- 200 residents and 100 organisations produce *Manchester: A Certain Future*.

2010

- MACF Steering Group established to champion and oversee climate change action in Manchester.
- UK Coalition Government elected; start of austerity programme.

2011

- *Greater Manchester Climate Change Strategy 2011-20* published.

2013

- *Manchester: A Certain Future Refresh* published.

2014

- IPCC 5th Assessment stating that climate change is happening quicker than previously understood.

This wider political, financial, economic and societal context will inevitably influence the delivery of Manchester's Climate Change Strategy for 2017-50. Both for the better – for example working as part of an ambitious programme with Greater Manchester colleagues on work to create a carbon neutral City Region – and potentially for worse as, among various factors, the UK's exit from the European Union removes a major source of funding for the delivery of local climate change projects. This ongoing cycle of change and uncertainty is likely to be one of the few constants over the coming

years and possibly decades. Whilst it will undoubtedly alter it, we cannot, however, allow this to steer us off our course to become a zero carbon, zero waste, climate resilient city.

Parts 1, 2 and 3 are testament to the city's resolve to continue in the face of change and uncertainty, providing a strategic review of progress during 2010-2017. Amongst the headlines these parts set out that, despite budget reductions of approximately 40% since 2010, Manchester City Council has still had the vision and commitment to part-fund the establishment of a Climate Change

Agency as a new vehicle for action. They also set out successful applications to the European Commission that have secured both new funding and recognition since the Brexit vote, underlining the fact that the city must make the most of all opportunities while they exist, and continue to build international partnerships that will still be important after March 2019. Finally, this report concludes with Part 4, looking forward and providing a brief overview of Manchester's Climate Change Strategy for 2017-50 and the priorities over its first five years, 2017-22.

2015

- Manchester Climate Change Agency established.
- Paris Climate Change Agreement to limit global average temperature increases to well below 2°C, aiming for 1.5°C, relative to pre-industrial levels.

2016

- Outcome of UK referendum on EU membership; beginning of uncertainty over future UK-Europe collaboration and funding for climate change action.
- Launch of *Our Manchester* and *Manchester Climate Change Strategy 2017-50*.
- C40 'Deadline 2020' report stating that cities can directly contribute 40% of CO₂ savings needed to limit global average temperature increases to 1.5°C.

2017

- Andy Burnham elected as Greater Manchester Mayor; manifesto commitment for Greater Manchester to become 'Carbon Neutral'.
- President Trump announces America's withdrawal from Paris Agreement; global condemnation; further recognition of the role of cities.

PART 1

MACF STEERING GROUP ACTION 2010-17

The Manchester: A Certain Future Steering Group was established in 2010, to represent the city's different stakeholder groups and to champion, coordinate and oversee climate change action across the city. Between 2010-17 the Group has continually developed in order to respond to different needs and priorities.

Between 2010-11 the Group focused on raising the profile of climate change and building initial momentum that, over time, would translate into action at scale. This phase saw the mobilisation of a number of public sector organisations, including Manchester City Council, both Manchester universities, and registered housing providers, many of the city's third sector organisations, and the beginning of a response from private sector businesses.

Building on the first two years, the Group's second phase, during 2011-13, saw it broaden its reach into different sectors and communities by increasing the number and diversity of its membership. This new larger group, of over 30 members, sought to further raise the profile of the city's climate change agenda and inspire new activities to be developed. The Group also facilitated the development of the MACF Refresh, produced with the involvement of over 200 residents and 100 organisations. With its wider reach and membership, however, came the challenge of securing the level of resources required to translate ideas and opportunities into actions. With the arrival of a new chair in 2013, the MACF Steering Group embarked on its next phase. The Group was restructured to enable it to better focus on specific areas of the strategy, provide regular reports on progress, and to further engage different stakeholder groups to act. In 2015 the Steering Group achieved one of its biggest successes, working with the City Council and architectural and engineering practice BDP to establish a designated resource to help drive forward the city's climate change agenda; the Manchester Climate Change Agency (further details on the Agency are provided in Part 2 of this report).

In 2016/17 the MACF Steering Group has focused on two key actions:

1) Work with the Manchester Climate Change Agency to complete the development of the city's Climate Change Strategy to 2050 and first Implementation Plan.

The Strategy and Implementation Plan was published in December 2016. Further information is provided in Part 4.

2) Work with partners to establish the required governance for the successful delivery of the city's Climate Change Strategy to 2050 and first Implementation Plan.

In 2017 the Steering Group will evolve into a new Manchester Climate Change Board, which will take on responsibility for driving forward the city's climate change agenda. It's overarching aim will be to support delivery of a climate change strategy for Manchester that is consistent with the Paris Agreement and the latest climate science, and is built on the views of the city's stakeholders.

For its first year, the Board's members will be:

- MACF Steering Group: the current chair plus six other existing members
- Manchester City Council: the Executive Member for the Environment and a senior officer
- Co-optees: four co-optees identified for their ability to provide leadership, advocacy and access to new stakeholder groups and networks
- Members of the public: three individuals appointed through a public application process.

The chair of the Board will also be a member of the *Our Manchester* Forum, the group responsible for overseeing the delivery of the *Our Manchester* strategy. This will enable the Board to provide progress reports against the climate change commitments in *Our Manchester*, and to enlist senior individuals and key organisations to support climate change action wherever possible. Support for the Board and implementation of its priorities will be delivered by Manchester Climate Change Agency. The Agency will provide the capacity and expertise needed to engage and support different stakeholder groups, report progress, and develop new initiatives to support the successful implementation of the city's climate change strategy. All in partnership with organisations in the city and beyond.

Additionally, the Board will be supported by a new group of 'Manchester Climate Change Ambassadors' who will bring skills, access to partners and networks, and influence, to help drive forward climate change action in Manchester.

The Board's latest terms of references and membership are available from www.manchesterclimate.com.

SUMMARY AND OUTLOOK FOR 2017-22

The MACF Steering Group has played a key role in championing climate change action over the last seven years, enlisting the support and enthusiasm of a wide range of committed individuals to help enable the city to deliver its climate change commitments. Its ongoing evolution has been driven by the need to constantly expand the numbers and types of stakeholder groups engaged on climate change, and the need to secure resources to enable it to do so effectively. Looking back over the last seven years, lack of resources has been the key barrier to the further expansion of the Group's engagement activities. This led to the Steering Group working with the City Council and BDP to establish the Manchester Climate Change Agency in 2015.

Looking to the implementation of the city's new climate change strategy, now is the right time for the Group to evolve once again, this time into the new Manchester Climate Change Board. As with the Steering Group before it, the Board will need to work to constantly broaden and deepen levels of climate change engagement and action across the city. The Climate Change Ambassadors will also play a key role here.

The Board will also have a role, working with the Manchester Climate Change Agency, the City Council and other partners, to secure the resources needed to effectively engage and support different stakeholder groups to take action. Doing so will be a fundamental prerequisite for the successful implementation of the Manchester Climate Change Strategy 2017-50. Finally, by forming part of the wider policy and governance framework for the *Our Manchester* Strategy, the Board will build on the climate change commitments in *Our Manchester* and work to mainstream action as part of the city's ongoing agenda for improved wellbeing and prosperity.



Piccadilly
Patrol

acc
Traffic
enforcement
camera



PART 2

MANCHESTER CLIMATE CHANGE AGENCY ACTION 2015-17

The Manchester Climate Change Agency was established in September 2015 to provide the MACF Steering Group and the city with a new resource to help drive forward climate change action in Manchester. The Agency's headline aim is to:

Undertake activities that support, encourage and enable individuals and organisations in Manchester and beyond to act on climate change.

The following provides a summary of progress against the Agency's objectives:

ESTABLISH FUNDING AND OPERATIONAL ARRANGEMENTS FOR THE SUCCESSFUL LONG-TERM OPERATION OF THE AGENCY

The Agency is a not-for-profit Community Interest Company, whose founding directors are members of the current MACF Steering Group. It has been established with a core team of three members of staff, with resources provided by Manchester City Council and architectural and engineering firm BDP.

The Agency's funding will come from three main sources over the long-term:

- Manchester City Council: recognising the ongoing cuts to the City Council's budget, the aim is for this funding to reduce over time
- Private sector sponsors: from organisations that recognise the importance of action on climate change and the role the Agency can play, the aim is for this funding to increase over time
- Project grants: grant funding from organisations that aim to support action on climate change and other related subjects, the aim is for this funding to increase over time.

ESTABLISH STRONG POLITICAL COMMITMENT AND POLICY TO DRIVE AND ENABLE ACTION ON CLIMATE CHANGE

Our Manchester: the Agency and MACF Steering Group supported the City Council to translate the comments on the draft *Our Manchester* consultation into the climate change commitments in the final strategy.

Manchester Climate Change Strategy 2017-50: building on the climate change commitments in *Our Manchester* and the views of a further 700 residents and organisations engaged in 2016, the Agency facilitated the development of the strategy, working with the MACF Steering Group.

Manchester-Wuhan Memorandum of Understanding on Climate Change and Environmental Improvement: underpinned by the 30-year relationship between Manchester and our Chinese sister city Wuhan, the MOU was developed by the Agency and Wuhan Development and Reform Commission. It provides the platform for an ongoing collaboration to mutually support the delivery of each cities' climate change commitments.

ENGAGE, INSPIRE AND ENABLE STAKEHOLDERS TO TAKE ACTION

Climate Lab: In 2016 the Agency worked with over 30 partners as part of Manchester's European City of Science programme to test different approaches to engaging stakeholders on climate change.

Over 100,000 people were engaged. Headline findings were used to help define the engagement activities for 2017+ and include:

- Arts and culture based activities offer an effective way to engage people, and provide access to hundreds of thousands of people when delivered through museums, galleries, theatres, music and other venues.
- Young people as both the audience and deliverers of engagement activities are key.
- The faith sector is engaged in this agenda and provides access to many thousands of people across the city.
- Future activities should be delivered in a combination of city centre venues and out in the community.



International profile: the Agency has represented the city at six international events, including the United Nations Climate Dialogue in May 2017.

MONITOR AND COMMUNICATE PROGRESS

- **Annual Conference and MACF AGM:** organised on behalf of the MACF Steering Group in 2016 and 2017.
- **Annual and Strategic Reports:** produced on behalf of the MACF Steering Group in 2016 and 2017.
- **Website:** over 1,300 hits to www.manchesterclimate.com since its launch in November 2016, with news articles providing case studies and reports about the city's ongoing progress.
- **Social media:** over 1,100 followers @McrClimate and www.facebook.com/mcrclimate
- **International profile:** the Agency has represented the city at six international events, including the United Nations Climate Dialogue in May 2017.
- **Awards:** Manchester has been recognised as a European 'Good Practice' city for the work of our arts and culture sector, following an application submitted by the Agency www.urbact.eu

INITIATE NEW PROJECTS AND FUNDING BIDS

The Agency has led or supported successful bids for new projects worth approximately £11m, including:

Grow Green: working with 22 international partners to demonstrate how green infrastructure can be used to increase resilience to climate change. The bid and partnership development was led by the Agency. Worth approximately £10m over five years, with £3m for Manchester partners.

Universities: over £1m of successful bids submitted for research on climate change and green infrastructure.

Climate Lab: worked with partners on climate change engagement projects worth over £100,000.

Engagement and support programmes in development for 2017+:

- Arts and culture sector: to help organisations to improve their buildings and engage audiences to take action.
- Young people: to enable young people to take action on climate change, including through influencing local policy and decision-making.
- Faith sector: to help faith groups to improve their buildings and engage their worshippers to take action.

SUMMARY AND OUTLOOK FOR 2017-22

The first two years for the Agency has tested whether or not the city can benefit from such an organisation. The conclusion is that, despite limited resources, the Agency has made a meaningful and measurable contribution to the city's action on climate change. To date the Agency has provided an important vehicle that can secure resources, establish new partnerships, initiate new projects, and work with partners to engage new audiences, in a way that has not previously been possible in the city.

Building on this platform the Agency has a clear set of priorities for 2017-22, working to continue to support and enable action across the city. The key to its ability to fully deliver these priorities will be whether or not the Agency can secure the funding required for its further expansion and long-term operation.

PART 3

REVIEW OF PROGRESS AGAINST MACF 2010-2017

The first MACF Plan had two headline aims – to reduce the city of Manchester’s emissions of CO₂ by 41% by 2020 from 2005 levels, and to engage all individuals, neighbourhoods and organisations in Manchester in a process of cultural change that embeds ‘low-carbon thinking’ into the lifestyles and operations of the city.





The strategy was refreshed in 2013, to better align Manchester’s activity with the latest City Region policies. Two further indicators were added in line with the Greater Manchester Climate Change Strategy 2011-2020; Adaptation; preparing for and actively adapting to a rapidly changing climate; and low-carbon economy – making a

rapid transition to a low-carbon economy. The five thematic objectives remained the same in the 2013 refresh, although all the actions were reviewed and either renewed or reworked into a targeted implementation plan for 2013-2015.






The period 2016/17 is the final reporting period for the current MACF Climate Change Strategy 2010-2020, now replaced by the Manchester Climate Change Strategy 2017-2050, which was launched in December 2016.

Part 3 therefore provides a strategic review and highlights progress against the four MACF Headline Objectives and the five thematic areas for the period 2010-17.

MACF HEADLINE OBJECTIVES

- 1 41% CO₂ reduction by 2020 
- 2 Low-carbon culture change 
- 3 Climate change adaptation 
- 4 Transition to a low-carbon economy 

MACF THEMATIC AREAS OF ACTION

- 1 Buildings 
- 2 Energy 
- 3 Transport 
- 4 Sustainable consumption and production 
- 5 Green and blue infrastructure 

MEETING OUR OBJECTIVES





Reduce the city's CO₂ emissions by 41% by 2020, from 2005 levels

WHY WE SET THIS OBJECTIVE

The headline target, set in 2009, was to reduce the city's CO₂ emissions by 41% by 2020, from 2005 levels. This target equated to Manchester's fair share of the UK's legally binding carbon reduction obligations under the Climate Change Act 2008.

The Local Authority level CO₂ data for Manchester is only currently available up until 2015. Estimated emissions for 2016 are based on national data, and forecasts to 2020 are based on linear trends in emissions reductions*.

WHAT WE HAVE ACHIEVED 2010-2017

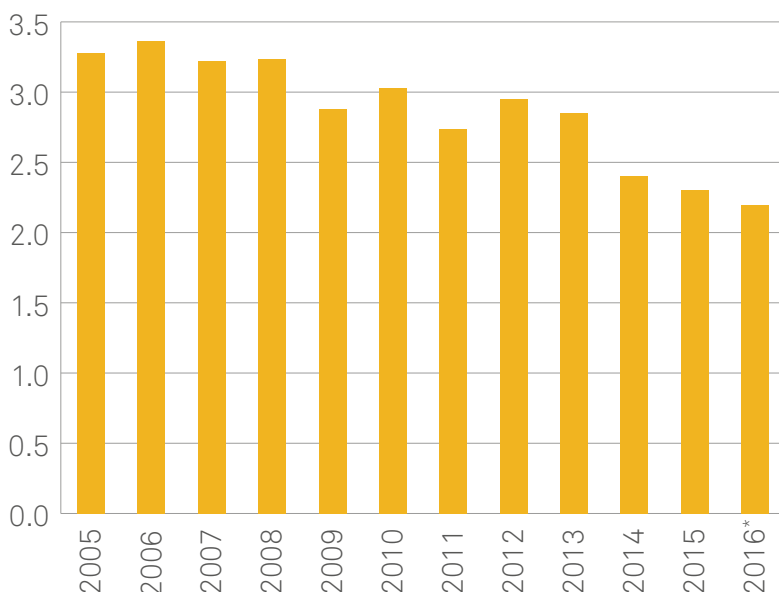
Assuming similar levels of energy use, we are currently projected to achieve a 37% reduction by 2020 – an improvement on the 32% projection in last year's annual report.

Our analysis of the latest Government figures shows:

- Manchester's annual CO₂ emissions have fallen from 3.28 million tonnes in 2005 to an estimated 2.2 million tonnes in 2016 – that's a 33% reduction.
- In 2016, 39.3% of Manchester emissions came from the industrial and commercial sector, with 30.2% from the domestic sector and 30.4% from the transport sector.
- The industrial and commercial sector has seen the biggest fall in emissions of 42% between 2005 and 2016, closely followed by the domestic sector at 35%.
- Emissions from the transport sector have only fallen 14% in the same period.

The analysis of the city's progress against its carbon reduction target has been undertaken by Dr Rachel Dunk from Manchester Metropolitan University, supported by the CO₂ Monitoring Group (Dr Ali Abbas, Joe Blakey, Dr Seb Carney, Caroline Dolan, James Harries, Lisa Lingard and Dan Walker).

Manchester's total CO₂ (million tonnes)



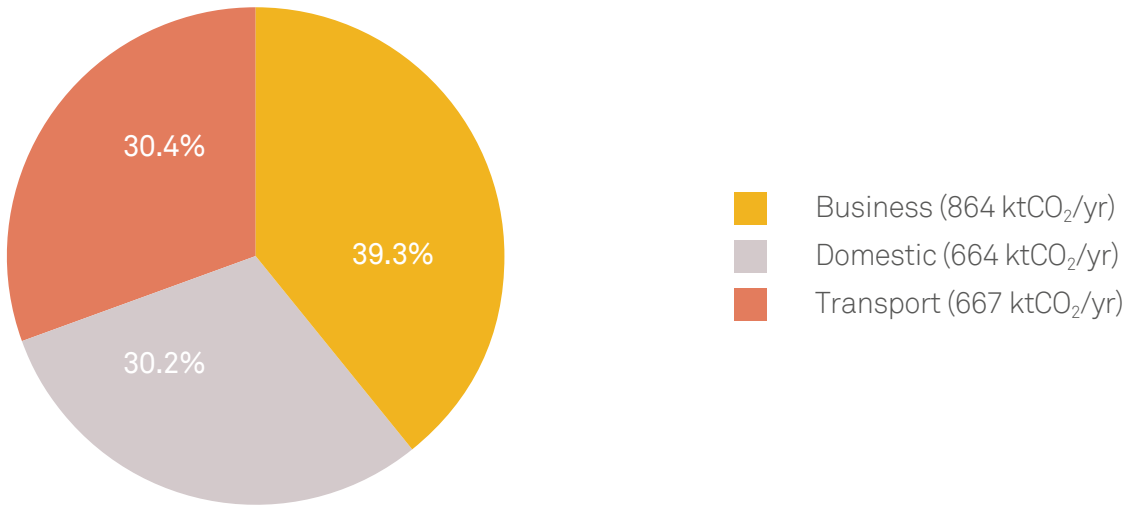
* www.gov.uk/government/collections/uk-greenhouse-gas-emissions-statistics

MANCHESTER'S DIRECT EMISSIONS

Manchester's direct emissions are made up of 39.3% from the business sector (industrial and commercial), with 30.4% from transportation and 30.2% from energy use in our homes.

Since 2005 the biggest decrease in emissions has been in the business sector which has seen a 42% reduction in emissions, followed by 35% in domestic buildings and 14% in the transportation sector.

Manchester's direct emissions by sector in 2016 (estimated)

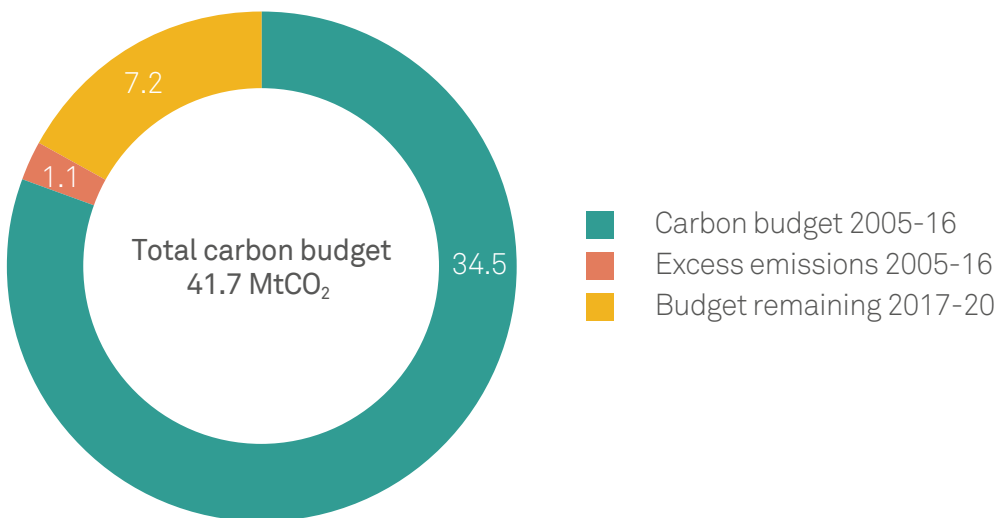


MANCHESTER'S CARBON BUDGET

The indicative Carbon Budget for Manchester for the period from 2005-2020 is **41.7 million tonnes CO₂**.

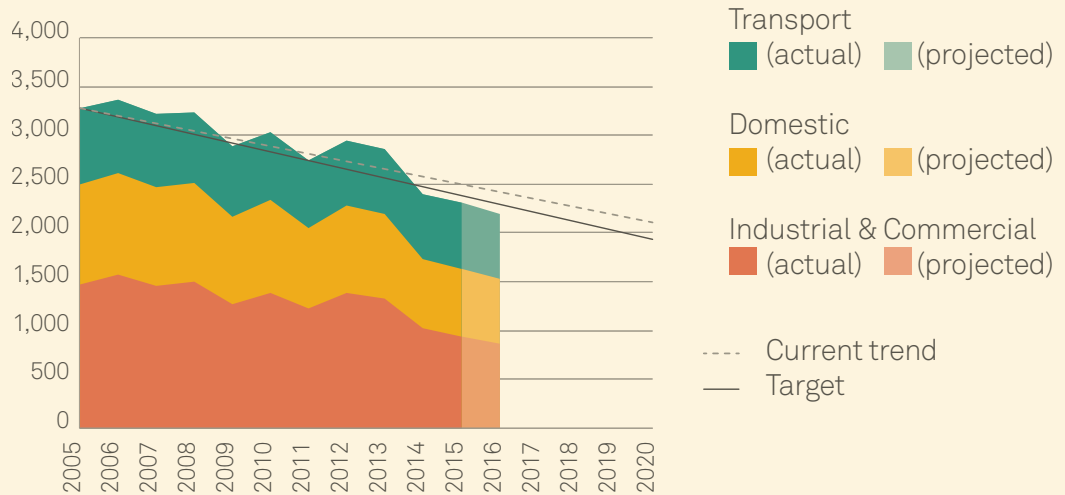
Since 2005 we have emitted **34.5 million tonnes CO₂** – which is **1.1 million tonnes CO₂ more than budgeted**.

We now have **7.2 million tonnes CO₂** left in the budget from 2017-2020 – meaning we would now have to achieve a **55% reduction by 2020** in order to stay within our budget.



Indicator 1: % reduction in CO₂ from the 2005 baseline

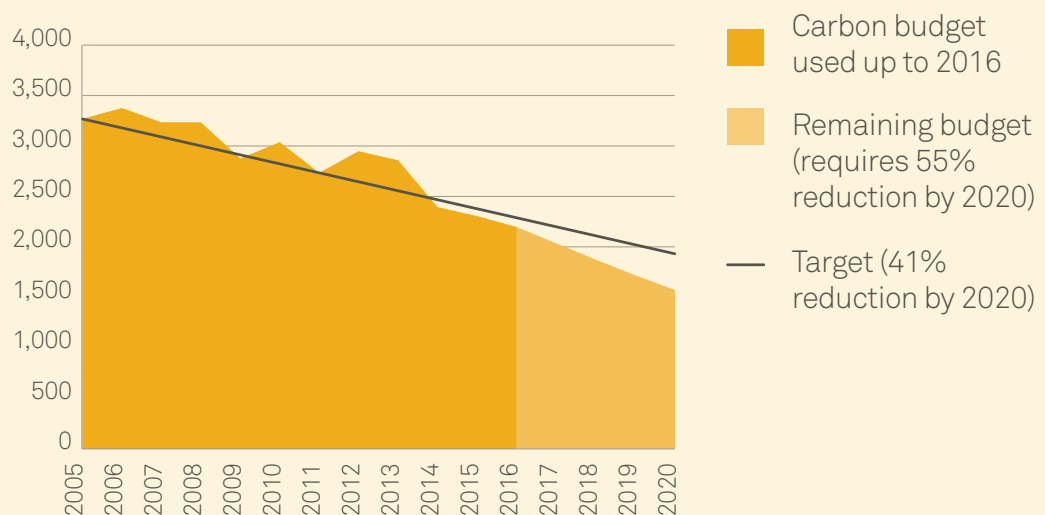
In Manchester we are projected to achieve a 37% CO₂ reduction by 2020, assuming similar levels of energy use – against the 41% target and a 2005 baseline.



Note: As local authority data for 2016 is not yet available, national data has been used to estimate the 2016 figures.

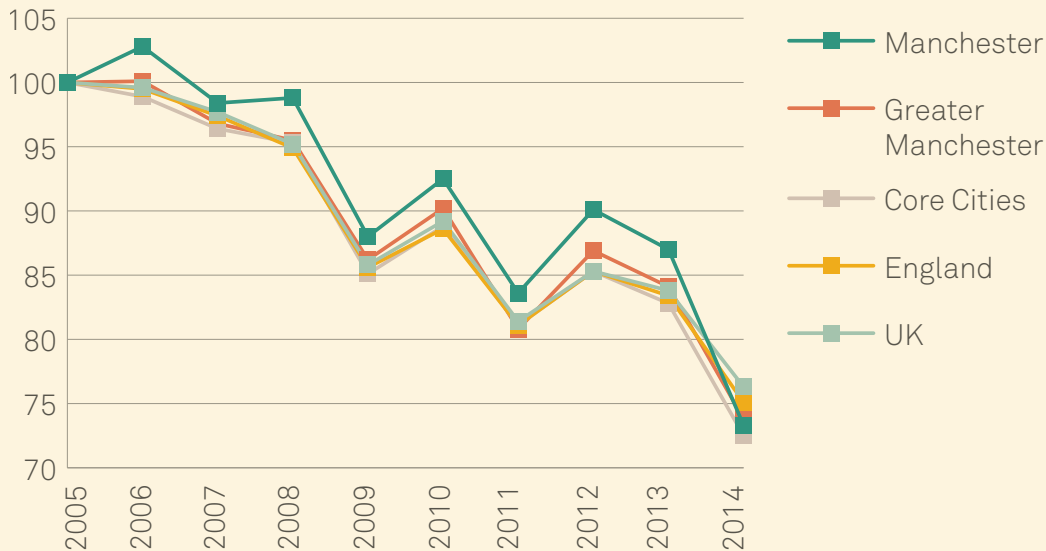
Indicator 2: Manchester's emissions reductions and target

Analysis from a carbon budget perspective shows that we need to make steeper cuts from 2017-2020 to stay within our carbon budget.



Indicator 3: Comparison with others; CO₂ emissions for Manchester, Greater Manchester, Core Cities and UK since 2005

In 2014, Manchester's emissions fell by 15.8% – comfortably exceeding the UK average of 9% and the Core Cities average of 12.5%. This means that after lagging behind the Core Cities and UK national emission reduction trends for a number of years, Manchester has now closed the gap on our comparators.



LOOKING TOWARDS 2020 AND BEYOND

At the 21st Conference of the Parties of the UNFCCC (COP21) in 2015, 195 countries signed the historic Paris Agreement, and as of 30 June 2017, 151 of them have ratified it – including the UK in November 2016 at COP 22 in Marrakesh.

The key aim of the Paris Agreement is to limit the ‘increase in the global temperature to well below 2°C above pre-industrial levels and to pursue efforts to limit the temperature increase to 1.5°C above pre-industrial levels’.

Based on current pledges by signatories to the Agreement, we’re currently on track to reach at least 3.6 degrees of warming. To stay below the 2°C threshold, the latest analysis suggests that global emissions need to peak by 2020 and then reduce rapidly to zero over the next two decades.

This new level of global ambition on climate change needs to be reflected in our city’s ambition beyond 2020. To that end, the CO₂ Monitoring Group is working on a carbon budget for the city on the basis of our fair share of the global carbon budget that would be likely to keep temperatures below that 2°C threshold.

While it is heartening that the city’s emissions are continuing to fall, we must reflect on the fact that we’re still not on track to meet our 41% target by 2020. We know what needs to be done – reduce energy demand, decarbonise our energy supply, and shift to low-carbon modes of transport. Our challenge now is to build on the good progress we’ve made, and accelerate the transition to a zero carbon Manchester.

Ali Abbas, Chair,
MACF CO₂ Monitoring Group



Low-Carbon Culture Change – embedding ‘low-carbon thinking’ into the lifestyles and operations of the city

WHY WE SET THIS OBJECTIVE

From the outset of *Manchester: A Certain Future*, the two headline objectives were carbon-reduction and low-carbon culture change, because without culture change it would be impossible to meet our carbon reduction objectives.

This remains just as true today. Specific causes of behavior change are difficult to pin-point and measure. We therefore instead measure a series of proxy indicators to assess changes in low-carbon culture across Manchester’s individuals, communities and organisations.

WHAT WE HAVE ACHIEVED 2010-17

Manchester is unique in having a regional programme that aims to educate its citizens in both the scientific basis for climate change and the how and why of changing their behaviour to become lower carbon, and giving them the motivation to act.

Over the last seven years, the proxy indicators all show a steady improvement. Although it is difficult to say why, the trend we see is positive indicating that collectively we are increasingly adopting lower carbon behaviours, however the halting of climate change is now critically urgent and the ultimate indicator is whether we hit our carbon reduction targets, and halt the rise in global temperatures.

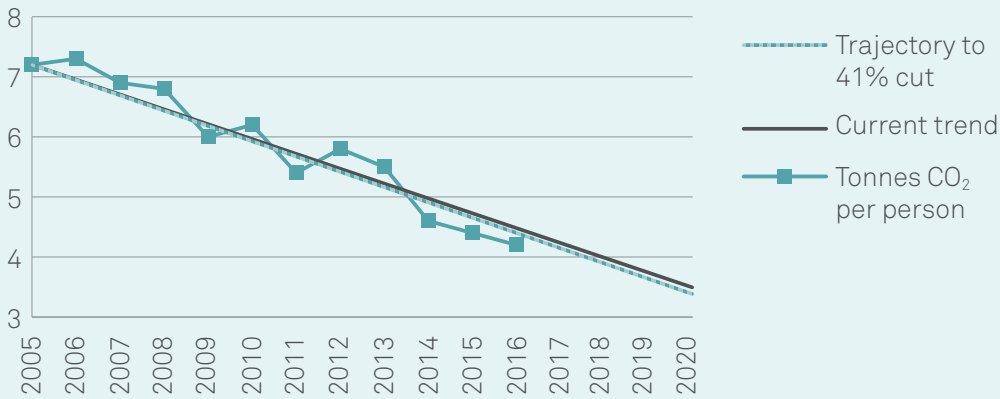
OUR INDICATORS SHOW THAT:

- Since 2005, CO₂ emissions per capita have reduced by nearly three tonnes per person – an estimated 40% reduction over the last 12 years in Manchester.
- There are now 5,000 Carbon Literate citizens in Manchester.
- 94% of Manchester’s schools are Eco Schools.
- The Manchester Arts and Sustainability Team (MAST) has reduced their overall carbon emissions by around 5% year on year and 16% over the last three years.
- Since 2010 The Business Growth Hub has supported businesses to save over 485,465 tonnes of carbon emissions by reducing their energy, water and materials across Greater Manchester.

Indicator 1: CO₂ emissions per capita

Since 2005 Manchester's per capita emissions have continued to fall year on year. The data shows that between 2005 and 2016 Manchester's per capita emissions reduced by an estimated 40% while the city's population grew by around 16%. Some of this carbon reduction is due to the decarbonisation of the national grid and the substantial proportion of our electricity now generated from renewables, but the fall in energy consumption reflects some implementation of improved technology and some change in behaviour indicating a positive trend in low-carbon culture overall.

Overall we are using less energy and becoming less carbon intensive in our daily lives.

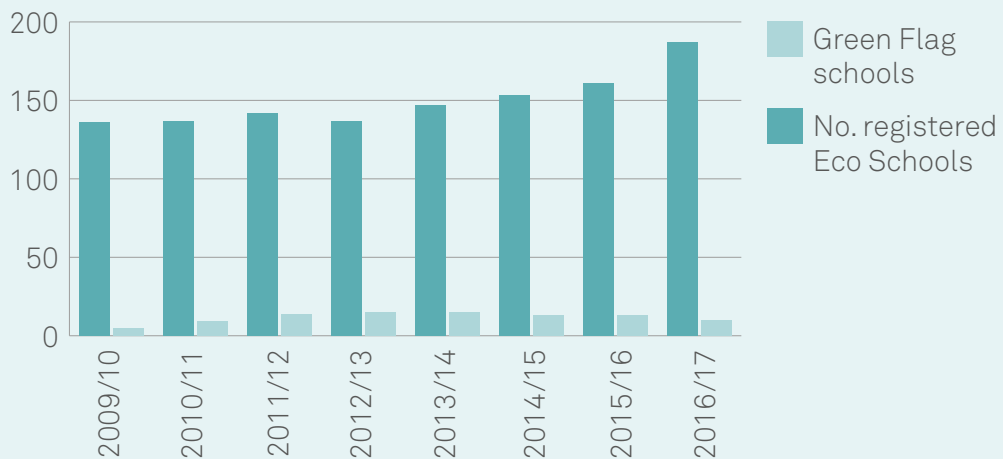


Indicator 2: Eco-Schools and other education sector activity

The Eco-Schools Programme has been operating in the UK since 1994. The number of Manchester schools registered on the programme* has increased from 136 in 2009 to 187 in 2017, with 94% of Manchester schools now registered as Eco-Schools. The number of top level Green Flag schools has however declined, possibly due to the cost and time resource required to maintain Green Flag status at a time when schools are increasingly seeing budgets reduced.

- 49 schools are at Bronze level, 50 are at Silver level and 10 are Green Flag schools.
- Over the past year the number of Bronze award schools has increased by eight and Silver award schools by one, whilst the number of Green Flag schools has decreased by three.
- In 2014 Manchester Metropolitan University was awarded the Silver EcoCampus award and achieved Gold award in 2015.
- Manchester Environmental Education Network (MEEN) continues its work on Education For Sustainable Development (ESD) agenda including hosting a Four Nations Education for Sustainability Conference in 2017, running Green Teach meetings and working with schools on Forest Gardens for Schools programme.
- The University of Manchester launched its '10,000 Actions' programme in November 2016 and it remains the single biggest sustainability initiative in the UK higher education sector. To date, staff have committed to over 25,000 actions. It won the prestigious AUDE award for impact initiative of the year and led to the University becoming the first to achieve Carbon Literate Organisation status.

Eco-Schools and Green Flag Schools in Manchester*



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

Indicator 3: Business activity

The Business Growth Hub 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 Low-Carbon and Environmental Goods 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 of low-carbon goods and services, 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.

Initiatives supported by the Hub (including previous ENWORKS and Environmental Business Pledge programmes) include:

- Since 2009 Greater Manchester SMEs have made over £128 million of cost savings and 485,465 tonnes of carbon savings (tCO₂e).
- In 2016/17 150 Greater Manchester businesses received environmental business support, helping to identify annual savings of £1.1 million and over 2,500 tonnes of carbon dioxide equivalent (CO₂e).
- 122 Greater Manchester companies also received specialist low-carbon sector support, helping to create 17 new jobs.
- The Business Growth Hub has secured additional EU funding to deliver a carbon reduction project to support 200 SMEs to improve their energy efficiency and the adoption of on-site renewable energy funding to December 2018.

Indicator 4: Carbon Literacy

Now overseen by The Carbon Literacy Trust, a registered charity, and originating in Manchester in 2012, The Carbon Literacy Project offers everyone who works, lives or studies in Manchester, a day's worth of learning about climate change, leading to Carbon Literacy.

Carbon Literacy is defined as:

'An awareness of the carbon dioxide costs and impacts of everyday activities, and the ability and motivation to reduce emissions, on an individual, community and organisational basis.'

At the time of reporting more than 6,500 citizens are now Carbon Literate, and it is estimated that over 5,000 of these live, work or study in Manchester.

Major initiatives include:

- The continued growth of Carbon Literacy within Manchester's social housing sector via the CL4RPs consortium of 20 Greater Manchester Housing providers.
- The growth of the MediaCityUK Consortium which involves the rollout of Carbon Literacy across the MediaCityUK Campus, by the BBC, ITV, and Peel media, and the launch of a new city wide consortium (involving many Manchester based organisations) in our near-neighbour city of Salford.
- The launch and first wave of awards in the Carbon Literate Organisation scheme enabling businesses and employers to accredit as having developed a low-carbon culture via Carbon Literacy.
- The exporting of Carbon Literacy outside Manchester, across the UK and into mainland Europe, which helps set expectations on the national and international stage as to the kind of city Manchester is now becoming.

OTHER INDICATORS

Although not formal measures, a number of other low-carbon cultural indicators are becoming more obvious. It is hard to recall now that when *Manchester: A Certain Future* was first launched in 2009, solar panels on domestic homes in Manchester were still regarded as 'exotic'. Solar panels are now a common sight, electric cars and vans increasingly common, improving cycling infrastructure is facilitating a steady growth in cycling, and the growth in the Greater Manchester Metrolink system is decarbonising our travel. With meaningful sustainability credentials now regarded by customers as a given when dealing with business, and a host of award-winning community low-carbon and sustainability initiatives in existence from food growing to urban greening to waste food diversion and recycling, there are strong indicators that our Manchester carbon-culture is beginning to change.

LOOKING TOWARDS 2020 AND BEYOND

It is not a new insight that transitioning Manchester to a zero carbon city is both a huge challenge, but also a huge opportunity to build a better, cleaner, healthier and more successful city. This won't be achieved without changing the way we think and do things; the way we run our organisations and businesses, the way we move or travel around, and the way we live our lives, but it is a challenge and opportunity we are now beginning to embrace.

Dave Coleman, Chair,
MACF, Culture Change Monitoring Group



3



Adaptation – preparing for and actively adapting to a rapidly changing climate

WHY WE SET THIS OBJECTIVE?

According to NASA, 2016 was the warmest year since records began (in 1880) with average surface temperatures almost 1°C above the mean for the period 1951-1980.

2016 was the third consecutive year that the global average surface temperature record has been broken. Increasing temperatures and changing precipitation patterns continue to generate impacts across the globe, linked to processes including rising sea levels, melting glaciers and an increase in intense rainfall events. The UK has always suffered from extreme weather, and the changing climate threatens to increase in the frequency and intensity of events such as heat waves, violent storms and floods. The Boxing Day floods of 2015 stand as a recent reminder of the severity of the risks to Manchester.

When the first *Manchester: A Certain Future* plan was written in 2009, dealing with the causes of climate change (mitigation) was the city's main priority. The need to respond to the impacts of a changing climate (adaptation) was included in the plan but the issue was perceived, at the time in Manchester, to

be less urgent than mitigation. However by 2013 when the MACF plan was refreshed the impacts of climate change were more evident, locally and globally, and consequently an adaptation indicator was added.

Adapting and becoming more resilient to climate change involves developing and implementing strategies and actions to better anticipate, prepare for, respond to and recover from shocks and stresses linked to extreme weather and climate change. Concerted effort, persistence and resources can help us to go some way to safeguarding our health and wellbeing, green spaces, homes, business and critical infrastructure from the challenges posed by climate change over the coming decades.

WHAT WE HAVE ACHIEVED 2010-17

The MACF plan incorporates two adaptation indicators, mirroring those included in the Greater Manchester Climate Change Strategy. These indicators provide a framework for monitoring action on climate change adaptation and resilience.

Indicator 1: The number and quality of resilience plans and adaptation strategies

A transition to a low-carbon climate-resilient Manchester would be a major boost for the city's residents and businesses. Weather and climate impacts can cause major infrastructure damage and reduce productivity, with negative implications for the economy. Impacts on health and wellbeing can also be considerable. Resilience plans and adaptation strategies provide a framework for implementing actions to reduce risks associated with extreme weather and climate change. Over the past five years the city and City Region have embedded adaptation and resilience themes within key strategies, and have created stand-alone plans and strategies on related themes. These include:

- Manchester City Council's Core Strategy 2012-27.
- Manchester Green and Blue Infrastructure Strategy and Action Plan 2015-25.
- Greater Manchester Spatial Strategy.
- Greater Manchester Climate Change and Low Emissions Implementation Plan 2016-20.
- Greater Manchester Transport Strategy 2040.
- Greater Manchester Resilience Strategy (currently under development as part of the Rockefeller 100 Resilient Cities initiative).

Given that climate change impacts cross administrative boundaries, Greater Manchester's policy and strategy response has an important bearing on adaptation and resilience within the Manchester district, and recent activity at this larger scale is encouraging. The next step is to encourage the use of this strategy and policy framework as a platform to support the wider implementation of adaptation and resilience actions 'on-the-ground'.

Indicator 2: The extent, quality and productivity of green spaces and tree cover

The maintenance and enhancement of green and blue infrastructure is a vital component of the *Our Manchester* Strategy, which seeks to promote Manchester as a world-class low-carbon and liveable city. Green and blue infrastructure can play an important role in achieving this aim. This is not only due to the adaptation functions that it can provide, but also because of the numerous other benefits it offers, for example in terms of health and wellbeing, biodiversity conservation and economic prosperity. Manchester's *Green and Blue Infrastructure Strategy and Action Plan* provides a platform for improving the extent, quality and productivity of the city's green and blue infrastructure. Recent highlights include:

- Building on the success of Red Rose Forest, the City of Trees Programme launched in 2015 and has been working towards its mission to plant three million trees across Greater Manchester. Key achievements including the planting of over 47,000 new trees and placing 223 hectares of Greater Manchester's woodland under the management of City of Trees.
- Work is nearing completion on Brunswick Park, a new green space on the University of Manchester campus which encompasses tree and wildflower planting, seating areas, pedestrian and cycle paths.

Making further progress will require collaborative working, targeted investment and the effective communication of the value of green and blue infrastructure for the Manchester's residents, businesses and wildlife.

LOOKING TOWARDS 2020 AND BEYOND

Developing and implementing climate adaptation and resilience approaches requires a local understanding of extreme weather and climate change impacts and risks, and the design of workable solutions.

Manchester's universities have built a reputation for top-class research on urban climate change adaptation and resilience, with projects focusing on Manchester including EcoCities, and more recently the RESIN and Grow Green projects. These initiatives bring knowledge, capacity and resources targeted at supporting local climate adaptation strategies and actions, and have encouraged the development of evidence-based plans and strategies. Translating these into action can be challenging. Planners, risk managers and decision makers in the public, private and third sectors have a key role to play in realising Manchester's adaptation and resilience objectives. In particular, the backing of senior decision makers will be needed in order to make meaningful progress. This will require 'mainstreaming' climate change adaptation and resilience into day-to-day decisions and activities.

Encouragingly, political commitment has become evident within the City Region through programmes such as Climate Local and signing up to international platforms including the Covenant of Mayors for Climate and Energy and the UNISDR's Resilient Cities Campaign. Greater Manchester's successful application to the Rockefeller 100 Resilient Cities programme, which incorporates climate

change, will also help to encourage activity and awareness raising. Manchester hosted the World Symposium on Climate Change Adaptation in 2015 and the Manchester European City of Science in 2016 placed climate change as a key theme during the EuroScience Open Forum (ESOF) conference. The climate change adaptation and resilience agenda is now starting to gain traction in Manchester and Greater Manchester, underpinned by a decade of planning and strategy making, research and joint working across sectors and stakeholder groups. It is positive that adaptation and resilience is now being embedded into relevant policies and strategies. Despite this, in Manchester, as in many other cities, adaptation to climate change is happening mostly on a reactive basis often in response to individual extreme events. Short-term and piecemeal thinking remains a barrier to progress, and longer-term planning perspectives are needed. More needs to be done in order to advance the agenda and to position Manchester alongside other cities who are leading on addressing the challenges that climate change poses to their future prosperity. In a future where rivalry between cities for investment and talent looks set to intensify, a well-adapted and climate resilient Manchester would offer the city a distinct competitive advantage.

Dr Jeremy Carter, Chair,
University of Manchester –
MACF Adaptation Monitoring Group



Low-Carbon Economy – making a rapid transition to a low-carbon economy

WHY WE SET THIS OBJECTIVE

As with Adaptation, alignment of MACF with the Greater Manchester Climate Change Strategy in 2013 introduced the need to consider how MACF should best respond to the objective to make a rapid transition to a low-carbon economy.

The MACF Steering Group worked with business and academic partners to explore this issue in further detail and to develop a

set of indicators for measuring this objective. The impact and value of the low-carbon economy continues to be measured using carbon intensity of GVA (Gross Value Added) as well as the value of the Low-Carbon Goods and Environmental Services (LCEGS) sector and resource efficiency savings through the Business Growth Hub.

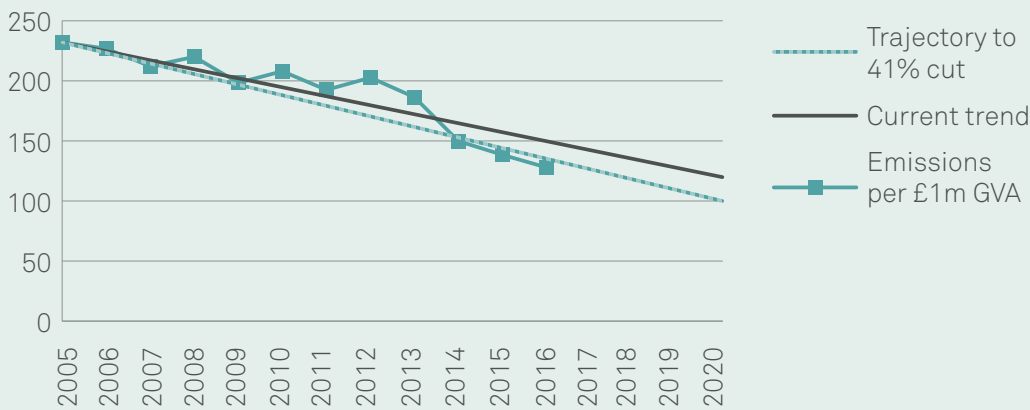
WHAT WE HAVE ACHIEVED 2010-17

Indicator 1: Carbon intensity – the amount of carbon that is emitted per unit of economic activity*

Manchester’s economy continues to grow at around 3% a year. Manchester’s economy produced 130 tonnes of CO₂ per £1m GVA (Gross Value Added) in 2016 which is a reduction of 48% on 2005 levels.

The projected growth in the size of Manchester’s economy to 2020 means its carbon intensity will need to fall to around 98 tonnes of CO₂ per £1m GVA, a 57% reduction on 2005 levels, if we are to meet our 41% carbon reduction target.

Manchester’s CO₂ emissions per £1m GVA:



* Source: 2005-2015 figures available from BEIS. 2016 figure estimated based on national trend in CO₂ figures in BEIS data. GVA figure from Greater Manchester Forecasting Model 2014.

Indicator 2: Low-Carbon Environmental Goods and Services sector (LCEGS)

The Greater Manchester Low-Carbon and Environmental Goods and Services (LCEGS) sector has the third highest sales in the UK, worth £5.4bn in 2013. A ‘Deep Dive’ report and analysis of the LCEGS sector by Association for Greater Manchester Authorities (AGMA) and New Economy in November 2016 provided an overview of the UK’s direct low-carbon economy which generated £26.2bn in GVA in the UK in 2013 – five times larger than Aerospace, two and a half times the size of Pharmaceuticals, almost twice as big as the Chemical sector and equivalent to the Food and Drink sector in GVA terms.

The Low-Carbon subsector makes the largest contribution to the overall LCEGS sectors with just under 20,400 employees and sales of £2.9bn in just over 1,000 firms – as stated earlier growth within LCEGS seems to be originating from the drive for all sectors to be increasingly low-carbon, climate resilient and resource efficient.

Innovation is a key driver – the role of LCEGS in Smart Cities agenda and the activities of projects such as the Triangulum and CityVerve projects are testing innovative solutions to old problems – free flowing traffic instead of jams, smart flows of energy and less waste and public services better targeted where they are most needed. This is highlighting the economic opportunities that sustainability brings. New innovative technologies and materials are providing a commercial blueprint for ‘smart’ connected cities. This is a strong opportunity for LCEGS within this agenda as well as the promotion of using technology to support a coordinated and smarter approach to management processes such as logistics, management of buildings and even local supply chains.

Indicator 3: Business activity

In 2016 across Greater Manchester the Business Growth Hub supported the LCEGS sector; over 60 businesses were assisted, creating seven jobs and £500K in new sales. Nearly 200 Greater Manchester businesses in the LCEGS sector have joined the online Low-Carbon Network giving easy access means to identify local suppliers.

See Indicator 3: Business activity on page 26.

LOOKING TOWARDS 2020 AND BEYOND

The Greater Manchester Devolution Deal with devolved governance provides new delivery methods for the City Region to transition to a low-carbon and low-emissions economy. The political uncertainty of recent months including the UK's forthcoming exit from the European Union will bring economic challenges that must be faced head on. However the early successes of the Northern Powerhouse have strengthened Manchester's position and appetite for innovation. To bolster this Greater Manchester has £21m ERDF funding established for Sustainable Urban Development to be focused on smart energy innovation and a further £15m ERDF funding secured for a Low-Carbon Investment Fund. The transition to a low-carbon economy requires a number of interrelated elements; the expansion of the LCEGS sector, improved performance and climate resilience of business, a workforce with the right sector skills and innovation to develop the solutions and creating the opportunities for business.

The challenge of a low-carbon and resilient Manchester will provide opportunities to build new markets for low-carbon and resilient goods and services. The region has a significant number of companies in recycling, recovery and waste management; energy efficiency technologies; building technologies and energy management; and renewable energy, wind, biomass and PV.

There are still significant opportunities for businesses to increase their profitability and reduce their carbon emissions by improving resource efficiency. Manchester's established sectors, such as advanced manufacturing, research and development, and tourism can benefit through safeguarded jobs and growth through investment in low-carbon, resource efficient and resilient business models. New skills and employment have a significant impact on the scale and nature of the grey and green infrastructure required to support economic activity going forward.

Helen Seagrave, Chair,
MACF Low-Carbon Economy Monitoring Group

ACTIONS BY THEME





Buildings

WHAT WE HAVE ACHIEVED 2010-17

In 2005 the city's direct emissions from the domestic, industrial and commercial sectors was 76% of the total, by 2016 it had reduced to 70% – with businesses seeing the biggest decrease in emissions over the period of the MACF plan.

In 2015, MACF set a target to retrofit 5,000 homes through the Green Deal and ECO initiatives with the aim of saving 350,000 tonnes of CO₂ per year by 2020.

A combination of Greater Manchester programmes including Green Deal, 'Toasty' and ECO, along with action by social housing providers, has led to thousands of homes across the city being retrofitted with energy efficiency and home energy generation measures.

Our analysis of domestic emissions since 2005 indicates that they fell 35% by 2016 and are projected to achieve a 41% reduction by 2020.

One of the aims of the MACF plan was to 'create a portfolio of substantial commercial and public sector retrofit projects, such as the Town Hall, which pilots innovation, exemplifies best practice and uses these exemplars to develop a long-term programme for retrofitting public and commercial buildings across the city'. In 2009, there were several completed new buildings in the city with exemplary energy efficiency standards, however 'retrofitting' programmes were unheard of, and nearly all the Solar PV panels in Manchester were on one building, the CIS tower.

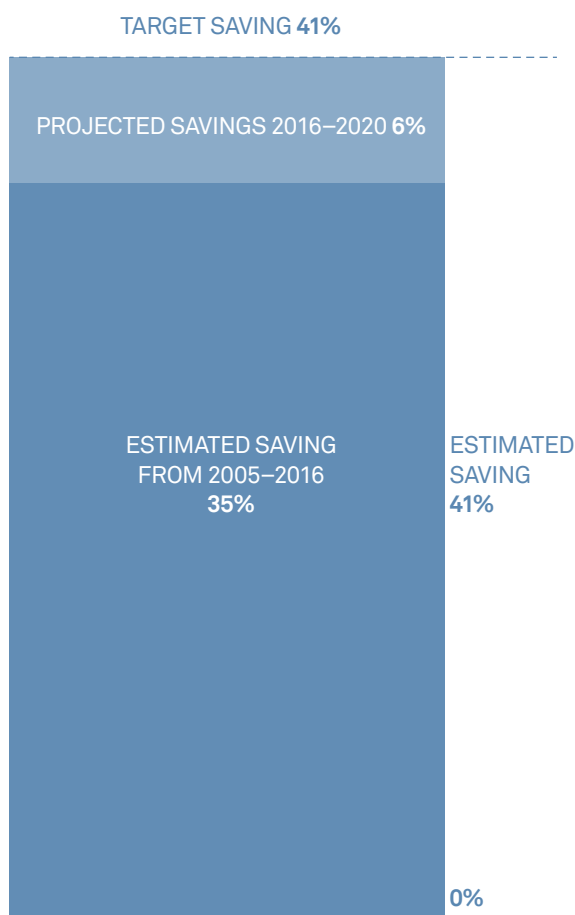
Our analysis of emissions from the industrial and commercial sector since 2005 indicates that they are projected to achieve a 42% reduction by 2020.

DOMESTIC BUILDINGS

Headline aim: Through physical and cultural measures, to save more than 30,000 tonnes of CO₂ emissions from domestic properties by 2015, creating the capacity to double that target for the period 2016-2017.

DOMESTIC EMISSIONS

- In 2016, domestic buildings were responsible for an estimated 664,000 tonnes CO₂, which is 30.2% of Manchester’s carbon emissions.
- Since 2005 carbon emissions from domestic buildings have reduced by an estimated 355,000 tonnes CO₂ which equates to a 35% reduction.
- Between 2015 and 2016 emissions fell by an estimated 30,000 tonnes which is a 4% reduction per annum.
- If we continue along our current trajectory, we will reduce domestic emissions by a further 61,000 tonnes, equating to an estimated 41% reduction overall.



2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016*
Indicator: Manchester CO ₂ emissions from domestic buildings (kilotonnes)											
1,019	1,029	1,005	1,000	896	951	832	897	862	715	693	664
Indicator: Number of ECO measures installed to Sept 2016 [cumulative]											
n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	7,252	10,145	10,380	30,066

* Source: 2005-15 figures available from BEIS. 2016 figure estimated based on national trend in CO₂ figures in BEIS data

HIGHLIGHTS INCLUDE:

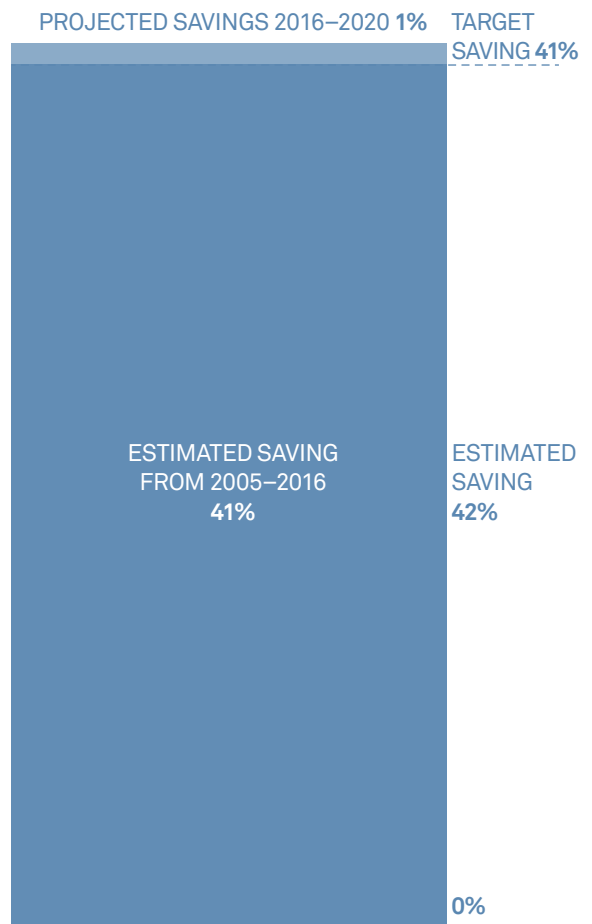
- In Manchester from 2013-2016 the Green Deal Communities programme supported 300 fuel-poor households who received a range of retrofit measures, 79 received external wall insulation and 54 households received other soft measures such as loft, cavity wall, room in roof insulation and boiler installs. The scheme was run across Greater Manchester and won 'Large Scale Project of the Year Award' at the National Energy Efficiency and Retrofit Awards 2016.
- Up to September 2016 Manchester has installed over 30,066 retrofit measures through the Greater Manchester ECO programme – 1.5% of Great Britain's total installations against 8% across Greater Manchester.
- Large-scale retrofit programmes benefit our most vulnerable residents – evaluation of the Eco Programme showed that the majority of residents assisted were low income and fuel poor households who benefited from an improvement in their thermal comfort and a better understanding of their energy usage.
- In Manchester from 2011-15 the Greater Manchester Energy Advice service (GMEAS) provided free energy advice and information, access to funding for energy efficiency improvements and help and advice for residents.
- Northwards carried out a range of energy efficiency improvements to homes through their £300m Home Improvement Programme, including external and/or internal insulation to almost 2,500 'hard to treat' homes, Solar Photovoltaic (PV) panels onto 2,334 houses and 21 blocks of flats, solar thermal panels onto seven block of flats, Ground source heat pumps at five locations serving 90 flats, air source heat pumps to 153 properties, two communal combined heat and power units serving 213 flats, eight micro combined heat and power units to eight homes and soft measures such as low energy lighting.
- The Carbon Literacy for Registered Providers of Social Housing (CL4RP) Programme has worked with the largest housing associations to roll out a programme of Carbon Literacy training to Registered Providers including staff at Northwards Housing, Great Places Housing Group and Southway Housing.
- Manchester City Council residents that meet certain criteria can access £2 million 'ring-fenced' funding from E.ON Energy Company Obligation for 2017-2019.

NON-DOMESTIC BUILDINGS

Headline aim: Through physical and cultural measures, and collaboration between building owners, occupants and energy services companies, to reduce emissions from commercial, public and community buildings by 5% per year, from 2012 levels.

INDUSTRIAL AND COMMERCIAL EMISSIONS

- In 2016, non-domestic buildings (industrial and commercial) were responsible for an estimated 864,000 tonnes CO₂ which is 39.3 % of Manchester’s carbon emissions.
- Between 2005 and 2016 carbon emissions from non-domestic buildings have reduced by an estimated 41% which is equivalent to 614,000 tonnes.
- The reduction between 2015 and 2016 is estimated at 70,000 tonnes or 7.5%.
- At present, this sector is projected to reduce its emissions by a further 7,000 tonnes by 2020, achieving a 42% reduction on 2005 levels.



2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016*
Indicator: Manchester CO ₂ emissions from non-domestic buildings (kilotonnes)											
1,478	1,580	1,457	1,508	1,273	1,383	1,220	1,379	1,328	1,018	934	864

*Source: 2005 – 15 figures available from BEIS. 2016 figures estimated based on national trend in CO₂ figures in BEIS data

HIGHLIGHTS FROM NON-DOMESTIC BUILDINGS INCLUDE:

- The Coop Group's NOMA, a 20-acre mixed-use development by Co-operative Group is BREEAM* outstanding and powered by a biodiesel cogeneration plant, using natural resources including passive solar gain for heat and natural ventilation, adiabatic cooling, rainwater harvesting and waste heat recycling.
- First Street's North Phase culture-led redevelopment opened in 2015, anchored by HOME, a new unique cultural facility including an independent cinema, theatre, performance spaces and visual art galleries has a BREEAM rating of Very Good. The site also contains BREEAM Excellent office space and contains 35 thermal boreholes that boost the sites energy efficiency by up to 10%.
- Manchester Metropolitan University's ten-year £350million investment in estates was completed in 2014 and includes the £140million Birley Campus cited as an exemplar by the Higher Education Funding Council for England (HEFCE) for community engagement and regeneration achieving BREEAM Excellent. The site has an independent district heating system, extensive solar PV arrays and LED lighting.
- The University of Manchester's Campus Masterplan includes a number of BREEAM Excellent ratings including the National Graphene Institute and the Manchester Cancer Research Centre.
- Parrs Wood High School solar roof completed, hosting 1,000 solar panels, generating more than 200,000 kWh of power per year. At the time of installation it was believed to be the largest school solar PV project in the UK.

* Building Research Establishment Environmental Assessment Methodology (BREEAM) is an environmental assessment method and rating system for buildings, and sets the standard for best practice in sustainable building design, construction and operation.

LOOKING TOWARDS 2020 AND BEYOND

Reducing the energy we use in our homes, our places of work and our public and community buildings remains a priority. To meet long term carbon targets there will have to be a significant reduction in the use of gas and it is expected that buildings will have to change almost entirely to different sources of energy for heat and hot water. This is likely to include use of electrically powered heat in individual buildings and heat provided from central locations via district heat networks.

The Greater Manchester Devolution deal; the *Greater Manchester Climate Change and Low Emission Strategies Joint Implementation Plan 2016-20* and Manchester's continued population growth provide long-term growth opportunities for the building sector. The Greater Manchester Combined Authority (GMCA) has new planning powers to encourage regeneration and development. The Greater Manchester Winter 2015/16 Consultation, a housing needs assessment of the region, estimates that an additional 220,000 homes will be needed to accommodate population growth across the region with Manchester committing to at least 2,500 new houses per year.

Manchester has a large and diverse public estate, with a wide variety of building types. The continued retrofitting of these buildings could stimulate the local market and skills base by encouraging the development of innovative solutions which could have wider community benefits, such as the Civic Quarter District Heating system.

The commercial building sector continues to thrive in Manchester – the city has a strong heritage in developing previously used and brownfield land and the city centre has experienced significant development and growth over the past ten years including a range of new commercial developments and new cultural facilities. The boundaries of the city centre have also expanded, incorporating adjacent new developments that contribute to the city's growth ambitions. This growth has included residential accommodation, commercial property and leisure destinations. Investing in reducing emissions in both new build and existing building refurbishment could stimulate the local market and skills base, encouraging the development of innovative solutions. The replacement of poorly performing domestic and commercial stock with low-carbon, energy and resource efficiency and smart housing could bring multiple benefits to both the economy and to society, boosting local employment and jobs. Where new buildings are developed and existing buildings retrofitted, consideration should be given to increasing their climate resilience, particularly concerning reducing flood risk.

Prof. Will Swan, Chair,
MACF Buildings Group

2

Energy

WHAT WE HAVE ACHIEVED 2010-17

Manchester, because of its position in the region as the centre for employment, has the highest energy consumption across Greater Manchester; using more than twice as much energy as Oldham, the district with the lowest energy consumption. Gas makes up the highest proportion of fuel and is used mainly for heating – a total of 40% of consumption. The electricity used for lighting, heating and powering our homes is around 30% and petroleum and other liquid fuel accounts for most of the remaining energy consumption. Overall energy consumption in Manchester reduced by 10% between 2009 and 2014 – the last year we have data for.

The MACF plan in 2010 predicted that by 2020 Manchester would source and use energy and heat in a very different way. Energy would be more valued and many more organisations would be generating power and heat, for example through local energy networks for sharing heat and power in parts of the city and the creation of a city-wide smart grid by 2020. It also envisaged a major increase in the amount of energy generated within the city; from large scale power plants using biomass, CHP or geothermal energy as well as thousands of small-scale or community-based generators sourcing some of their own energy needs from solar, some selling power back into the grid.

In 2009, there was a small number of renewable and low-carbon energy schemes in place, and the opportunity for increasing this was just being investigated. Since 2010 the number of renewable energy installations (mainly solar PV) that have registered for the Feed-in Tariff in Manchester is 6,365 installations offering 19.6MW of generation capacity indicating that, despite changes to Government incentives to generate electricity, this is still a viable option.

ENERGY HIGHLIGHTS INCLUDE:

- The Civic Quarter Heat Network due to start construction in 2017 will supply a cluster of city centre buildings including the Town Hall and Central Library with heat from a new Combined Heat and Power (CHP) central plant room at Manchester Central. The scheme will also include private wire electricity supply, and potential for significant expansion to other heat off-takers.
- Other heat network schemes secured funding from BEIS's Heat Network Delivery Unit in 2015 including Manchester Piccadilly, NOMA and Oxford Road Corridor, and a wider strategic study considering connection options for heat network proposals within the 'Regional Centre' across Manchester, Salford and Trafford.
- The third Greater Manchester Energy Auction energy switching campaign held in 2014 resulted in 10,000 Greater Manchester households registered. In 2013 there were two similar auctions – 40,960 Greater Manchester residents signed up, saving 4,577 households over £570,000.
- Manchester's £10 million CityVerve consortium is the UK Government's flagship Internet of Things (IoT) demonstrator started in 2015; the project aims to demonstrate Smart systems at scale.
- The three-year £20m NEDO (New Energy and Industrial Technology Development Organisation) completed in 2017 with over 550 ICT linked air source heat pumps, testing demand side response in 'smart communities' in Bury, Manchester and Wigan.
- Completion of European Commission funded research District Information Modelling and Management of Energy Reduction (DIMMER) programme across Greater Manchester.

Indicator	2009	2010	2011	2012	2013	2014	2015	2016
Energy consumption (GWh)	9,654	9,517	9,097	9,152	8,977	8,666	Available Autumn 2017	Available Autumn 2018
Cumulative number of renewable installations registered for the Feed-in Tariff*	n/a	42	685	2,326	2,707	3,077	5,878	6,365
Cumulative generation capacity registered for the Feed-in Tariff (KW)	n/a	245.4	2,160.0	7,031.1	8,639.4	10,179.1	18,159.6	19,637.4

* Source OFGEM www.ofgem.gov.uk/publications-and-updates/feed-tariff-installation-report-31-march-2017

LOOKING TOWARDS 2020 AND BEYOND

Energy provides a fundamental underpinning for our society and economy – the industrial revolution was powered by steam that ran the machinery that helped Manchester to prosper. Today nothing much has changed apart from the energy source. It stands to reason that if we want to transition to a zero carbon city in the next 20-30 years we will need to transform the way that energy is generated, distributed and used by the city's residents and business.

Achieving Manchester's decarbonisation vision will require significant changes to the types of energy used; as well as how, and when, they are used. A shift to low and eventually zero carbon energy and transportation systems will mean investing heavily in both energy efficiency and renewable energy generation, supported by the Greater Manchester Devolution agenda. For the city to continue to grow sustainably this change to future energy sources must be secure, affordable and sustainable.

A zero carbon energy network must include renewable energy generation from renewable technologies alongside a reduction in our energy use. The Spatial Energy Plan for Greater Manchester report commissioned in 2017 established that up to 9% of Greater Manchester's electricity could be generated locally using renewable sources. The dense urban nature of the city's infrastructure provides significant opportunities for heat networks. The establishment of decentralised energy generation and the creation of a Local Energy Company would help to deliver carbon reduction and other economic, social and environmental benefits through decentralised and decarbonised infrastructure.

3

Transport

WHAT WE HAVE ACHIEVED 2010-17

Emissions from transport account for 30.4% of Manchester's CO₂ emissions, or 667,000 tonnes CO₂, mainly from the combustion of petrol and diesel.

Since 2009, the city has made progress in planning for and implementing some actions to tackle climate change. The Greater Manchester-wide Local Transport Plan 3 (LTP3) has sustainability as a guiding principle and sets out how Greater Manchester will develop its transport infrastructure and behaviour change programmes over a 20+ year timescale, with three-year district implementation plans. The Plan has successfully secured over £1.5 billion investment across Greater Manchester that will help deliver sustainable development through transport.

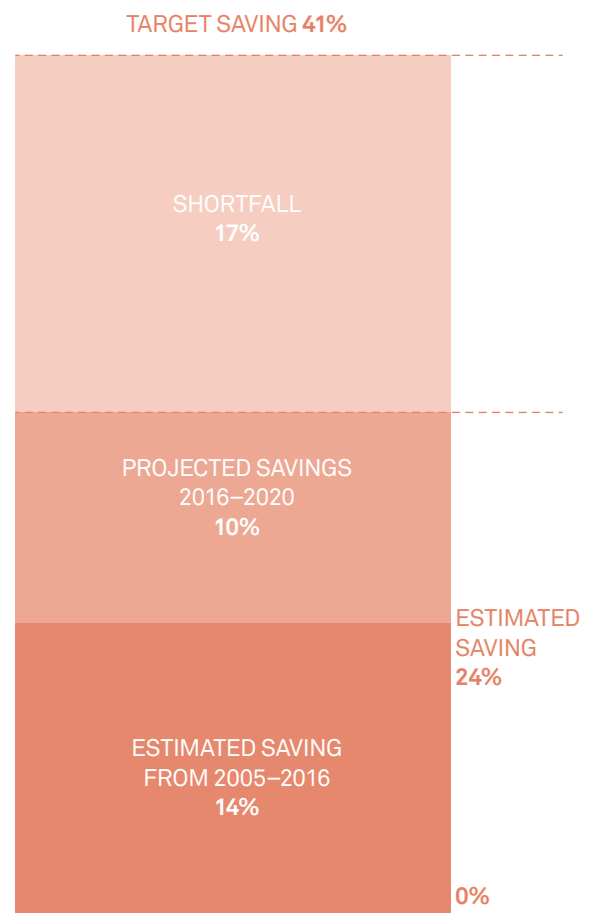
From 2005-2016 there have been ongoing investments aimed at increasing commuter cycling which has seen the number of cyclists coming into the city centre increased by 317% (morning peak) and 224% (off peak). This has been supported by cycle hubs, training programmes, employer user groups, new cycle lanes and signage, improved integration with Metrolink and a number of bike hire schemes. There has also been a significant increase in the numbers of pedestrians coming into the centre.

The transport sector is projected to reach a 24% reduction by 2020. Overall direct carbon emissions from transport have reduced by 108,000 tonnes CO₂ or 14% since 2005, the lowest decrease of all of Manchester's direct emissions, despite increases in public transport, cycling and walking.

Headline aim: To deliver modal shift (getting people out of cars and taking public transport, walking or cycling) to sustainable transport; continue the improvement of sustainable public transport services within and to and from the city, and create a platform for substantial increases in journeys on foot, by bike and by electric vehicle in the period 2016-2020.

TRANSPORT HIGHLIGHTS INCLUDE:

- Between 2015 and 2016 there has been an estimated reduction of 8,000 tonnes CO₂ or 1%.
- On the current CO₂ trajectory it is estimated that transport will achieve a 24% reduction by 2020, from 2005 levels.
- In 2016, 305 businesses were assisted with travel plans 2016/17.
- Across Greater Manchester there are around 324 electric vehicle charging points, with an estimated 159 within Manchester, and over 2,500 Greater Manchester registered e-vehicles.
- Greater Manchester was awarded £42 million to fund the development of the City Region’s cycling strategy called Velocity 2025.
- Ongoing expansion of the Metrolink and the development of Quality Bus Partnerships to increase the connectivity across the city.
- Through LSTF funding, four cycle hubs opened in Rochdale, Ashton-under-Lyne, Bury and the Regional Centre.
- Converting 41 yellow school buses out of a fleet of 93, to green, delivering significant environmental benefits and reducing children’s exposure to harmful air pollutants.
- Delivery of Metrolink line to Rochdale Town Centre two months ahead of schedule and to the Airport 12 months ahead of schedule.



IN 2016 INBOUND CITY TRANSPORT WAS

CAR 

24% **30%**
MORNING PEAK OFF-PEAK

NON-CAR 

76% **70%**
MORNING PEAK OFF-PEAK

FROM 2005 TO 2016
PEDESTRIANS COMING
INTO THE CENTRE
HAS INCREASED BY



192% **163%**
MORNING PEAK OFF-PEAK

FROM 2005-2016
CYCLISTS COMING
INTO THE CENTRE
HAS INCREASED BY



317% **224%**
MORNING PEAK OFF-PEAK

2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016*
Indicator: Transport CO ₂ emissions (Kilotonnes)											
775	755	760	728	711	694	686	675	660	667	675	667
Indicator: Cycling levels**											
n/a	n/a	n/a	n/a	13.4	15.6	16.9	16.3	23	19.2	18.2	Available July 2017
Indicator: Modal share of non-car trips into the key centre (Manchester)***											
n/a	n/a	n/a	n/a	69.7%	69.4%	70.2%	71.7%	72.7%	73.2%	74%	76%

*2005-2015 figures from BEIS. 2016 figures are estimated based on national trend in CO₂ figures in BEIS data.

**Refers to kilometres cycled on A and B roads in Manchester.

***Morning peak figures (07:30am – 09:30am) figures for Manchester regional centre

LOOKING TOWARDS 2020 AND BEYOND

The Greater Manchester Transport Strategy 2040 was published by Transport for Greater Manchester (TfGM) in February 2017 and sets out a new approach to planning our transport system in support of long-term needs and aspirations. The Strategy highlights priority interventions – from investing in HS2 to establishing a modern, pedestrian and cycle-friendly City Region – and is supported by a five-year plan, which identifies the first steps towards its delivery.

TfGM will be at the centre of the 2040 Vision and Strategy and the Greater Manchester Low Emission Strategy and Implementation Plan working with the City Council and other Greater Manchester District Councils, residents and businesses to drive and deliver the vision to have ‘world class connections that support long-term, sustainable economic growth and access to opportunity for all’.

Poor air quality is now widely accepted as a subject that needs to be addressed urgently. There are over 2,000 premature deaths from air pollution across the City Region every year and there are clear health benefits to reducing emissions particularly from freight and cars, as well as increasing cycling and walking. However there will always be the need to use road transport; so a move to increased electric vehicle use can reduce emissions particularly CO₂, NO₂, particulates and noise.

The evidence that has emerged over the last decade underlines the value of a strategic approach to transport planning, and the benefits to economic growth, social mobility and, to an extent, climate change. Given the importance of the transport system for the city’s day-to-day functioning and future prosperity, it is necessary to work towards increasing its resilience to extreme weather and climate change. However there remains much more work to establish walking and cycling as the modes of choice for local journeys and for journeys that need to be taken by vehicle to emit zero CO₂ emissions as a result.

Simon Warburton, Chair,
MACF Transport Group

4

Sustainable consumption and production

WHAT WE HAVE ACHIEVED 2010-17

The MACF Plan for 2013-15 sets out three separate but linked areas of activity with Sustainable Consumption and Production (SCP): Resources, Food and Sustainable Procurement.

In 2010, MACF identified a number of actions that fall into the broad theme of developing sustainable forms of consumption and production as a driver for low-carbon living in the future; there was an acknowledgement that some excellent progress was being made, especially in the food agenda.

When Manchester's Food Futures partnership launched in 2005 it was one of the UK's first sustainable food partnerships with third sector organisations, businesses, and health and academic partners. The programme saw a significant increase in activity from 2009 with programmes such as the Truly Good Food accreditation programme and Growing Manchester community growing programme launched in 2013. More recently the Manchester Food Board, convened in 2014, has led to Manchester achieving the Sustainable Food Cities 'Bronze award' for this scheme.

In commerce and business a resource efficiency programme initiated by the City Council's Environmental Business Pledge and now delivered by the Manchester Growth Hub has led to measurable cost, carbon savings and safeguarded jobs across Greater Manchester of a total of £128,651,434 and 485,465 carbon savings (tCO₂e). The programme now works with SMEs to improve their environmental performance and increase the low-carbon goods and services sector of the city economy.

Both Manchester Metropolitan University and The University of Manchester have plans in place to measure embedded carbon in their environmental management programmes.

The City Council has had a sustainable procurement policy and practices in place since 2009, which has led to an increased in locally procured and sourced goods and services, such as more local people employed as a result of contracts, and a reduction in carbon emissions from transportation.

The amount of waste we throw in our black bins has reduced and the city's recycling levels have increased over the life of the MACF plan. Since 2009 recycling rates have increased from 19% to 36% in 2016, and there are now recycling services, including food waste across many schools. The city's recycling rate is expected to reach 40% by 2018, however we are not on target to meet the 50% EU target by 2020.

RESOURCES

Headline aim: To develop a sustainable approach to waste management, ensure maximum use of waste as a resource, and move from waste management to resource recovery.

TOWARDS A ZERO-WASTE TARGET

- Manchester residents' behaviour on recycling and waste have improved over the life of MACF to date; in 2009/10 the city's recycling rate was 19%, in 2016/17 the rate was 36%.
- This improvement in Manchester's recycling rates between 2009 and 2011 mirrors the national trend when new recycling bins and services were introduced; however over the next few years the recycling rates plateaued as 'easier wins' were secured.
- A new service and communications campaign was put in place to address this in 2015/16 with the introduction of 140 litre refuse bins to 157,000 households across the city. Early indications are that refuse has reduced by approximately 30% from the households with their own bins, and the recycling rate is expected to reach 40% by 2017/18.
- In Greater Manchester the UK's largest PFI has delivered major new waste and energy infrastructure.
- Greater Manchester Waste Disposal Authority (GMWDA) aims to be zero-waste to landfill, with 43 facilities now in place to deliver zero waste for residents through reuse, recycling, and recovery of energy from waste technologies.
- Manchester Metropolitan University is working towards zero waste to landfill by 2021 through the delivery of a new waste contract and Manchester Airport has a target for zero waste to landfill by 2020.

Indicator	2009/10	2010/11	2011/12	2012/13	2013/14	2014/15	2015/16	2016/17*
Household residual waste per household (kg per year)	701	631	518	481	485	506	503	482
% of household waste recycled or composted	18.8	25.8	34.0	36.8	34.9	32.4	32.8	36
Food waste from New Smithfield Market diverted back into food chain (Tonnes)	n/a	n/a	n/a	n/a	n/a	135	>2,400	>6,400

*these are provisional figures for period April 2016-March 2017.

FOOD

Headline aim: To build a better understanding of the food systems that support Manchester, create strong links between healthy diets and sustainability and develop opportunities to build local supply chains that support local businesses and reduce risks to future food security.

In the 2009 MACF plan, the key aim for food was to understand Manchester's food system better and to create a baseline of sustainable food consumption and production. With this knowledge in place it was envisaged that Manchester would develop more of our green spaces, including land earmarked for development but not yet being developed – such as 'meanwhile' spaces, so that the city was able to grow more local food, both commercially and within the community.

To further this aim, two studies were commissioned:

- The Sustainable Food in Manchester report published in 2013 evaluated the benefits of different food systems available in Manchester. This evaluated whether Manchester and its hinterland has the available land and resources to enable the city to become self-sufficient.
- A later study on behalf of Greater Manchester published in 2014 sought to understand and reduce greenhouse gas emissions from food consumption and production.

The Sustainable Food in Manchester research on understanding the carbon foot-printing of Manchester's food chain and opportunities for developing Manchester as a Sustainable Food City, calculated that greenhouse gas footprint (GHG) of an average Mancunian diet is estimated at around 3.1 tonnes CO₂e per annum, which is slightly below the national average. Of this just less than half (46%) is from eating meat, and meat products.

Coupled with this is a limited amount of land capable for commercial agriculture. This means that if as a city we need to be seeking alternatives to meat consumption and promoting locally sourced, healthy, and sustainable and less carbon intensive diets.

The Greater Manchester report illustrated that when measured by 'direct' emissions, food plays only a very small part in the city's CO₂ emissions profile. However when the emissions include consumption-based (embodied) carbon the data shows that nearly 20% of the total carbon footprint of Greater Manchester resident results from the food they purchase and consume. This underlines a pressing need to consider the impacts of food across the city, particularly when linked to the challenges of promoting health and wellbeing in a growing population, and the need to work towards greater food security in future years.

As a direct result of the reports the Manchester Food Board was convened in 2014, and the partnership has led to a number of successful outcomes including:

- Manchester achieved the Sustainable Food Cities 'Bronze award' in 2017 and received its first Sustainable Fish Cities 'star' as part of the Sustainable Fish Cities award system.
- A new Hot Food Takeaway Supplementary Planning Document (SPD) was published in 2017 which provides powers to control the opening times of new takeaways in the vicinity of schools, and manage the overall number of takeaways in the city.

There are a number of excellent voluntary sector and community led programmes on food and growing projects across the city that have added social, health and environmental benefits. These include:

- Sow The City, an award winning social enterprise has developed a number of community food growing projects and educational projects with a focus on food poverty, including HOME (Helping Old Moat Eat) and Growing Communities projects with Southway Housing supporting 2,000 tenants to learn how to grow fruit and vegetables. They are currently running ‘Green Minds’; a therapeutic horticulture project providing activities to aid recovery from mental ill health at North Manchester General Hospital and with local community gardens.
- Hulme Community Garden Centre is a Not for profit, community led organisation and charity created by three residents in 1999. Many of the projects take place in the local community and address solutions to local issues – such as ‘The Men’s Room- #LostandFound’ in which young men with experience of homelessness designed a walking tour of the city.
- Growing Manchester Programme has been supporting 65 resident groups to grow food live and sustainably since 2013.
- Real Food Wythenshawe, which was created with £1million Big Lottery funds in 2012, continues to engage the people of Wythenshawe in growing and cooking fresh, sustainable food. It’s an ambitious project that aims to reach people across the whole community, supporting them all to lead healthier, lower carbon lifestyles through the food they grow, cook and eat.

Indicator	2010	2011	2012	2013	2014	2015	2016
Number of organisations supported through the Growing Manchester Programme	n/a	n/a	n/a	12	34	65	65

PROCUREMENT

In 2009, the Council introduced a Sustainable Procurement Policy, which set out to embed the principles of sustainability within its procurement activities, with specific environmental criteria introduced to tender evaluations.

In 2013, the Government introduced a Public Services (Social Value) Act, which requires local authorities to consider the social, environmental and economic value obtainable from public service contracts, before procurement begins. In response to this, the Council contributed to the development of a Greater Manchester wide Social Value Policy and Evaluation Framework, which was adopted by the Council in January 2015.

HIGHLIGHTS INCLUDE:

- The development of the Manchester City Council Sustainable Procurement Policy in 2008 and adoption of a Greater Manchester wide Social Value Procurement Policy in 2015 to improve the carbon footprint and utilisation of local businesses in the supply chain.
- Other large organisations across Manchester with sustainable procurement and/or ethical procurement policies include Manchester Metropolitan University, the University of Manchester, which is recognised for its Excellence in Procurement, Greater Manchester Fire and Rescue, Manchester Airport Group, Central Manchester University Hospitals, MCFC, Manchester College and Central Manchester Convention Centre.

LOOKING TOWARDS 2020 AND BEYOND

Our daily lives often revolve around resource use without much thought – the items we buy for lunch, the car we drive and the clothes we wear are often designed on a ‘linear’ model of make, use and dispose. The ethos behind consuming sustainably can seem paradoxical – consumption by its nature must have a negative effect on the environment. However we are as a society becoming more aware of the hidden ‘cost’ of what we buy .

In recent years ‘austerity’ has come to signify less money to spend, smart shopping and a burgeoning re-use and ‘make do and mend’ economy. Consumers are becoming aware of wasting money and resources and are starting to become savvier with a ‘live well for less’ approach, especially in relation to grocery shopping.

On a larger scale the shift in business is now towards a ‘circular economy’ where we keep resources in use for as long as possible, extract the maximum value from them whilst in use, then recover and regenerate products and materials at the end of their life cycle.

We have made significant progress on categorising waste as a resource over the past few years, but our sights should now be set on further reuse, reduction and recycling, and on a future target for the city of zero waste. Continuing to increase reduction and recycling of domestic waste needs to be paralleled in the commercial sector. There also needs to be more development and use of green technologies, including anaerobic digesters, combined heat and power, and in-vessel composting, all reducing the carbon footprint of waste management.

To reach our 2050 targets we need to be able to support behavioural change through a combination of providing the opportunity and motivation to prevent, reuse and recycle waste, and reduce waste to landfill. Priorities for the future include supporting businesses and residents to improve their resource efficiency and embed low-carbon practices within procurement, especially in the food industry where there are still tremendous challenges in food production, consumption and waste.

5

Green and Blue Infrastructure

WHAT WE HAVE ACHIEVED 2010-17

More than half of Manchester's 11,564 hectares is made up of green and blue spaces and 20% is covered by trees. 58% of the city is classified as green and blue incorporating five river valleys, three canals, over 160 parks, street trees, woodland, private gardens and other areas that intertwine with the built environment.

Manchester has an established track record of working in partnership to protect and enhance the city's green and blue infrastructure: in 2010 the city already had a well-established Biodiversity Strategy with an accompanying 'Wildabout Manchester' campaign. The city's Tree Strategy had been in place since 2005 and there were management plans for the river valleys such as the Irk Valley, Medlock Valley and others.

Since then the city has increased its number of formally designated Local Nature Reserves (LNRs) to eight, covering almost 400 hectares, and the Medlock Valley project has been awarded the national waterways renaissance award for urban regeneration.

More recently the Tree Strategy has been refreshed and a new Action Plan published. Feedback from public consultation on the draft *Our Manchester* provided a strong mandate for greening the city: a significant proportion of respondents called for more green spaces across the city. The Council's new ten year Park Strategy is based upon

the *Our Manchester* approach of active co-creation and consultation. During *The Parks Strategy* public consultation, 86% of respondents agreed 'together, we want our parks and green spaces to be the heart, lungs and soul of Manchester by providing the conditions for our city, environment and people to flourish'.

The Manchester's Great Outdoors; the Green and Blue Infrastructure Strategy for 2015-25 was published in June 2015 with a vision for green infrastructure in the city:

'By 2025, high-quality well-maintained green and blue spaces will be an integral part of all neighbourhoods. The city's communities will be living healthy, fulfilled lives, enjoying access to parks and green spaces, and safe green routes for walking, cycling and exercise throughout the city. Businesses will be investing in areas with a high environmental quality and attractive surroundings. New funding models will be in place, ensuring progress achieved by 2025 can be sustained, and these will provide the platform for ongoing investment in the years to follow.'

The independent Manchester Green Infrastructure Group retains a key role in supporting the strategy's delivery. It includes practitioners and stakeholders from across Manchester, Greater Manchester, the North West and national organisations.

Headline aim: To ensure the city's Green and Blue Infrastructure is providing the optimal benefits to the city in terms of quality of life, climate change adaptation, and wider social, economic and environmental benefits.

HIGHLIGHTS INCLUDE:

- Manchester Green and Blue Infrastructure Strategy for 2015-25 published in June 2015 which recognises the important role that green and blue infrastructure has to play in adapting the city to the changing climate. This was showcased at the National Valuing Nature Conference held in Manchester in October 2016,
- £20 million EU Life Integrated Programme 'Natural Course' project aimed at accelerating the delivery of the EU Water Framework Directive objectives across the North West, with an early focus on the heavily-urbanised River Irwell catchment, which includes the River Medlock and Irk in Manchester.
- Natural Environment Research Council (NERC) funded Green Infrastructure and the Health and Wellbeing Influences on an Ageing Population (GHIA) project aimed at determining Green Infrastructure and the health and wellbeing influences on an ageing population.
- £8.6 million EU Horizon 2020 GrowGreen project demonstrating the role of Green Infrastructure on climate resilience in cities.
- The Greater Manchester campaign 'City of Trees' continues to provide residents, businesses, school children and volunteers with opportunities to help green the city, outputs so far across the region include planting 227,276 trees, creating 53 orchards and connecting over 8,000 people to nature through the programme.
- Other greening projects include those funded by Manchester City Council's Clean City Fund including restoration of natural and heritage features at Brookdale Park Newton, Heath, creation of new access gateways and permeable pathways along the Moston Brook, citywide treatment of Japanese Knotweed, investment in key park infrastructure including paths, fencing and play areas across most parks including Wythenshawe Park, Heaton Park, Hollyhedge Park, and Marie Louise Gardens and restoration of selected neglected waterways as part of a 'Clean Streams' clean up and engagement programme.

Indicator	2009	2010	2011	2012	2013	2014	2015	2016
Monitor and maintain the % Sites of Biological Importance (SBI) in positive management*	43%	46%	48%	50%	51%	55%	58%	58%
Number of Local Nature Reserves (LNR) and size in hectares (ha)	n/a	7 (307ha)	8 (392ha)	8 (392ha)	8 (392ha)	8 (392ha)	8 (392ha)	8 (392ha)
Number of trees planted per annum **	n/a	8,120	10,515	9,400	10,106	12,967	4,767	2,961

*Target is minimum 1% annual increase of SBI in active conservation

** Combination of trees, hedge plants, and fruit trees planted as part of known schemes.

LOOKING TOWARDS 2020 AND BEYOND

High-quality green spaces and waterways are an important part of Manchester's zero carbon future; helping to create a liveable city that attracts residents, business and tourists. Well managed green and blue assets can benefit all who live in, work in and visit Manchester, through improvements in health and wellbeing, community engagement, and transport initiatives aimed at promoting walking and cycling.

The responsibility for achieving an improved green and blue offer lies not just with the local authority but with a full range of stakeholders, including those in local communities,

landowning bodies and the private sector. In this context and after extensive consultation, the Manchester Green and Blue Infrastructure Strategy was produced, in collaboration with more than 30 partner organisations.

Manchester's Local Plan (Core Strategy 2012-27) also includes green and blue spaces such as lakes, rivers and canals. The functions and benefits include helping us adapt to climate change, reducing flood risk, improving health and wellbeing, and providing ecological networks.

Steve Merridew, Chair,
MACF Green and Blue Infrastructure Group

PART 4

PRIORITIES FOR 2017/18

CITYWIDE PRIORITIES

Manchester's Climate Change Strategy for 2017-50 provides the long-term vision and framework for the city's collective action on climate change. In order to make measurable progress on this long-term journey, the strategy is accompanied by five-year implementation plans and carbon budgets, aligned with the timescales for UK Carbon Budgets. The first implementation plan covers the period 2017-22, and contains the key strategic actions that will be needed to put Manchester on track to meet our long-term ambitions.

The full Strategy and Implementation Plan 2017-2022 are available from www.manchesterclimate.com/plan

MACF STEERING GROUP/ MANCHESTER CLIMATE CHANGE BOARD

The priority for 2017/18 is to create the new Manchester Climate Change Board, begin to establish a group of Manchester Climate Change Ambassadors, and establish the wider governance structure for the successful implementation of Manchester's Climate Change Strategy for 2017-50. This work will be led by the MACF Steering Group, with support from Manchester Climate Change Agency.

Once in place, the Board's overarching aim will be to ensure the city successfully delivers

a climate change strategy that is consistent with the Paris Agreement and the latest climate science, and which is built on the views of the city's stakeholders. Further details on the Board's objectives, membership and other details are set out in their Terms of Reference, available from www.manchesterclimate.com

MANCHESTER CLIMATE CHANGE AGENCY

In headline terms, the Agency's priorities are to work with the new Manchester Climate Change Board to support and enable the successful delivery of Manchester's Climate Change Strategy for 2017-50. For 2017/18 the Agency will do this by delivering the following actions, in line with its objectives:

Establish Funding and Operational Arrangements for the Agency's Successful Long-term Operation:

- Secure funding from Manchester City Council, private sector sponsors and project-based grants.

Establish Strong Political Commitment and Policy to Drive and Enable Action:

- Work with the Manchester: A Certain Future Steering Group to establish the Manchester Climate Change Board and wider governance for the successful implementation of the Manchester Climate Change Strategy 2017-50.

Engage, Inspire and Enable Stakeholders to Take Action:

- Young people: support and enable the city's young people to act on climate change, including through participating in local policy and decision-making.
- Faith sector: support and enable the city's faith sector to improve the CO₂ performance and climate resilience of their estate and to engage their worshippers to take action.
- Arts and culture sector: support and enable the city's arts and culture sector to improve the CO₂ performance and climate resilience of their estate and to engage their audiences to take action.

Monitor and Communicate Progress:

- Annual progress report.
- News stories at www.manchesterclimate.com
- Social media: @McrClimate and www.facebook.com/mcrclimate
- Events including promotion of partners' events.

Initiate New Projects and Funding Bids:

- Work with Manchester City Council to manage delivery of the GrowGreen project.
- New funding bids focused on the engagement priorities set out above.

The *Implementation Plan 2017-22* also contains a specific set of actions for the Agency to deliver and support.

GET INVOLVED

There are many ways that residents, schools, businesses and other organisations can get involved in local action on climate change. From the Carbon Literacy programme to the Green Growth programme there are also several existing resources that can provide support and inspiration for those looking to start their climate journey. For further information visit www.manchesterclimate.com/involved



SUMMARY

Globally and locally the climate change agenda has moved on significantly in the last seven years. From the unsuccessful talks in Copenhagen in 2009, to the Paris Agreement in 2015, we have seen a fundamental step-change in the international policy framework for driving action on climate change. Manchester's response has seen similarly marked, moving from a ten-year plan of action, to the establishment of an ambitious strategy to become a zero carbon, zero waste, climate resilient city by 2050, or sooner if the climate science deems it necessary.

However, whilst the policies and narrative for action have moved forward, an honest assessment tells us that this is not yet translating into the level of action we need if Manchester is to make its full contribution to global efforts on climate change, or to secure the local economic and social benefits that can also come as a result.

Manchester's CO₂ emissions have reduced by 33% between 2005 and 2016. Our trajectory has improved year-on-year and we are currently on track for a 37% reduction by 2020. However, this is still short of

our 41% target. As we now move to adopt a carbon-budget based approach to CO₂ reduction under the 2017-50 strategy, we will have to compensate for this slow rate of progress to date, and cut emissions more quickly to stay within our Paris-aligned budget.

Our understanding of local climate risks has increased significantly since 2009, underpinned by excellent research by our local universities. At this stage there has been a limited translation of this research into policy and more importantly, action. Over the last 50-60 years Manchester has seen surface water flooding increase ten-fold, and incidences of heat stress double over the same period. A consequence of both a changing climate and ongoing growth and development of the city, we now need to find ways to address these issues at scale if we are to avoid them constraining Manchester's efforts for improved health and economic success.

We have made good progress to date in transitioning to a low-carbon economy. There has been a 48% reduction in the carbon intensity of our economic activities, and the city's Low-Carbon and

Environmental Goods and Services sector continues to grow. A key challenge will be continuing this trajectory, including supporting the city's carbon-intensive industries to transition to improved and in some cases altogether different practices that are consistent with a decarbonised global economy.

As set out at the start of Manchester's climate change journey in 2009, establishing the right culture is a fundamental prerequisite for the city, its residents and businesses to bring about the fundamental changes that are required to ensure Manchester fully responds to the challenges and opportunities of climate change. There is evidence that this shift in culture is underway, in communities and throughout different parts of the economy. To help underpin the level of action required over the coming years and decades, however, we will need to see an acceleration of this shift, to a point where all citizens and organisations, large and small, place action at climate change at the heart of their daily activities and long-term plans.

Drawing this seven-year strategic report to a close our conclusion is



broadly the same as in previous MACF Annual Reports; the city has made progress, but not enough to meet our original objectives and targets. This is a difficult conclusion to draw. Manchester is a city committed to and familiar with success. And a city that takes its role in the world seriously. However, to be able to start the next leg of our journey, we need to have an honest and clear understanding of our weaknesses and shortcomings to date, and know that we are moving forward with a clear view of the barriers we are likely to face. This is a discipline we will need to maintain over the coming years and decades; empty rhetoric and political spin will provide scant protection from the floods, storms and temperature rises that will affect people's lives unless we are honest about progress and take real action as a result.

The reader will see few references to UK Government in this report. At the time of writing it has been difficult to draw much of substance from recent policy announcements. Re-statements of commitment to the UK Climate Change Act and the Paris Agreement, at the same time as driving forward fracking say much about the disjointed national climate change policy framework at this current time. However, UK Government policy is of critical

importance to Manchester's efforts. Which is why we must continue to make the case for ambitious, Paris-aligned UK policy and action on climate change, including proper recognition and support to enable UK cities to realise their potential for action.

A significant proportion of this dialogue with Government will be via our Greater Manchester colleagues. As City Region mayors and structures take on increased importance in a decentralising UK, a significant proportion of Manchester's work will be delivered in collaboration with our Greater Manchester colleagues and communities. Manchester will be an active contributor to the work of the Greater Manchester Mayor and his commitment to work with local stakeholders to establish a long-term climate change strategy for the region.

Finally, looking beyond Greater Manchester and the UK, now is the time where it is of critical importance for Manchester to mark its place in the world as an ambitious leader for city-focused climate change action. Even since the UK referendum on EU membership in June 2016, Manchester has grown its global profile on this agenda. Presentations to the United Nations Climate Dialogue in May 2017, over £3m secured from the

EU to demonstrate how to take action on climate change in cities, and award-winning action by our arts and culture sector and the Carbon Literacy project are among the accolades that have begun to set out Manchester's place in the world. We must continue with this work, constantly sharing as well as challenging ourselves to be amongst the group of cities that are leading this agenda globally.

The period from 2017-50 – the duration of Manchester's next climate change strategy – will undoubtedly be an uncertain and challenging one. That one constant, however, must be met by another; that Manchester remains committed to become a zero carbon, zero waste, climate resilient city. In doing so we will contribute to global action to limit average temperature increases to well below 2°C, aiming for 1.5°C, at the same time as ensuring we secure long-term health, wellbeing and prosperity for our residents and businesses.

FEEDBACK ON THIS REPORT

We'd like to know what you think of this report. If you have any comments or thoughts on this report, please email MCCA info@manchesterclimate.com

Details of all of MACF's activities will
be published on the MACF website:
manchesterclimate.com

Email MACF: info@manchesterclimate.com

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MANCHESTER: A CERTAIN FUTURE

Strategic Report 2017
