

ZERO CARBON MANCHESTER ANNUAL REVIEW 19

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Introduction

Introduction from the Chair of the Manchester Climate Change Board

Last year I set out that cities around the world are shifting their focus from the age-old mission of 'jobs and growth' to 'good jobs and inclusive, sustainable growth' and I posed the question 'does Manchester want to be a leader or a follower'?

At a high-level, based on the last twelve months the answer is clear. At our annual conference in July 2018 the Manchester Climate Change Board and Agency proposed to the city that we should adopt science-based targets on climate change. With the support of key partners these targets were adopted, on behalf of the city, by Manchester City Council in November 2018. In February 2019 we published a draft 'Zero Carbon Framework' to begin to set out how these targets could be met, again underpinned by support and commitments from key partners, and which was endorsed by the City Council the following month.

And in June of this year we heard from the European Commission's 'URBACT' programme that they are strongly supportive of the city's approach and have agreed to fund a project to support us to act, at the same time as working with six other EU cities to support them to also adopt a science-based approach to climate action.

These are positive steps. But what comes next is the key part, the part that every climate strike and every Extinction Rebellion protest is calling for, translating our commitments into urgent action.

To have any chance of meeting our targets, climate change action now needs to reach every home in the city, every classroom, every board table, and every Town Hall committee room. These discussions need to lead to urgent and rapid action right now, at the same time as developing plans for ambitious and sustained action over the next 20 years, to ensure we stay within our 15 million tonne carbon budget and become a zero carbon city, by 2038, at the latest.

I believe we've come a long way in the last few years. Spurred on by scientists and the activist community the discourse around climate change has become mainstream. Indeed there can be few people who are still unaware of the need to take urgent and decisive action to reduce the City's carbon emissions. To this end the adoption by the city of science based carbon-budgets is a real step forward. However, I think we all know the real challenge lies ahead, and that ultimately, true success can only be measured by actions leading to demonstrable reductions - rather than well written reports, clever policies and well-crafted speeches.

With that in mind, I'm sure my successor will share my - and the Board's - views on the need for Manchester to urgently prioritise this issue and rapidly accelerate its rate of decarbonisation. Ensuring zero carbon actions are delivered in every community and organisation in the city, with all the support they need to make it happen.

Gavin Elliott

Chair, Manchester Climate Change Board



Part One

The Manchester Climate Change Board and Agency action in 2018-19

Part 1 of this review details the actions of the Manchester Climate Change Board and Agency over the last year. It includes progress against the priorities that we set in the 2018 Annual Report.

1. Policy and Political Decisions

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

Action from 2018 report:

Propose a science-based carbon budget and reduction pathway that would align Manchester with the Paris Agreement and work with Manchester City Council and partners to put in place the policies, plans and resources to adopt and stay within the budget.

Manchester is one of the first cities in the world to establish science-based carbon reduction targets based on independent analysis and recommendations. The Manchester Zero Carbon 2038 programme started in January 2016, when the City Council publicly committed Manchester to 'play its full part on climate change... and become a zero carbon city', as part of the 'Our Manchester Strategy'¹.

In November 2018 Manchester City Council adopted the four recommendations which were set out in the '**Playing Our Full Part**'² proposal' developed by Manchester Climate Change Board and Agency and submitted to the City Council in October 2018.

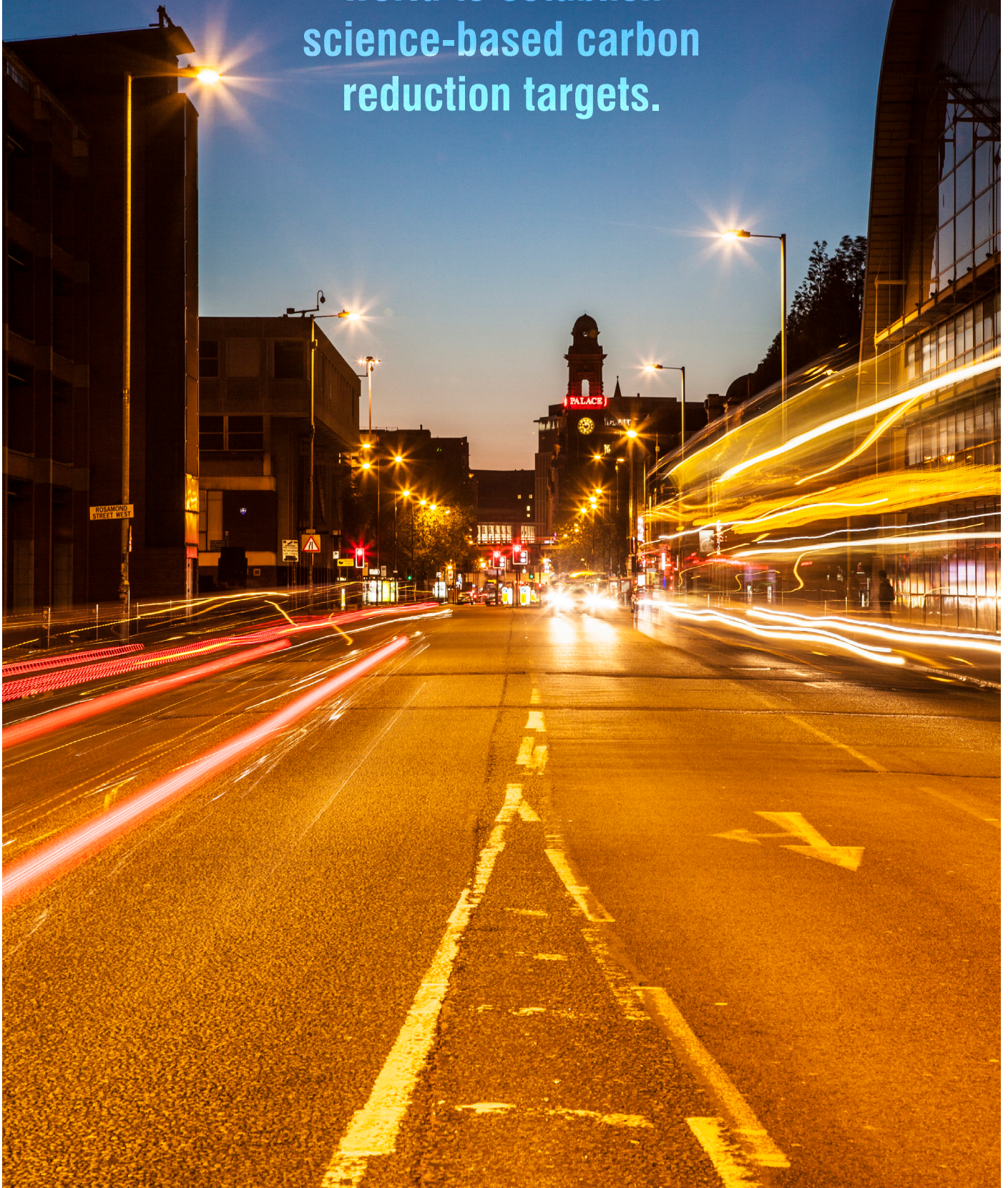
The four recommendations were:

1. Manchester adopts new science-based carbon reduction targets based upon independent analysis and recommendations by the Tyndall Centre at the University of Manchester,
2. Manchester commits to develop a Draft Action Plan by March 2019 and a final detailed Action Plan by March 2020, that sets out how the city will meet its targets,
3. Manchester recognises that by taking urgent action to become a zero carbon city, starting in 2018, the city will achieve more benefits for its residents and business than previously planned,
4. The city agrees to work with partners to ensure that Manchester accelerates its efforts to encourage all residents, businesses and other stakeholders to take action on climate change.

¹ www.manchester.gov.uk/MCRstrategy

² <http://www.manchesterclimate.com/content/science-based-targets>

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the first cities in the
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2. Engage, Influence and Support Manchester Citizens and Organisations

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

Work during 2018-19 has focused on ten 'Pioneer' organisations and sectors (<http://www.manchesterclimate.com/content/framework-2020-2038>), to support them to take urgent action now and to begin to develop plans for action over the medium and long-term. These organisations are responsible for over 20% of Manchester's total CO₂ emissions, and have influence over some of the remaining 80% through their supply chains, customers, partners, and other stakeholders.

The Agency has now reached £10m for the total amount of funding that it has helped secure for new climate change action in the city. This includes the GrowGreen project to use green infrastructure to adapt Manchester communities to climate change (www.growgreenproject.eu), the IGNITION project to help increase urban green infrastructure across Greater Manchester by 10% by 2038 (<https://www.uia-initiative.eu/en/uia-cities/greater-manchester>), C-Change to support Manchester's arts and culture sector to take action on climate change (<https://urbact.eu/c-change>), and Food Wave to help the city's young people to understand the climate change impact of food and empower them to take action at a personal and city level.

Action from 2018 report:

Work will be delivered with partners to engage residents in the city's zero carbon journey.

The four projects outlined above all include activities to engage Manchester's residents. There have also been activities, not captured here, by many other organisations, including, for example, the Carbon Literacy Project, Groundwork, City of Trees, Sow the City, Manchester Environmental Education Network, Carbon Co-op, Electricity Northwest, Manchester Friends of the Earth, and many others. However, much more work is urgently needed, and on an ongoing basis to build wider and sustained programmes to engage and support residents to act.

3. Honest Communication and Reporting

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

The Annual Report and Annual Conference have been our main activities since 2013 for reporting the city's progress on climate change. In addition, our communications this year have included:

- A total of over 11,000 visits to www.manchesterclimate.com
- Over 20 articles on our Facebook page
- Over 2,500 Twitter followers.

We also seek to promote the work of the city via a range of channels on an ongoing basis. For the '*Playing our full part*' proposal to the city in November 2018 we developed a targeted communication plan for the endorsement of the science based targets. This led to front page coverage from the Manchester Evening News and 3,000+ shares online, increased coverage from Manchester City Council, and a 10% increase in twitter following for MCCA. The total number of threads for the communications reached 19,000 people. Manchester's commitments were also endorsed by UK Government and the UK Committee on Climate Change.

4. Knowledge Sharing

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

Since 2015 the Agency has participated in nineteen European and international events and workshops to share knowledge and best practice with other cities, four of these over the last twelve months. This builds on the collaboration between Manchester and the partner cities in the projects outlined above: GrowGreen (with five other EU cities and Wuhan in China), C-Change (with five other EU cities) and Food Wave (with 19 other EU cities)

In July 2019 an application to the EU URBACT programme was successful. Led by Manchester City Council, with support from Manchester Climate Change Agency, the 'Zero Carbon Cities' project will enable the city to collaborate

with six others from across the EU during 2019-22 to support the development of zero carbon targets and action plans, and help to accelerate action on-the-ground. <https://urbact.eu/23-action-planning-networks-approved>.

5. Operations and Governance

a) Aim and Objectives:

Publish a finalised aim and objectives, setting out how the Board and Agency will help Manchester to develop and achieve its climate change commitments (Action from 2018 report).

Work is currently underway to finalise the details of the Board and Agency's aim and objectives. Once finalised they will be published at www.manchester.climate.com.

b) Governance Structure:

Continue to develop the governance structure for the Manchester Climate Change Strategy, including the appointment of the first set of 'Climate Change Ambassadors' to complement the Board's engagement work (Action from 2018 report).

The Board have agreed to evolve into a wider 'Manchester Climate Change Partnership', to enable new partners to be part of the city's collective efforts, and to implement the 'Manchester Climate Change Ambassadors' scheme, as previously committed. Work is currently underway to put these arrangements in place.

c) Diversity and Inclusion:

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

The Manchester Climate Change Board Diversity and Inclusion Sub-group was established in June 2018, made up of Dean Rogers Govender from Manchester Cathedral, Nidhi Minocha, Sukhbir Singh and with an open invite to the Manchester Climate Change Youth Board. Its objectives are to: 1) increase the diversity of the membership of the Board, to reflect the diverse make-up of the city's residents, and 2) to increase engagement with the city's diverse communities. The sub-group have reviewed the work of the Board during 2018-19 and agreed

two actions for 2019-20:

- 1) Nidhi Minocha and Sukhbir Singh to be formally invited to the Board, to provide key links into a wide range of the city's communities, including those engaged through the Our Faith Our Planet partnership, Sangha, and other community-focused initiatives that are working to build cohesion and strength within and across Manchester.
- 2) To establish terms of reference and a work plan for 2019-20

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

Research has been undertaken to begin to establish options for the development of the Agency. Work is needed during 2019-20 to finalise the necessary plan and move quickly to implementation.

Manchester Climate Change Youth Board

Manchester Climate Change Youth Board aim to engage on and contribute to climate change action in Manchester. To enable this to happen on a full-time basis, the Youth Board recently launched a Crowdfunder campaign in partnership with Manchester Climate Change Agency. The campaign, for the UK's first full-time Youth Climate Action Champion, ran for a month, surpassing the £5,000 target to raise over £6,000. The Youth Board are continuing their fundraising campaign to secure additional funds to ensure the Youth Climate Champion will be a reality. This is a priority for the Youth Board in 2019/20.

Further information on the Board and Agency is available from: <http://manchesterclimate.com/MCCB> and <http://manchesterclimate.com/involved/manchester-climate-change-agency>.

Formal accounts of the Manchester Climate Change Agency C.I.C. are available from Companies House at: <https://beta.companieshouse.gov.uk/company/09761661>.

Part Two

Meeting our commitments: a review of the city's progress.

Manchester's Draft Zero Carbon Framework 2020-38 was published in February 2019 and endorsed by the City Council in March 2019. It provides the outline approach for Manchester to meet the science-based carbon reduction targets that were adopted in November 2018. Part 2 of this review covers the progress Manchester has made against these targets, plus the other two headline objectives in the Draft Framework:

1. **Science-based carbon reduction,**
2. **Improving residents' health, well-being and quality of life, and**
3. **Creating good jobs, supporting successful business and attracting investment.**

In practical terms this means that Manchester should deliver actions that simultaneously improve the health, wellbeing and quality of life of our residents, urgently reduce carbon emissions, and rapidly transition to a clean and zero carbon economy. This integrated approach will enable us to seize opportunities to create meaningful jobs and sustainable economic activities, over the short, medium and long term, leading to benefits for residents of all ages.

1. Science-based carbon reduction

This section on carbon emissions has been written by the Manchester CO₂ Monitoring Group³, an independent group made up of local experts in carbon accounting. Particular thanks are due this year for the generous contributions and analysis of Dr Joe Blakey at the University of Manchester and Dr Jaise Kuriakose from the Tyndall Centre.

The Tyndall Centre for Climate Change Research calculated Manchester's Paris aligned carbon budget as 15 million tonnes (MtCO₂) for the period 2018 to 2100. This means the city must emit no more than this amount of CO₂ between 2018 and the end of

the century if we are to make our fair contribution to global efforts to prevent climate breakdown. To stay within the budget the city must reduce its carbon emissions by at least 13% every year which means roughly halving emissions every 5 years, and become zero carbon no later than 2038.

The carbon budget and associated targets are based upon work by the Tyndall Centre and sustainability consultant Anthesis using their SCATTER⁴ tool. They were formally adopted on behalf on the city by Manchester City Council in November 2018.

³ MCCB CO₂ Monitoring Group is made up of Dr Joe Blakey, Dr Jaise Kuriakose, Dr Ali Abbas, Seb Carney, Rachel Dunk, James Harries and Caroline Dolan.

⁴ <https://www.anthesisgroup.com/scatter-carbon-footprint-reduction-tool>

**Reducing Manchester's
carbon emissions to
play our full part in the
Paris Agreement.**



Manchester’s Carbon Budget 2005-2020

The zero carbon budget was launched in 2018 and this marks the first year of a 5-year reporting period, however we will also continue monitoring progress towards our existing carbon budget which expires in 2020. Manchester’s scope 1 and 2 budget 2005 – 2020 was 41.7 MtCO₂. Since 2005 we have emitted 37.6 MtCO₂ - this is 0.8 million tonnes more than budgeted. We now have 3.1 MtCO₂ left in the budget up to 2020.

Percentage reduction in total CO₂ emissions from 2005 levels.

Our analysis of the latest UK Government figures (BEIS 2018)⁵ indicates that over the last year the city’s carbon emissions fell from 2.07 MtCO₂ in 2017 to 1.97 MtCO₂ in 2018 – a 5% reduction. This means that the city’s emissions are now 40% lower than the 2005 baseline and the city is expected to achieve its original 41% target by 2020. However, as the city often exceeded its yearly budget between 2005 and 2014 we now need to be aiming for a 57% reduction by 2020 to stay within the cumulative emissions budget. This would require emission reductions of approximately 15% per annum in 2019 and 2020.

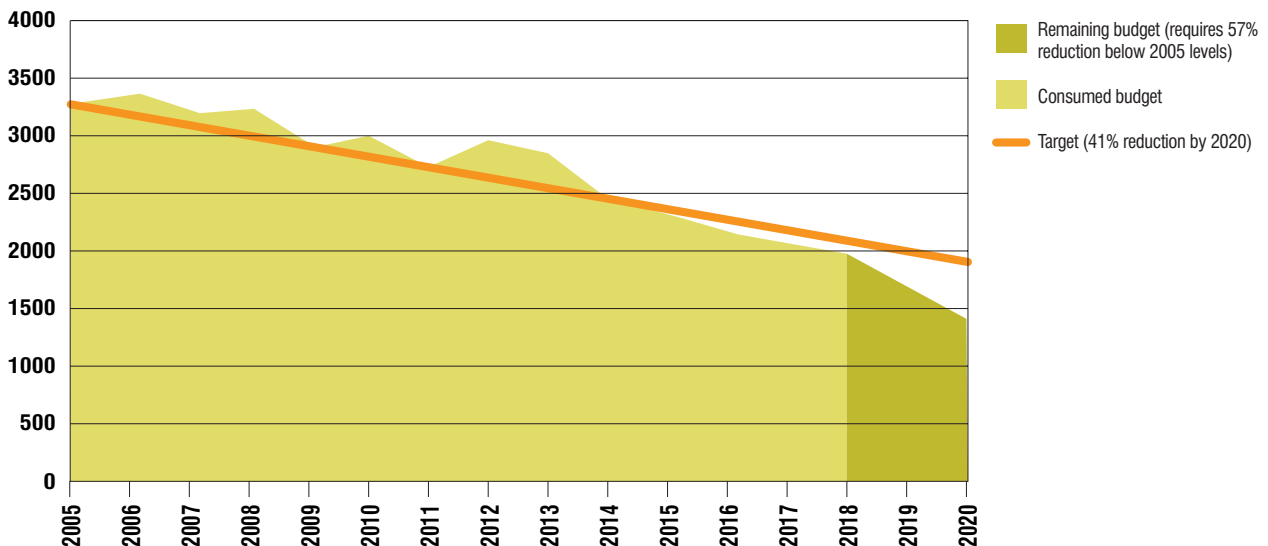


Figure 1: Percentage reduction in total CO₂ emissions from 2005 levels

Manchester’s Scope 1 & 2 emissions 2018

Manchester’s scope 1 and 2 carbon emissions are made up of 40% from the business sector (industrial and commercial), with 31% from transportation and 29% from domestic energy use. Between 2017 and 2018, domestic emissions are projected to have fallen by 8%, transport emissions by 5% and business emissions by 3%.

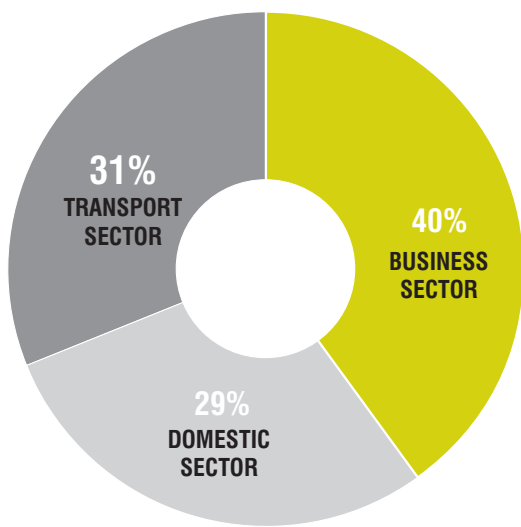


Figure 2: Manchester’s direct emissions by sector in 2018 (estimated)

Manchester’s Zero Carbon 2038 target

As stated above, the recommended CO₂ emissions pathway to meet the carbon budget of 15 MtCO₂ requires an annual reduction of at least 13% per annum from 2018 onwards. This year’s inventory, which uses a slightly different methodology also based on UK Government figures (BEIS 2019)⁶, suggests energy-only CO₂ emissions have reduced by 3.4% and 2.5% in 2017 and 2018. The lower reduction rates means that we need to compensate with larger reduction in annual emissions of 13.5% per annum from 2019 onwards. The projected emissions for Manchester based on the BEIS 2019 national statistics along with five yearly carbon budgets and Tyndall recommended pathway is illustrated in Figure 3.

The move away from burning coal to generate electricity accounts for almost all of the UK’s CO₂ emissions reduction between 2013 and 2018 (emissions from gas and oil were broadly steady). However, in 2018 only 5% of the UK electricity generation was from coal which suggests that there is limited scope to reduce emissions further if coal is the only contributor. This means that ambitious local actions are needed on the use of fossil fuels for transport and heating within Manchester alongside continued grid decarbonisation if we are to stay within our carbon budgets.

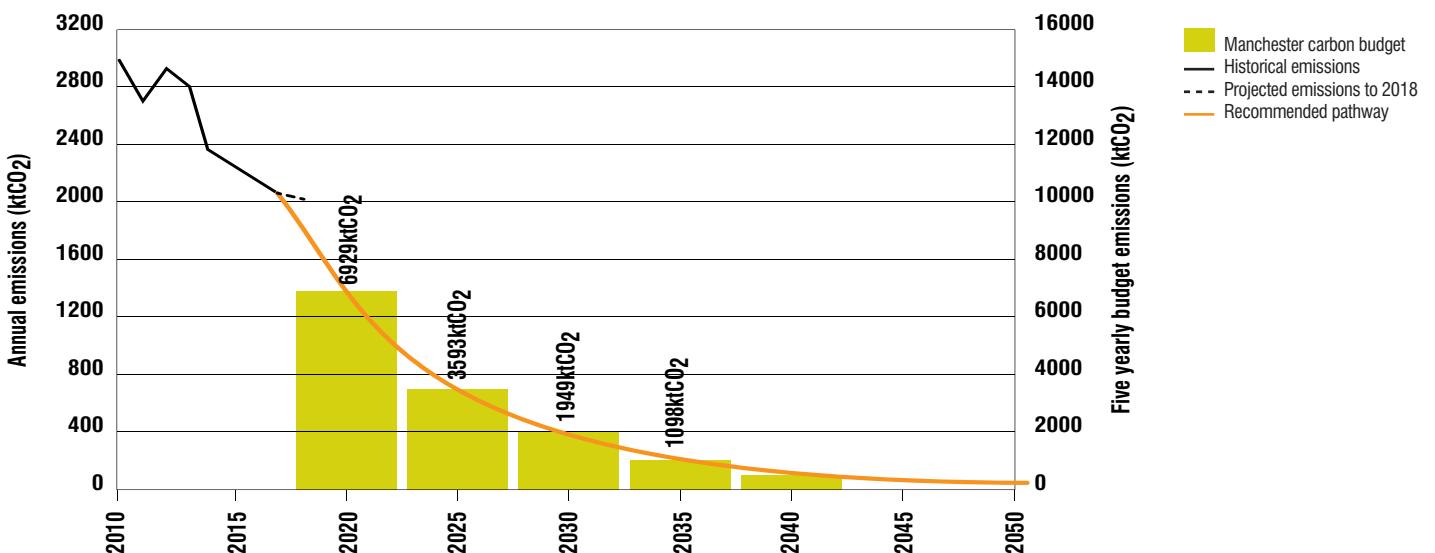


Figure 3: The recommended pathway for Manchester’s energy-only CO₂ emissions (2010-2050) and five yearly carbon budgets.

Comparison with other cities

Further analysis of Manchester's CO₂ emissions against other cities and the Greater Manchester (GM) region shows that between 2015 and 2016 (the latest year for which comparative data is available) Manchester's emissions fell by 7.8%, compared to the average across GM of 4.2%, a Core Cities' average of 3.5% and a UK average

of 6.3%. Moreover, the data shows that whilst previously lagging behind GM, Core Cities and national trends, Manchester has now taken the lead because of comparatively greater emission reduction in the business sector between 2015 and 2016.

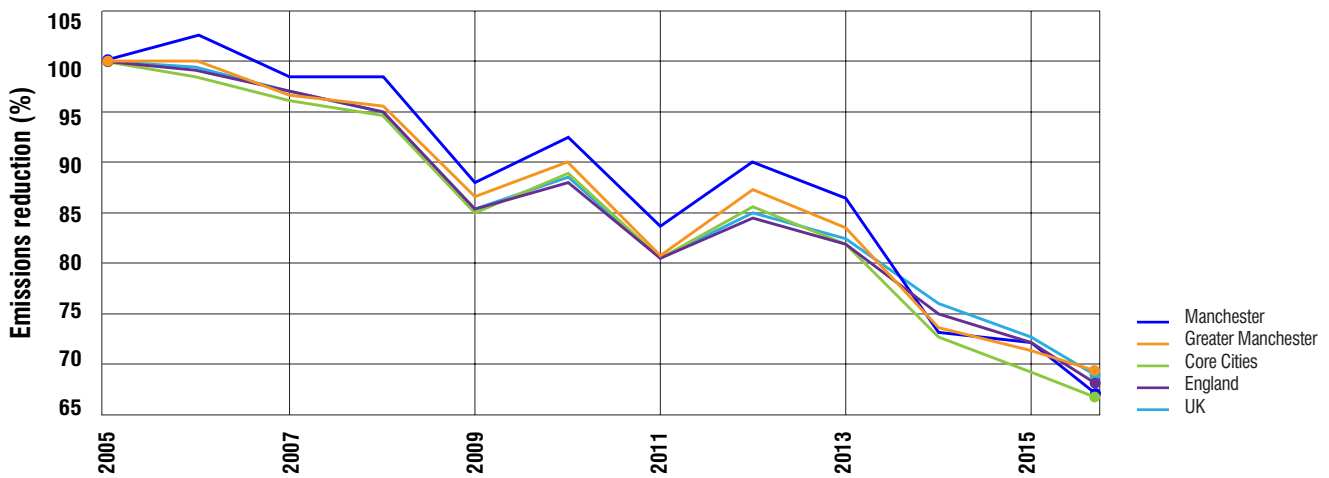
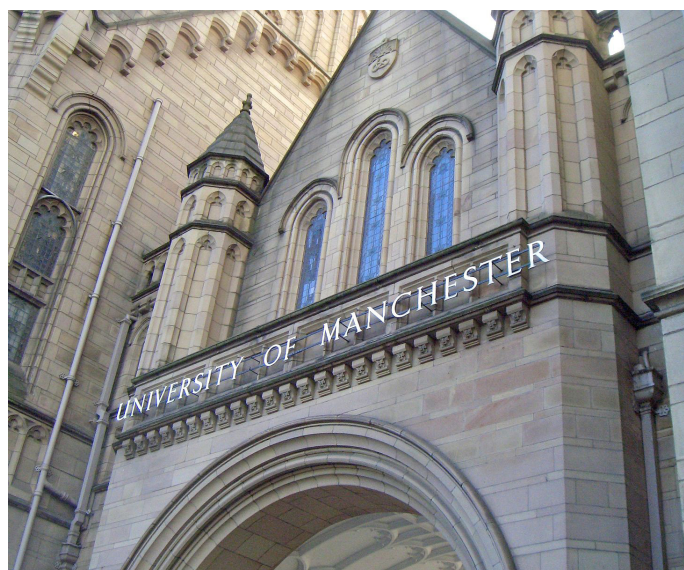


Figure 4: Comparative CO₂ emission reductions since 2005

www.corecities.com: Belfast, Birmingham, Cardiff, Glasgow, Leeds, Liverpool, Manchester, Newcastle, Nottingham and Sheffield



Manchester's carbon emission from our homes.

The emissions from heating, cooling, lighting and cooking in our homes accounts for 29% of Manchester's carbon emissions. The domestic sector has seen a continuing reduction in carbon emissions year on year. Our analysis of the BEIS data shows there has been an estimated 8% reduction in CO₂ emissions from our homes over the past year (2017-18). Our projections estimate that there will be a 64% reduction from 2005-2020.

Table 1: CO₂ emissions from domestic buildings (ktonnes)

2005	2015	2016	2017	2018
1015	689	645	*605	*558

* Data estimated based on year on year correlation reduction of the latest BEIS data.

As the majority of Manchester's housing stock is already lived in, retrofitting current stock is vital. Residents of Registered Social Landlords across Manchester are in a better position at the moment than Private Rented or some Owner Occupiers as all 18 members of the Manchester Housing Provides Partnership (MHPP) have committed to become zero carbon by 2038, and MHPP is one of the 10 Pioneer organisations that sit on the Manchester Climate Change Board.

The Greater Manchester 5 year Environment Plan⁷ has committed to all new homes built across Greater Manchester to be net-zero carbon by 2028, and the UK Green Building Council (UKGBC), a national charity that works with the UK building industry released its Advancing Net Zero Carbon Campaign in 2019 which has set targets for all buildings to be net zero carbon in operation by 2050 and all new buildings to meet this standard by 2030.

Manchester's carbon emission from commercial buildings

The business sector (industrial and commercial) is the greatest source of carbon emissions in Manchester; we have estimated that the business sector in Manchester emitted 793 Kilotonnes in 2018 equating to 40% of total emissions. The business sector has seen a reduction of around 3% over the last year (2017-18) and is projected to achieve a 65% reduction from 2005-2020.

Table 2: CO₂ emissions from business (industrial and commercial) (ktonnes)

2005	2015	2016	2017	2018
1483	1005	857	*818	*793

* Data estimated based on year on year correlation reduction of the latest BEIS data.

Manchester is now starting to see work spaces with net zero carbon emissions become closer to reality. This is primarily being driven by the commercial property sector with organisations such as Bruntwood, who have committed to the UKGBC's Advancing Net Zero Carbon Campaign this year, as well as committing to be zero carbon by 2038 as part of one of the 10 Pioneer organisations on the Manchester Climate Change Board.

Manchester's carbon emissions from transport

Transport accounts for 31% of the city's carbon emissions, primarily from road transportation. The data shows that there has been an estimated 5% decrease over the last year in CO₂ emissions from transportation and the sector is projected to achieve a 31% reduction from 2005-2020.

Table 3: CO₂ emissions from transport (ktonnes)

2005	2015	2016	2017	2018
771	669	676	*649	*618

* Data estimated based on year on year correlation reduction of the latest BEIS data.

⁷<https://www.greatermanchester-ca.gov.uk/what-we-do/environment/>

Aviation business and Manchester Airport

On a global scale, emissions from flights are the second most-polluting form of transport after the diesel car. However, the projected growth of aviation makes it a major concern for climate change. Operating within the context of a total global carbon budget, if aviation takes a greater share of emissions, this will leave less for other carbon-emitting activities, including from cities.

Manchester Airports Group (MAG) plans to grow its passenger market at Manchester Airport from 24 million trips per annum in 2016 to 45 million⁸. We recognise the responsibility for the Airport and associated aviation emissions is not Manchester's alone - people travel from Greater Manchester and beyond to use the Airport and it supports global tourism and the region more broadly. There is not one 'correct' way of allocating responsibility for these emissions and this is the reason that aviation emissions have been deducted from the UK's carbon budget instead of a share of it being included in Manchester's budget. However, Manchester City Council owns a 35.5% share in the Airport, it is located within the city bounds and it drives a significant part of the local economy.

As part of last year's Annual Review, the Manchester CO₂ Monitoring Group began accounting for aviation emissions separately.

Importantly this footprint cannot be used to compare Manchester Airport to other airports as reporting methodologies are often inconsistent. Drawing on passenger data from the Civil Aviation Authority⁹, we have modelled the emissions from all departing passenger flights from Manchester Airport, taking into account the whole duration of the flight. At present, we have accounted for emissions between 2014 and 2018 and will continue updating this alongside our new science-based carbon budget.

Between 2014 and 2017, the annual emissions from Manchester Airport flights rose 20% from 2.97 MtCO₂ to around 3.56 MtCO₂ – shown in Figure 5. However, emissions from departing flights in 2018 were 3.57 MtCO₂ which is only marginally more than the previous year. This reflects a slowing in growth of passenger numbers and a small reduction in the emissions per passenger.

Flights destined for Europe (including domestic emissions) comprised 64% of the emissions in 2018. These are the journeys that are most easily replaceable by other modes of transport and are a key area of intervention now and in the future. The greatest emissions per passenger are from those flying to Asia. Whilst emissions from flights departing for European destinations fell between 2017 and 2018, this drop was offset by growth in emissions from flights to other destinations.

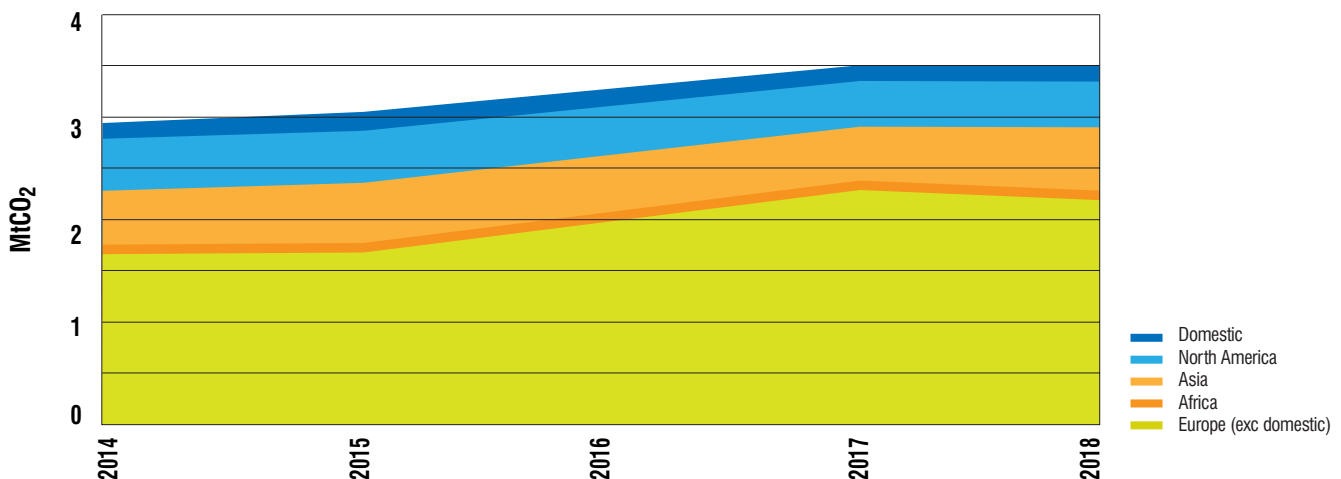


Figure 5: Total emissions from departing flights from Manchester Airport 2014-18 (MtCO₂)

Managing aviation emissions in the context of the Paris Agreement

Manchester's Paris aligned carbon budget is based on the provision that aviation and shipping emissions are also reduced. Tyndall Centre advice states that the UK's emissions from flights must remain at 2018 levels until 2030, and then reduce to zero by 2075¹⁰. This corresponds to a budget of 1,262 MtCO₂ for UK aviation 2018-2100.

It is vital that Manchester and the city-region play their part in monitoring and managing aviation emissions. As such we have transposed this pathway on to our inventory of emissions from departing flights from Manchester Airport, as shown in Figure 6. Given that there was only a marginal rise in emissions 2017-2018 we believe it is achievable for emissions to remain stable until 2030.

If we assume the same decarbonisation pathway for these flights as the Tyndall Centre advises for the whole of the UK, Manchester Airport would have a carbon budget of 125 MtCO₂ (2018-2100).

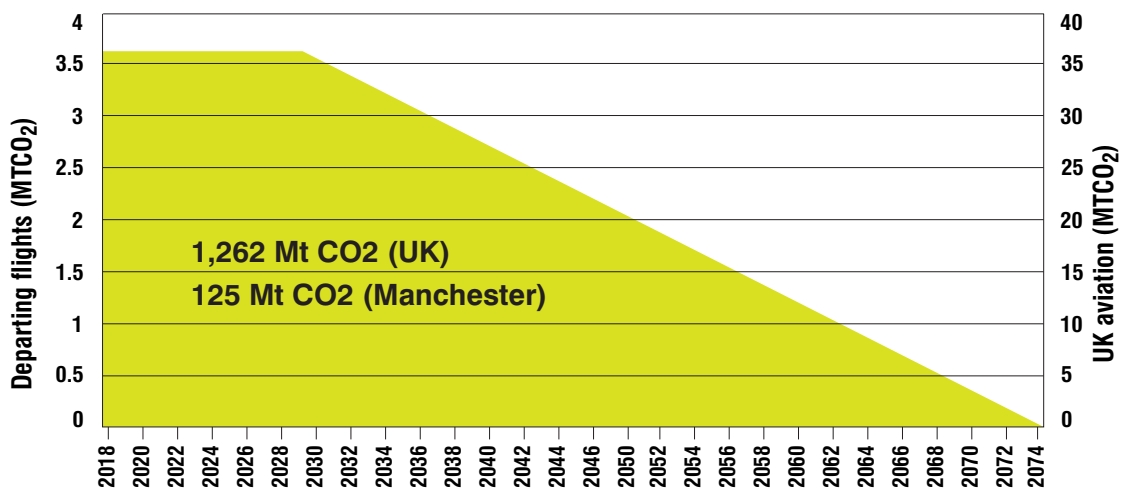


Figure 6: Aviation emission reduction pathway 2018-2075, adapted from Tyndall Centre guidance on UK aviation and applied to departing flights from Manchester Airport (MA).

¹⁰ <http://www.manchesterclimate.com/sites/default/files/Greater%20Manchester%20Carbon%20Budget.pdf>

Staying with a 125 MtCO₂ for flights originating from Manchester Airport is not Manchester's responsibility alone, the Airport is also used by residents and organisations from outside the city's boundaries. Figure 7 shows some of the different ways that responsibility can be allocated for the flights departing from the Airport.

Given this range of different methodologies, Manchester residents, organisations, politicians and Manchester Airport need to discuss and agree how the city can intervene on these emissions. This needs to form part of a clear and transparent national and international strategy for managing aviation emissions that all UK and international airports sign up to, set within the context of the Paris Agreement and the UK's zero carbon commitments. It will also need to take account of the fact that Manchester residents use other airports too.

Manchester is not the only city facing this challenge. However, as with the decision to be one of the first cities in the world to adopt science-based carbon reduction targets, we now have the opportunity to work with other cities, UK government and the international community to establish a fair, transparent and science-based way to deal with UK and global aviation emissions.

We will continue to monitor and report on Manchester Airport and UK aviation emissions and should emissions rise, we will propose the necessary reductions in the city's future five-year carbon budgets accordingly to compensate for this.

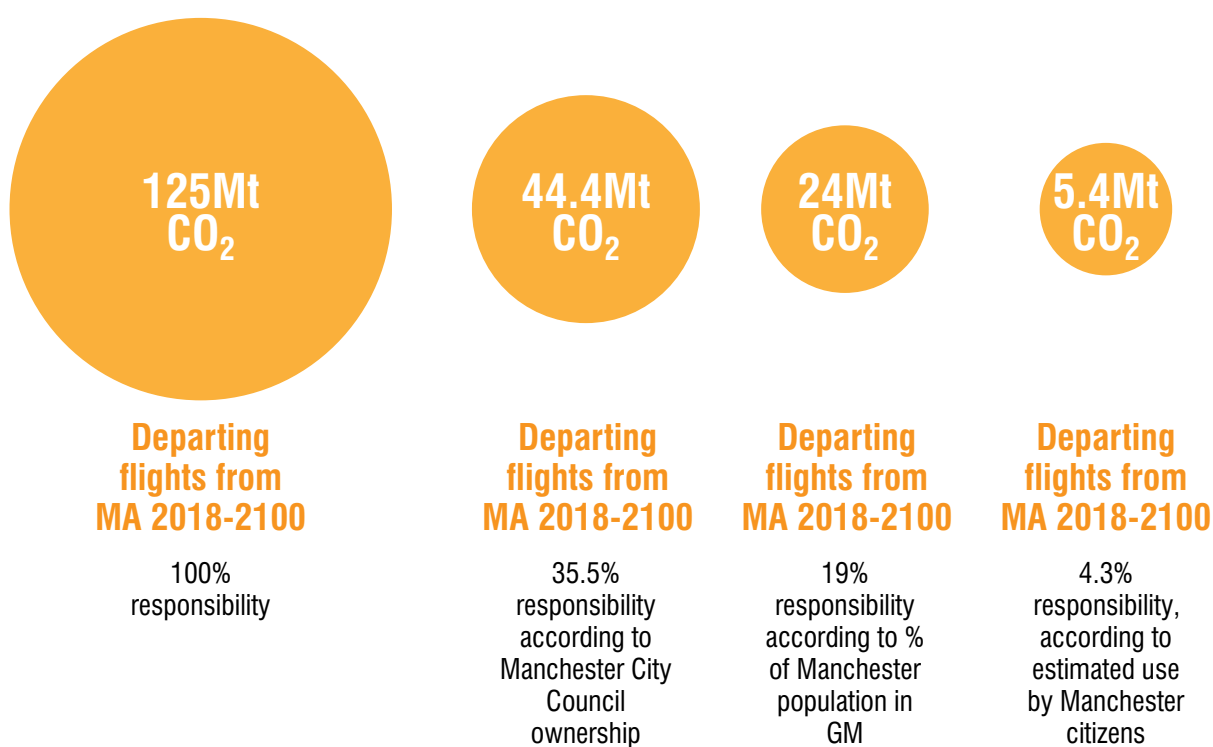


Figure 7: Different methodologies for allocating responsibility for emissions for flights departing from the airport.

2. Improving residents health, well-being and quality of life

Healthy communities

Good health and well-being is a vital part of all successful societies; enabling us to reach our full potential, contribute to and benefit from the city's success.

There are many negative health impacts from climate change – such as heat exhaustion caused by a warmer climate, the physical and emotional impacts of flood damage on people's homes and health, as well as poorly insulated homes causing damp and unsuitable housing conditions and the health impacts of pollution caused by transport, in particular from diesel vehicles.

Percentage of households in fuel poverty

17.9% of Manchester households were in fuel poverty in 2017, the last year we have data for. This equates to a total of 38,307 households who can't afford to heat their homes adequately. This is an increase of 3,971 households in fuel poverty indicating that heating their homes is increasingly an issue for Manchester residents. There are now a number of initiatives across Manchester and Greater Manchester that aim to signpost residents to better energy deals such as the GM Green Switch which sources renewable energy suppliers. <https://bigcleanswitch.org/gm/>

Table 4: Percentage of Manchester households in fuel poverty*

Indicator	2010	2011	2012	2013	2014	2015	2016	2017
% of Manchester households in fuel poverty*	22.4	13.3	15.9	14.9	14.5	15.3	16.2	17.9

* <https://www.gov.uk/government/statistics/sub-regional-fuel-poverty-data-2019>

Walking, cycling and public transport

Data for 2018 has not yet been published. Data for previous years is provided here for information. Once published this data will be available from: www.tfgm.com

Table 5: Percentage of journeys by walking, cycling and public transport*

Mode	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
Walking	10.0%	10.7%	10.3%	12.1%	10.7%	10.7%	10.9%	11.4%	11.6%	tbc
Cycling	1.2%	1.3%	1.3%	1.6%	1.6%	1.7%	1.7%	1.7%	1.8%	tbc
Public transport	58.3%	57.3%	58.4%	57.9%	60.1%	60.9%	61.6%	62.5%	63.4%	tbc
Total non-car share**	69.5%	69.3%	70.0%	71.6%	72.4%	73.3%	74.2%	75.6%	76.8%	tbc

* Morning peak figures (07:30am – 09:30am) for Manchester Regional Centre

** Totals may not be normalised due to rounding



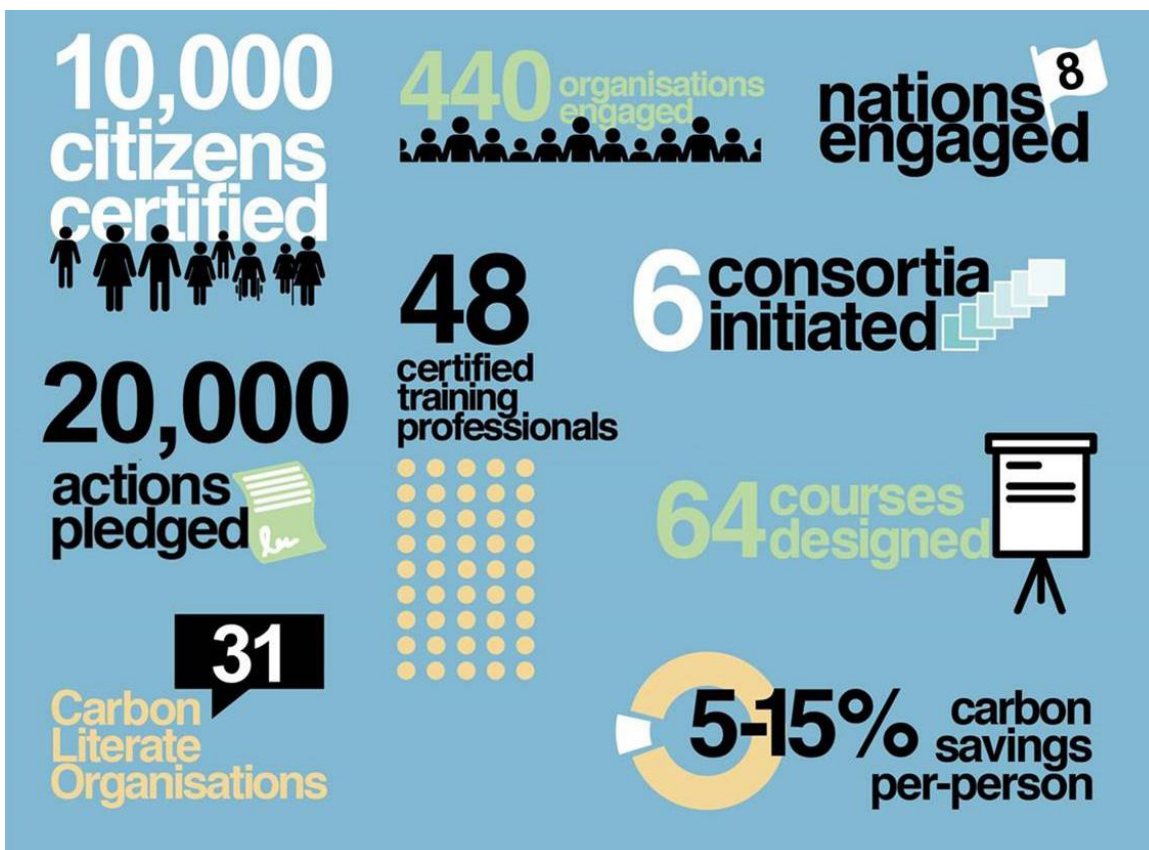
Culture change

For Manchester to achieve its zero carbon by 2038 target and stay within the 15 MtCO₂ carbon budget we need to embrace a new zero carbon culture. From everyday behaviours and lifestyle choices such as the clothes we buy and the food we eat, to longer term investments in new buildings and infrastructure, all of our decisions need to fully take into account the carbon cost. Just as we need to be able to afford the financial cost of our decisions, we also need to be able to afford the carbon cost – especially with only 15 million tonnes in our ‘carbon wallet’.

The on-going success of Carbon Literacy, the continued demand for FareShare and Open Kitchen, the expanding Greater Manchester Community Renewables solar projects for schools, the growing City of Trees, and continued success of MEEN and Eco Schools, Carbon Co-op and many more, are all expressions of our growing zero carbon culture. In the arts, cultural and creative industries Manchester has been recognised as being a leader in this field having been awarded URBACT Good Practice City status in 2017 and is now leading an URBACT Transfer Network, working with five other European cities to share and showcase best practice linking arts, culture and climate change. <https://urbact.eu/files/c-change-network>

The Carbon Literacy Project

The Carbon Literacy Project was developed in 2012 as a direct response to the city’s very first climate change action plan and is now an established independent registered charity. The Project is a mass low-carbon-culture-change project, and founded in Manchester, its scale and approach remains unique worldwide. www.carbonliteracy.com



Eco Schools Programme in Manchester

This year has seen a record number of schools registering to be Eco Schools with 19 new registrations in 2018/19. The number of schools moving up the programme and progressing actions across the school and curriculum area has also increased. There are now an additional 2 top level Green Flag schools and the number of Silver Flag schools has increased from 48 to 62 showing a marked increase in the number of schools wanting to act in a positive way on the environment. This is perhaps prompted by increased awareness from parents, teachers and pupils from television programmes such as The Blue Planet and recent Youth Climate Strikes.

Table 6: Number of Registered Eco Schools and Green Flag schools in Manchester.

	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
No. of Eco Schools*	136	137	142	137	147	153	161	187	191	201
Green Flag schools*	5	9	14	15	15	13	13	10	8	10

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



Resources and waste

While it is up to councils how they collect and manage waste, they are heavily influenced by both domestic and European legislation and government policy which has helped to drive recycling rates upwards. Manchester City Council has a statutory obligation to deliver on the Waste Framework Directive target of 50% recycling by 2020. Other key drivers include the Landfill Allowance Trading Scheme, a mechanism designed to help meet landfill diversion targets under the EU Landfill Directive and Landfill Tax.

There have been a number of new initiatives for Manchester kerbside waste and recycling collection service including new, smaller black bins, which have been successful in driving the recycling rate up to 39%. Refuse from households that received the new grey bins has decreased 25%. This is expected to lead to savings of over £8m per year on our waste disposal bill.

During the last year (2017-18) waste collection rounds were adjusted to increase efficiency following the reduction in refuse collected and increase in recycling - as rates have previously not been even across the city. The amount of residual waste collected from all households has decreased from 519kg per household per year in 2015/16 to 436kg per household per year in 2017/18. This is positive news, indicating that residents are creating less waste in the first place and recycling more of what they do generate.

Packaging recycling obligations for packaging producers are determined by national business targets set by the government. The targets to 2020 for packaging waste for a variety of materials set out by UK Government in the 2017 Spring budget¹¹.

Table 7: Percentage of household waste recycled – refuse produced per household in Manchester* * Waste Data Flow

	Recycling Rate (%)	Refuse kg per household per year*
2016	32	519
2017	36	471
2018	39	436

Waste 2 Resources Innovation Network (W2RIN) and Manchester Circular Economy Club

Based at Manchester Metropolitan University the Waste 2 Resources Innovation Network (W2RIN) aims to bring together academic research and expertise together with business and industry to explore and support the region's transition to a zero waste and circular economy.

W2RIN manages the Manchester Circular Economy Club¹², which was launched in February 2018 with the aim to create a network of Circular Economy (CE) enthusiasts across many different sectors, to seek synergies, understanding and drive forward collaboration to ensure that Greater Manchester becomes a Circular City. As part of the global CE network the network holds regular Circular Cities events in Manchester to both show case what they are already doing and what is needed to achieve more.

Manchester is also home to a number of community based organisations seeking to reuse and repair everyday appliances and objects, including the Levenshulme, Moss Side and Chorlton Repair Cafes, and Stitched Up, a community based not-for-profit organisation offering alternatives to disposable fashion. <https://stitchedup.coop/>

¹¹ <https://www.letsrecycle.com/packaging/targets/>

¹² <https://www.circulareconomyclub.com/groups/circular-economy-club-cec-manchester/>

Sustainable Food

Manchester has had a food strategy, “Food Futures”, in place since 2007, when it began as an informal collaboration between Manchester City Council and the NHS. The subsequent Manchester Food Board was established in 2014 to drive forward the above commitments, incorporating the aims and objectives of Food Futures at its core. The Food Board has an action framework in place to identify the key areas of activity for progress over the year and the identification of responsible parties in taking this forward, to work in true collaboration across the food agenda. Following a review of the Board and recommendations the refreshed Food Board is now taking shape. The City successfully applied to become a Sustainable Food City (Bronze level) in 2017 www.sustainablefoodcities.org/findacity/cityinformation/userid/46



Local food and growing initiatives

- **MetMunch** is a student led Social Enterprise based at Manchester Metropolitan University with the aim of promoting healthy, nutritional and sustainable diets. They work with students at the university, employers and at events to provide interactive training sessions about the sustainable and nutritional impacts of the food we eat. <https://metmunch.com/>
- **Groundwork** is a leading UK environmental charity, working across diverse and minority groups focussing on youth and social action projects. www.groundwork.org.uk
- **Sow The City CIC** is social enterprise focussing on growing and food projects with communities across the city. They have a holistic approach to working with mental health, inequality and food access. www.sowthecity.org
- **Hulme Community Garden Centre** is a not for profit, community-led organisation and charity created by 3 residents in 1999. Many of their projects take place in the local community and address solutions to local issues especially around well-being and mental health. <https://hulmegardencentre.org.uk/>
- **Growing Manchester Programme** has been supporting over 65 resident groups to grow food live and sustainably since 2013. https://www.manchester.gov.uk/info/200048/health_and_wellbeing/7621/growing_manchester/9
- **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 in and with the community, supporting them all to lead healthier, lower carbon lifestyles through the food they grow, cook and eat. <https://www.realfoodwythenshawe.com/>

Resilience to climate change including green spaces and waterways

The changing climate change is expected to result in warmer and wetter winters, drier and hotter summers and more intense and extreme weather such as heatwaves and heavy rainfall leading to flooding in Manchester. As these events become more frequent and damaging the city must adapt and build the resilience of our communities, businesses, transport, energy and other infrastructure, as well as our natural environment.

Number of properties in flood warning area.

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

Table 8: Number of properties in a flood warning area in Manchester.

Indicator	2017	2018
Number of properties in flood warning areas in Manchester*	16,526	16,526

* Data from Environment Agency Data Communities at Risk

Manchester does not currently have a climate resilience or adaptation plan. The Manchester Climate Change Framework 2020-38 (see Part 3) will address this to a point, although it is likely that more in-depth work will be needed to develop an up-to-date understanding of our climate risks and to put in place a plan for mitigating them. In the meantime, one of the most effective actions we can take to manage the increased risk of flooding and heat stress is to increase the quantity and quality/functionality of Manchester's green spaces and waterways.

The Manchester Green and Blue Infrastructure Strategy 2015-25 sets out the city's commitment to action in this area, built on a similar principle to that underpinning our climate change commitments; that all residents, organisations and the public sector have a role to play.

The following outlines key projects that have progressed in 2018:

- **GrowGreen:** an €11.2m project during 2017-22 to support cities to develop and implement plans to become greener and better adapted to climate change. The project will provide two key outputs for Manchester: a demonstration project at West Gorton, and; a refreshed Manchester Green and Blue Infrastructure Strategy. By working with the five EU partner cities (Wroclaw, Valencia, Brest, Modena, Zadar), Wuhan in China and the project's expert partners, GrowGreen will help Manchester to take on-board the latest best practice and provide a catalyst to embed green infrastructure throughout the city's planning, development and regeneration. At West Gorton development and consultation work has been delivered during 2018-19. On-the-ground delivery of the project is expected to start by early-2020. www.growgreenproject.eu
- **IGNITION:** during 2018-21 Greater Manchester-wide partners will establish an investment programme to increase urban green infrastructure by 10% by 2038, from 2018 levels. The aim is to unlock new funding to accelerate action to green the city-region and adapt to climate change.
- **Tree planting:** 4,941 trees have been planted, including 4 orchards and 1,585 hedge trees, through development schemes in parks and along highways. This has been achieved through partnership organisations such as City of Trees and has exceeded the target for tree planting.
- **Manchester Residential Design Quality Guidance:** this sets out considerations for high quality residential development within sustainable neighbourhoods which developers will need to satisfy or exceed. A key element of the guidance is around GI, and this will help influence both large and small scale developments and masterplans, as demonstrated in recent development plans including Mayfield in the City Centre and the proposals for the Northern Gateway.
- **My Back Yard:** This project has provided a "citizen science" approach to collecting and interpreting data about the important role that domestic gardens play in our City. Over 1,000 people took part in surveys citywide and the report on findings and action plan was published in February 2018. This can be downloaded from <http://mybackyard.org.uk/finalresults.php>
- **Heroes Wood** is a community-focussed tree planting project, in Debdale Park, Gorton, developed collaboratively by City of Trees. The project was one of many national commemorative events taking place between 2014-2018, marking 100 years since the beginning of the First World War the project is a demonstration of how green infrastructure can be used imaginatively, sensitively and boldly to link people and places to significant events.

More information on the Councils G&BI Strategy, including Case Study Downloads, can be found at:

http://www.manchester.gov.uk/info/500002/council_policies_and_strategies/7061/green_and_blue_infrastructure

3. Creating good jobs, supporting successful business and attracting investment

Manchester is the first city in the UK to adopt a science based carbon budget and this is a major opportunity to establish the city as a centre for Green Technology and Services. Achieving a transition to a zero carbon city by 2038 will mean that hundreds of thousands of commercial buildings and homes will need to be retrofitted, and new build properties will be designed and built to net-zero carbon standards by 2025. This provides a significant economic opportunity for the city to become an exemplar city in smart zero carbon technologies, as well as opportunities for upskilling and retraining local tradespersons to meet the demands of new building standards.

Sustainable economy and jobs

Low Carbon and Green Technologies and Services sectors could deliver between £60 billion and £170 billion of export sales of goods and services by 2030 and the sector achieved annual sales of over £5.4 billion across Greater Manchester in 2013. As the no single use plastic pledge continues to gain momentum, especially in the beverage and hospitality sector, companies are seeing the benefits in using compostable and plastic free alternatives and reducing packaging waste. This is leading to increasing sales in the Environmental Services sector.

Manchester's CO₂ emissions per £m GVA.

Carbon Intensity is the amount of carbon that is emitted per unit of economic activity. Manchester's economy is projected to grow around 3% a year. In 2018, Manchester's economy produced 115 tonnes of CO₂ per £1m GVA (Gross Value Added) which is a reduction of 50% on 2005 levels. As the city's economy continues to grow it is expected that by 2020 the city's carbon intensity will need to fall to around 99 tonnes of CO₂ per £1m GVA; this is a 53% reduction on 2005 levels.

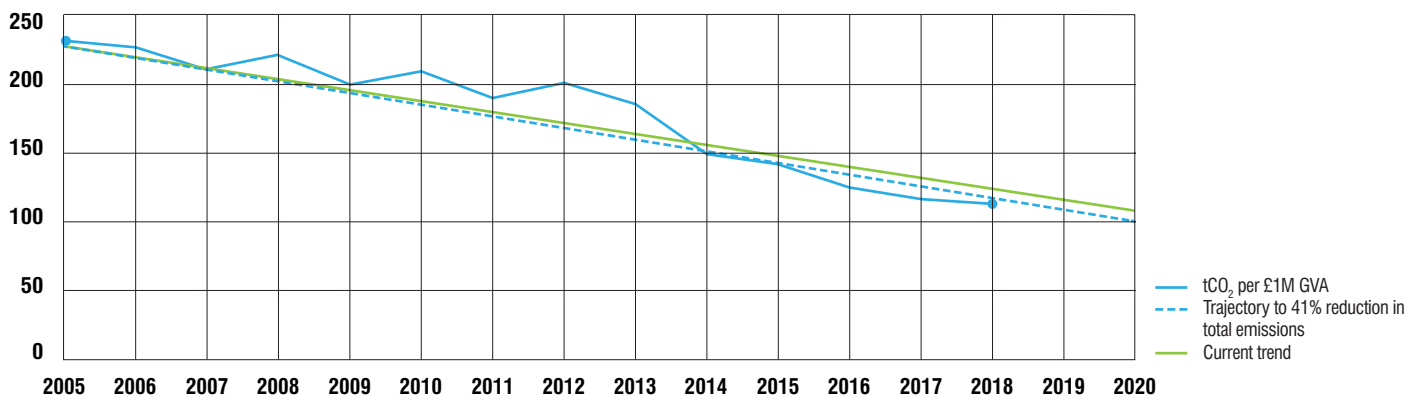


Figure 8: Carbon emissions per £1 million Gross Value Added (GVA)*

* Source: 2005–2018 figures available from BEIS. 2018 figure estimated based on national trend in CO₂ figures in BEIS data. GVA figure from Greater Manchester Forecasting Model 2014.

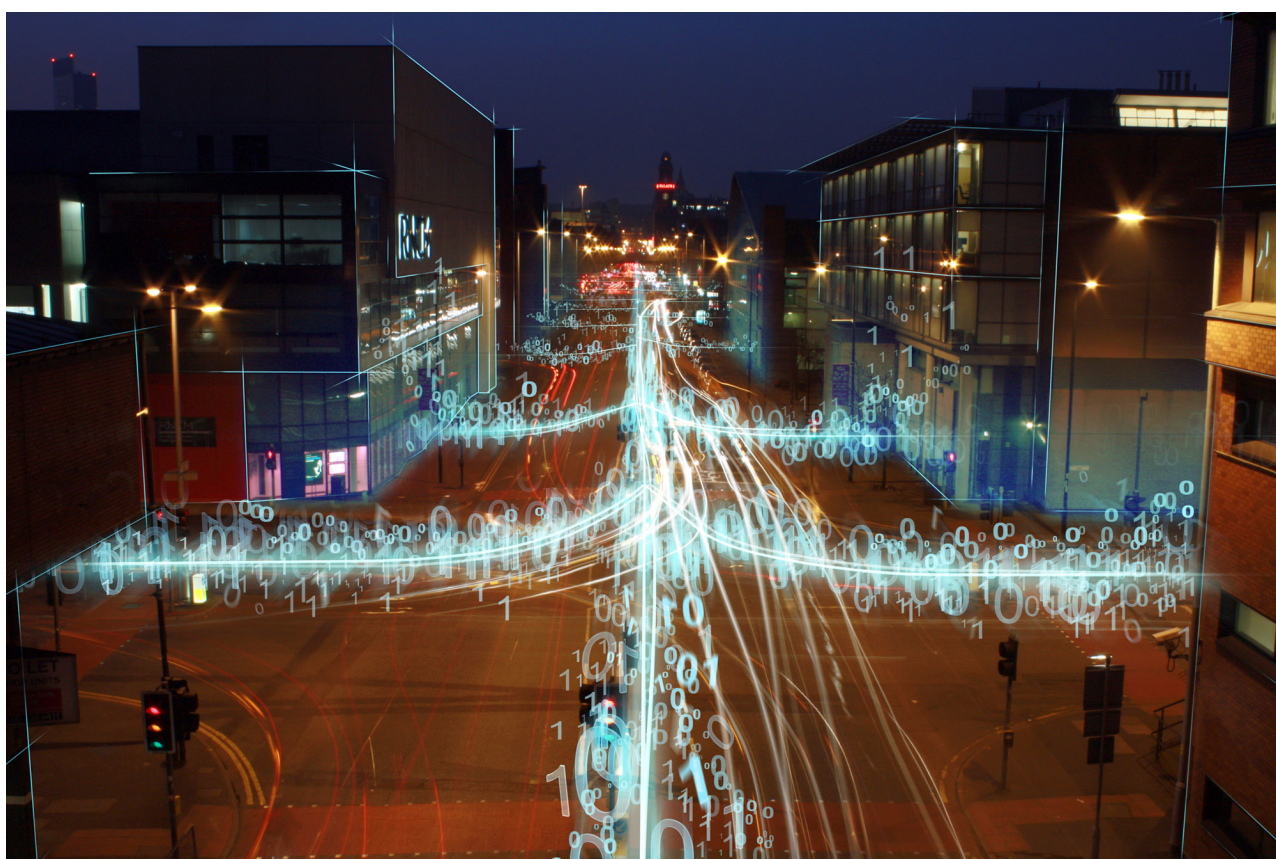
Business Growth Hub

The Greater Manchester Business Growth Hub provides tailored support to help SME's (small and medium sized businesses) in GM to boost profitability, cut carbon emissions, improve energy efficiency, and improve products and processes. The Hub helps companies in the Low Carbon and Green Technologies and Services Sector to expand; this includes providing specialist advisors and services including a virtual Low Carbon Network to help find local suppliers, a fortnightly Green Intelligence e-bulletin and the Green Growth Pledge, which helps companies to celebrate their green commitments and create action plans to reduce their impact.

In 2018/19

- 36 Manchester SMEs receiving support through the Green Technologies and Services team,
- £482,026 of sales generated as a result of the support,
- 4 jobs created as a result of the support,
- 65 Manchester SMEs receiving environmental business support,
- 1,900 total tonnes of carbon savings realised as a result of environmental business support,
- £202,909 financial savings realised as a result of environmental business support.

The GC Business Growth Hub continues to secure EU funding to deliver is energy efficiency, resource efficiency, eco innovation and sector support helping hundreds more companies start their journey to a zero-carbon economy. www.green-growth.org.uk



Part Three

Priorities for 2019-20

Manchester Climate Change Partnership and Agency Priorities

1) ACTION! ENGAGE, INFLUENCE AND SUPPORT MANCHESTER RESIDENTS AND ORGANISATIONS TO TAKE ACTION URGENTLY AND OVER THE LONG-TERM:

1.1 Residents and communities

Work with partners to expand the range of initiatives to engage and support residents and communities to take action (ongoing action from 2018).

1.2 Organisations

- i. Pioneers: continue to support the ten 'Pioneer' organisations/sectors (responsible for over 20% of Manchester's CO2 emissions) to take urgent action in 2019 and to establish their plans for 2020-38.
- ii. Fast-movers: engage five new Fast-mover organisations/sectors to take urgent action in 2019 and to establish their plans for 2020-38.
- iii. Crucial contributors: engage five new Crucial Contributor organisations/sectors to help them start their zero carbon journey.

1.3 Schools and colleges

- i. Work with Manchester City Council and other partners to deliver a Youth Climate Action Summit in July 2019.
- ii. Work with Manchester Environmental Education Network and other partners to engage and support schools and colleges, including through the Eco Schools programme.
- iii. Work with the Carbon Literacy Project to support the roll-out of climate education to residents and workers across the city.

2) INFLUENCING POLICY:

2.1 Manchester Climate Change Framework 2020-38 and Action Plan 2020-22

Develop a final draft Framework and Action Plan, based on the latest science and the needs of Manchester residents and organisations. See below for further details.

2.2 Manchester Industrial Strategy

Aim to influence the final strategy to ensure it is fully aligned with and contributes to the city's climate change commitments.

3) HONEST COMMUNICATION AND REPORTING:

3.1 Annual Communications.

Deliver the Annual Report and Conference 2020.

3.2 Social Media.

Social media and website articles to highlight progress and areas where more work is needed, on an ongoing basis.

4) KNOWLEDGE SHARING WITH OTHER CITIES:

- 4.1 Contribute to the city's participation in the Covenant of Mayors and Eurocities networks.
- 4.2 Contribute to the URBACT Zero Carbon Cities project to further develop Manchester's plans and to learn from best practice in the other six partner cities; Bistrita Frankfurt, Modena, Tartu, Vilvoorde, and Zadar. <https://urbact.eu/23-action-planning-networks-approved>.

5) OPERATIONS AND GOVERNANCE:

- 5.1 Partnership and Ambassadors: expand the current Manchester Climate Change Board into a wider Manchester Climate Change Partnership and Ambassadors scheme.
- 5.2 Diversity and Inclusion Sub-group: establish the terms of reference and work plan for the sub-group's work during 2019-20.
- 5.3 Manchester Climate Change Youth Board: review the membership and terms of reference and put in place new arrangements for 2019-20.
- 5.4 Agency development: establish plans for the development of Manchester Climate Change Agency during 2019-20.
- 5.5 Chair: appoint a new chair for the Manchester Climate Change Board/Partnership.

Citywide Priorities 2019-20

Urgent action in 2019.

We need every resident and organisation in the city to take urgent action to help us play our full part on climate change. The below list is draft but begins to set out the actions that we all need to take, at home, at school, college, university and at work. This list will be further developed during 2019 but you don't need to wait until then to make a start – act now!

1. Awareness, education and Carbon Literacy. Learn more about climate change at home, school, in your neighbourhood and at work. The Carbon literacy project has great resources to get you started www.carbonliteracy.com
2. Existing buildings and renewable energy: whether its your home or your workplace, there's help available to lower your bills and energy use. Homes: <https://applyforleap.org.uk> Business: <http://www.green-growth.org.uk/> Switch to renewable energy: <https://bigcleanswitch.org/gm/>
3. Transport. Walk or cycle as many journeys as you can including the school run, take the bus, tram and train instead of the car. When you can switch to an electric car. Could you make that meeting a video call instead? <https://cleanairgm.com/what-you-can-do>
4. Flying. Aviation is the fastest growing source of CO₂ emissions. Could you take the train instead, have a video call instead of a meeting face to face, and holiday in the beautiful UK? Ask your employer about Climate Perks – a campaign that works with climate-conscious employers to offer paid 'journey days' to staff who travel on holiday by train, coach or boat instead of flying. <https://www.climateperks.com/>. If you have to fly try and offset your CO₂ emissions.
5. The things you buy and throw away. Everything we buy (clothes, phones, laptops, food, furniture) has a carbon footprint. If you really need it ask yourself – can I get it second-hand? Is it made from environmentally friendly materials and can it be re-used, and if not recycled at the end of its life? <https://recycleforgreatermanchester.com/how-do-i-waste-less/>
6. Food. There are lots of ways to reduce the carbon footprint of the food we eat. Try eating more plant based foods, eating less meat and dairy, growing your own fruit and veg, and wasting less food by planning meals for the week before you shop. Try and buy Fairtrade, source local produce and buy more sustainable foods if you can. <https://feedinggtrmcr.org.uk/>
7. Green and blue spaces. More and better quality green spaces help cities to adapt to a changing climate, and have proven benefits for physical and mental health as well as supporting wildlife and biodiversity. My Wild City (<https://www.lancswt.org.uk/mywildcity>) gives tips on what you can do to help.
8. Construction and new developments. Developers can get ahead of competitors by signing up to the Green Building Council's new programme in the UK to transition to a net zero carbon built environment at <https://www.ukgbc.org/ukgbc-work/advancing-net-zero/>. In your neighbourhood you can comment on current planning applications and ask the developer to go zero carbon https://secure.manchester.gov.uk/info/200074/planning/5865/planning_permission
9. Measuring and reporting your CO₂ emissions. You can't reduce your CO₂ emissions if you don't know what they are. At home via <https://footprint.wwf.org.uk> Your organisation via www.cdp.net/en/companies-discloser
10. Where you invest and save your money. Ethical investments make money and do good. Invest in community energy through projects such as Greater Manchester Community Renewables solar schools programme www.gmcr.org.uk
11. Inspiring and influencing others to act:
 - Talk about the inspirational actions you are taking to help tackle climate change and challenge others to act too.
 - Use your consumer power to demand change from shops, supply chains.
 - Ask your workplace to commit to be zero carbon by 2038 www.manchesterclimate.com/content/commitment-act
 - Got a specific question or proposal for your local councillor or MP? Write to them at <https://www.writetothem.com/>

Planning for action in 2020 and beyond: Manchester Climate Change Framework

In February 2019 Manchester Climate Change Board and Agency published a 'Draft Manchester Zero Carbon Framework 2020-38' to begin to set out how the city could meet its science-based targets. The idea of a 'framework' is based on the need for every individual, household, community, school, business, sector, etc to have their own bespoke plans, to 'plug-in', as part of a citywide suite of commitments and actions.

Work is needed during 2019 to put in place the Framework for 2020-38, to set out clearly what the city's residents, organisations and Manchester City Council need to do, and what support is needed from the Greater Manchester Combined Authority and UK Government. The scope will also be wider than just 'zero carbon', expanding to cover the other key component of climate change action, 'adaptation'.

During July to December 2019 Manchester Climate Change Agency want to talk to as many groups as possible, covering three main points:

1. These are the actions that the science tells us we all need to take, to meet our climate change targets (based on the draft list on the previous page)
2. Which actions are you already taking or could you start to take right now?
3. What is currently limiting/preventing you from acting and what would help you to do more / make a start? (Answers to this question will help us to create a list of 'enabling actions' for key partners in the city to take forward e.g. Manchester Climate Change Agency, Manchester City Council, etc).

To reach as many people as possible the Agency is looking for volunteers to help us organise sessions in communities, schools, colleges, businesses and organisations. To get involved please contact us at info@manchesterclimate.com.

The plan is to publish the final version of the Manchester Climate Change Framework 2020-38 and an Action Plan for 2020-22 (covering the 'enabling actions') in February 2020.

Further Information and Get Involved

To get involved

There are many ways that you can get involved. You can follow Manchester Climate Change Agency on social media at:

- Facebook:
www.facebook.com/McrClimate
- Twitter:
www.twitter.com/McrClimate
#ZeroCarbonMCR
- Instagram:
www.instagram.com/mcrclimate

For further information visit:

**WWW.
manchesterclimate.
com/getinvolved**

Feedback on this report

We welcome your feedback. If you have any comments on this report please email MCCA at:

**info@
manchesterclimate.
com**

