



MANCHESTER: A CERTAIN FUTURE

In 2009 we wrote a plan.
In 2013 we updated it.

our collective action
on climate change
2013 UPDATE

FOREWORD

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Manchester: A Certain Future Stakeholder Steering Group

Welcome to the Age of Cities. Since we published our original action plan on climate change in 2009, changes in the world's population have reached the point where more than half of us are 'urban' - living in towns and cities. By 2050 this proportion is projected to increase, closer to 80%.

Cities are critical in so many areas: our shared prosperity, social equity, the knowledge economy, culture and of course, climate change. While successive international gatherings have failed to agree a successor to the Kyoto Protocol, cities around the world, just like ours, have continued to act - working to reduce carbon emissions, adapting to future changes in climate and creating a viable, low carbon economy.

What Manchester achieves on climate change really matters, for the world. If the 'first industrial' city can deliver real progress on climate change and sustainability then there can be no excuses elsewhere that this is all 'too difficult' or something to be tackled by future generations.

We have to show leadership.

In the four years since we launched our first plan, there has been progress on a number of fronts. This includes retrofitting domestic buildings, sustainable transport and most recently launching a unique carbon literacy programme. However as this refreshed plan makes clear, we still have much to do if we are to deliver on our rhetoric and make a low carbon city something more than just a hope or a statement of civic ambition.

So as you read this updated plan ask yourself what more you could do to help us deliver, either within your organisation or as an engaged citizen who cares.

Ask yourself what part you can play in A Certain Future.

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IN 2009 WE SAID:

“OVER THE COMING YEARS, WE ARE GOING TO CONTINUE TO DEVELOP OUR PLAN TO KEEP PACE WITH LOCAL, NATIONAL AND INTERNATIONAL DEVELOPMENTS; AS OUR EXPERIENCE OF TACKLING CLIMATE CHANGE GROWS, OUR PLAN WILL GROW WITH IT.”

Manchester – A Certain Future, 2009

IN 2013 WE SAY:

#1

INTRO

In 2009, an action plan was produced setting out headline actions to tackle climate change in Manchester to 2020. *Manchester – A Certain Future*: our collective action on climate change was written as a ‘plan to shape the future, a plan for the entire city’. It was agreed at the time that, periodically, the plan would be reviewed and updated to keep pace with progress and change in the city and beyond. This document represents our first full review, drafted (like the original) with the input of over 100 organisations and 200 individuals from across the city.

We have also had the opportunity to revisit the vision we set out in *Manchester – A Certain Future* – one where we emit 41% less CO₂ by 2020 than in 2005, and one where ‘low carbon thinking’ is embedded in the lifestyles and operations of the city. This vision remains the right one for the city, and this document **Manchester – A Certain Future – Updated for 2013** should be read in conjunction with the original plan, setting out how far we have come since 2009, and what more we still need to do.

There have been significant changes in the world over the past three years. Critically, all the evidence indicates that global CO₂ emissions have continued to rise since 2009 and the indicators of climate change have evidenced an acceleration of the rise in global temperature. Reflecting this continuing trend, the forecasts of climate change scientists have become more stark: many agree that a 4 degree Celsius rise in global temperature may now be unavoidable – and that radical strategies for both emissions reduction and adaptation are now more urgent than they were in 2009.

“AS A NEW GLOBAL AND COMPREHENSIVE AGREEMENT IS DEVELOPED AT THE U.N. CLIMATE CHANGE CONFERENCE IN COPENHAGEN IN DECEMBER 2009, CLOSER TO HOME, NATIONAL AND EUROPEAN TARGETS MEAN THAT THE ACTIONS IN THIS PLAN WILL HAVE TO BE DELIVERED WHATEVER THE OUTCOME IN COPENHAGEN.”

Manchester – A Certain Future, 2009

THE BIG PICTURE

Manchester – A Certain Future was drafted towards the end of a period of relative economic prosperity in the UK and in a climate of optimism that anticipated a landmark international agreement on climate change in Copenhagen being signed in December 2009. But there was no substantive agreement in Copenhagen and progress at subsequent inter-governmental summits has been slow, with little impact. Most recently, at Doha in December 2012, the signing of the ‘Doha Climate Gateway’ has paved the way for international agreement in 2015: this is very slow progress against a backdrop of ever-rising global emissions and an increasing incidence of climate-related extreme events.

And while national governments have failed to deliver the agreements and actions necessary for concerted global action, the focus on cities as a primary arena for action – both in the UK and around the world – has intensified.

During the past three years, the most significant change in context for climate change action has been the crisis in both the global and the national economy.

The economic downturn has been severe, leading to extreme pressures both on business and public expenditure, and generating significant consequences in this area of work. Reduced economic activity leads to a fall in emissions but also reduces market confidence and investment in low-carbon projects.

There have been significant changes in national policy, structure and approach following the election of a new UK Government in May 2010. Initiatives such as the Green Deal, the Green Investment Bank and Feed-in-Tariffs have been developed to support action on climate change, but other areas of policy have also impacted on this review. Regional structures have been abolished and Greater Manchester structures have taken on much greater significance.

IN 2009 WE SAID:

“LEADING AND CO-ORDINATING PLANS OR STRATEGIES ACROSS THE CITY AND LINKING THEM TO OTHER GOVERNANCE STRUCTURES, PARTICULARLY THOSE FOR THE GREATER MANCHESTER CITY REGION.”

Manchester – A Certain Future, 2009

IN 2013 WE SAY:

GREATER MANCHESTER DEVELOPMENTS

In Greater Manchester, the establishment of the Greater Manchester Combined Authority (GMCA), the Greater Manchester Local Enterprise Partnership (GM LEP) and the agreement of the City Deal between Greater Manchester and the Government have been key features of structural change. The city-region spatial scale has taken on substantially increased importance, both nationally and for the city.

As part of the City Deal, Greater Manchester is establishing a Low Carbon Hub, bringing together resources and expertise from the private sector, local and national government, academia and the third sector. This has facilitated the development of a Greater Manchester joint venture with the UK Green Investment Bank to help secure investment for building retrofit and low-carbon energy projects and created a high-level partnership to drive the delivery of the Greater Manchester Climate Change Strategy 2011–20 (GMCCS).

The GMCCS was published in 2011, with input from several organisations from across Manchester, and set within the context of the key changes underway at a Greater Manchester level. Alongside the strategy document a targeted Implementation Plan for 2012–2015 has also been produced. The refresh of *Manchester – A Certain Future* reflects this process: one of the objectives of this document is to achieve better alignment between activity in the city with other Greater Manchester districts and with Greater Manchester as a whole.

IN 2009 WE SAID:

**“CO₂ IS A GAS:
THE INVISIBLE IMAGE
OF EXPENDED
CARBON AND A SPENT
NATURAL RESOURCE.”**

Manchester – A Certain Future, 2009

IN 2013 WE SAY:

THE NEED FOR ACTION

Since 2009, the global activity of human beings has continued to increase emissions of CO₂, expending the use of natural resources and continuing to accelerate the rate at which this expenditure takes place. Accumulated levels of CO₂ in the earth's atmosphere continue to increase, indicating that future interventions will need to be very dramatic if catastrophic climate change is to be averted in the second half of the 21st century.

While there are some signs of this rate slowing in Manchester and in the UK, this progress is not substantial. It is not yet proportionate to the scale of change required for us to play our part in averting potentially catastrophic levels of future climate change nor in preparing Manchester for the direct and indirect local impacts that a changed climate will have on our city in the decades beyond 2020.

“A STEERING COMMITTEE MADE UP OF REPRESENTATIVES OF THE COUNCIL, THE MANCHESTER BOARD AND FROM THE BUSINESS AND THIRD SECTORS WILL SCRUTINISE THE PROGRESS OF THE PLAN THROUGHOUT EACH COMING YEAR. THIS COMMITTEE WILL PROVIDE A LINK THROUGH TO OTHER STAKEHOLDERS AND WILL CO-ORDINATE THE WORK OF WIDER GROUPS OR PARTNERSHIPS THAT ARE TACKLING SPECIFIC ACTIONS IN THE PLAN”

Manchester – A Certain Future, 2009

OUR RESPONSE

The MACF Steering Group was established in 2010 in order to co-ordinate the delivery of our action plan, representing the views and interests of stakeholders across the city, and championing the plan to promote engagement in its delivery. The Steering Group has developed its role over the past three years. This has included directing the process of producing this supplement, ensuring that this ‘refresh’ responds to the need for engagement and action, and that the city remains on track to achieve MACF’s headline objectives by 2020.

MACF is clear that attaining these objectives requires a city-wide response: collective action by every resident, pupil and organisation. In keeping with this approach, the drafting process for this supplement has engaged over 100 organisations and 200 individuals, ensuring that it includes priority actions at different scales for the next three years, and the framework for maintaining the partnerships and momentum we need for delivery.

This refresh is set in the context of the city’s ten-year climate change action plan, providing a strategic summary of the progress we’ve made since 2009 and headlines for the period to 2015. It has been drafted and supported by representation from a wide range of stakeholders – businesses and organisations; residents and neighbourhoods; and pupils, students and staff in schools, colleges and universities – providing a framework for practical steps that can and will be taken to contribute to the objectives of MACF. It also takes account of key strategic issues, including the alignment between *Manchester – A Certain Future* and the Greater Manchester Climate Change Strategy (GMCCS), the impacts and implications of the changes in the national and local economy, and the future role and function of the Steering Group as a co-ordinating body.

Thus the content of the refresh sets out to report on the headlines of progress made since *Manchester – A Certain Future* was produced in 2009, to outline changes or additions to the actions in the original plan and to summarise priorities for a further three-year period to 2015. These aims are reflected in the three main sections of the document:

SECTION 2

Progress 2010–2012

This summarises the implementation there has been on actions in the plan.

SECTION 3

Continually improving the plan

This sets out new areas of activity and how our plan will continue to evolve and improve during 2013–15.

SECTION 4

Collective action plan for 2013–2015

This sets out our priorities for the next three years.

#2

PROGRESS 2010-12

“THE INVESTMENT WE MAKE TODAY IN CREATING THE CAPACITY FOR LOWER EMISSIONS IN THE FUTURE WILL TAKE TIME TO FEED INTO OUTCOMES – BECAUSE OF EMBEDDED BEHAVIOURS AND THE NEED TO MARSHAL EFFORTS AND RESOURCES TO SHARE PRIORITIES. AS THE TYNDALL CENTRE HAS OBSERVED (2006), ‘WITH RAPIDLY INCREASING EMISSIONS FROM AVIATION, CURRENT LEVELS OF POLITICAL INACTION, THE TIME REQUIRED TO INTRODUCE POLICIES AND THE RECENT SUBSTITUTION OF GAS WITH COAL-FIRED ELECTRICITY, IT IS UNLIKELY EMISSIONS WILL REDUCE BEFORE 2012.’

IT IS NOT LIKELY, THEREFORE, THAT MANCHESTER WILL FOLLOW A SMOOTH TRAJECTORY OF SLOWING, THEN REVERSING, THEN ACCELERATING DECLINE IN CARBON EMISSIONS (AS IS SOMETIMES IMPLIED BY THE ‘BUDGET’ APPROACH). MUCH LIKELIER IS THAT THE CITY WILL WORK HARD, SEE VERY LITTLE AND THEN REACH A TIPPING POINT WHEN A BIG REDUCTION TAKES PLACE, THEN WORK HARD ON THE NEXT GENERATION OF ACTION, SEE LITTLE, THEN A THRESHOLD, AND SO ON.”

‘CALL TO ACTION’ MANCHESTER CITY COUNCIL & BEYOND GREEN, JANUARY 2009

WHAT WE HAVE ACHIEVED SO FAR

The lack of progress on inter-governmental talks, the economic recession, new Government policies and the increased significance of city-region structures in Greater Manchester all set the context in which our plan has developed over the past three years. Adapting to new national policies and structures and responding to a more challenging economic climate have become the key priorities for most organisations in the city, particularly in 2011 and 2012.

Against this background, the process of growing low-carbon opportunities and generating the momentum for change set out in the plan has not been straightforward. While there may not yet have been significant progress in delivering substantial reductions in Manchester’s emissions, the policy, planning and strategy work delivered over the past three years has begun to create a framework for action and prepared a range of programmes for delivery – and CO₂ saving – during 2013 to 2015. There are also early signs that ‘low carbon thinking’ is becoming more widespread and beginning to become more embedded in the city’s culture.

As 2008’s Greater Manchester ‘Mini Stern’ review set out, failing to make a rapid transition to a low carbon economy is likely to cost the city region’s economy in terms of missed business opportunities as well as leaving the city open to financial penalties through carbon taxes and increasing energy prices. Despite the pressures in the wider economy, these factors have increased in significance since 2009 and the conditions for organisations and individuals to invest in low-carbon projects – both physical and cultural – continue to develop.

HEADLINE OBJECTIVE 1

Reducing the city’s emissions by 41% by 2020 (from 2005 levels)

The 41% CO₂ reduction target we set in 2009 was drawn from what the science indicated Manchester’s contribution needed to be if there was any chance that global warming could be contained at an increase of 2 degrees Celsius. Government figures at the time provided a baseline for 2005 and progress up to 2007. This delay in generating data still continues and the latest emissions data we have for the city relates to 2010, though the most recent year’s data is still subject to amendment.

By 2010, we had achieved a 7.6% reduction from the city’s CO₂ emission levels in 2005. During this period, the city’s population rose from 447,000 to 498,800, so the reduction in per capita emissions over this period is closer to 17.6%. This downward trend represents modest progress against our objectives: this was steady from 2005 to 2009; however, the 2010 data shows a small increase on 2009. This may have been caused by several factors – a colder winter, changes in UK power supply and an increase in economic activity.

We also need to note that these reductions are in 'operational' CO₂ emissions – energy used in our buildings and transport – and take no account of wider 'consumption-based' emissions that MACF set out to pilot through exploring a 'Total Carbon Footprint' (TCF) for the city. This approach will enable us to better understand our share of the emissions from international aviation and shipping, and those associated with the manufacture and disposal of the products and services we consume. Indicative assessment of these consumption-based emissions metrics confirms that some of our UK emissions reductions are not absolute savings as they have been partially achieved by 'outsourcing' production activity to other economies.

When we committed to adopting a TCF approach from 2013, we anticipated further development of this agenda at a national and international level, enabling us to more fully understand the city's contribution to climate change globally. However, development of systems that begin to promote and monitor these metrics at a national level has not yet materialised, keeping Greater Manchester work at the forefront of piloting in the UK.

YEAR	GRAND TOTAL ktCO ₂	REDUCTION FROM BASELINE YEAR	POPULATION '000s, MID-YEAR ESTIMATE	PER CAPITA EMISSIONS (t)
2005	3,287.98	—	447.0	7.4
2006	3,374.59	+2.6%	455.7	7.4
2007	3,243.52	-1.4%	465.2	7.0
2008	3,244.92	-1.3%	473.2	6.9
2009	2,885.48	-12.2%	483.8	6.0
2010	3,038.76	-7.6%	498.8	6.1

HEADLINE OBJECTIVE 2

Embedding 'low-carbon thinking' in the lifestyles and operations of the city

Progress against our objective of changing the city's culture is harder to measure, as there has not been a clear indicator in place. There has been a lot of activity within organisations in the period 2010 to 2012, though it has been a period of substantial change, particularly in the public sector.

In 2009, environmental education was already very well established in Manchester's schools but 'environmental reporting' had a small place in the strategies of just a few city organisations. Awareness of climate change was driven by a modest group of organisations and individuals who knew that a step change in culture was needed. Against this background, organisations already committed to work on climate change have increased activity during the period, and there are clear indications that others have taken steps to begin to 'mainstream' low-carbon thinking into plans and operations.

How we have progressed:

Third sector – the city's third sector has continued to champion awareness through their networks: among others, Friends of the Earth, Action for Sustainable Living, Merci, Red Rose Forest, Groundwork, RSPB, Carbon Co-op, and Hulme Community Garden Centre have all increased their focus on climate change, championing work through more than 300 projects delivered between 2010 and 2012.

Manchester Carbon Literacy (MCL) – to progress MACF's target of a day's 'carbon literacy' training for all residents, pupils, students and employees, Cooler Projects CIC has led a partnership that has defined MCL, established a standard, completed 50 pilot projects and publicly launched the programme in October 2012. While an original target for 2013 has proved overambitious, meeting the secondary objective of 2015 remains attainable with a concerted programme of action over the next three years.

Large organisations – Bruntwood, Siemens, Manchester City Council, the Co-op Group, the Arndale Centre, Manchester Metropolitan University, The University of Manchester and Northwards Housing are among the large organisations with published commitments to take action on climate change in support of MACF. However, the scale and rate of endorsements of our plan has been slower than first anticipated, meaning that many more organisations will need to make and start to deliver commitments by 2015.

Schools – 78 of the city's 165 schools have been actively involved in the Eco-Schools programme, and there have been projects delivered in 48 of these since 2009. More than a third of the city's schools have been active participants in training and skills exchange forums.

Businesses – there has been a 70% increase in the number of smaller businesses signing up to the Environmental Business Pledge since 2009. While they currently make up a relatively low proportion of the city's total, the 1,800 recruited businesses provide a strong base for increased uptake of environmental business support in the coming years.

Green events – conference, leisure and arts organisations have worked together on several schemes since 2009, developing low-carbon understanding and practice in their buildings and events, and creating the momentum for the city to establish itself as an internationally recognised sustainable destination by 2020.

Universities – both universities have raised a range of climate change issues across their agenda, 'greening' their campuses and starting to harness the influence of the city's 75,000 students; they both won awards for work on climate change in 2012.

A PLANNED APPROACH

In 2009, few organisations in Manchester had adopted a planned approach to address the opportunities and challenges of climate change and there were few – if any – sector-wide plans that set out city-wide plans or strategies for the issues outlined in *Manchester – A Certain Future*. This has changed:

Core Strategy – drafted alongside MACF in 2009, the Council's Core Strategy – the key planning document for the city, which contains eight key climate change policies – was approved as an adopted statutory document in 2012.

A Greater Manchester Climate Change Strategy (GMCCS), closely tied to the Greater Manchester Strategy, has been approved, enabling actions in the city to integrate with activity across the city region. The involvement of the Government as a partner in delivery through the GM Low Carbon Hub, secured through GM's City Deal, has created the opportunity for the national contributions to emissions reduction in the city to be captured in our plans.

Action plans – many of the larger organisations in the city are now adopting action plans with emissions targets – including both universities, the Co-operative, Siemens, the Council, Bruntwood, several housing providers, and Manchester Airport. The number of large and small businesses committed to the Environmental Business Pledge has increased by more than 70% in three years – there are now over 1,800 pledged businesses.

Sector plans – strategies now in place include a Retrofit Strategy (GM), EcoCities (adaptation framework, GM), Green Infrastructure Framework (GM), Energy Plan (GM), and the GMCCS Implementation Plan (GM).

Green Digital – Manchester was the first signatory of the Eurocities Green Digital Charter, committing the city to

both reduce the carbon footprint of its information and communications technology (ICT), and acknowledging the significant role that ICT has in enabling CO₂ reduction across all sectors.

BUILDINGS

In 2009, there were several completed new buildings in the city with exemplary energy-efficiency standards. While loft and cavity wall insulation schemes were well established, 'retrofitting' programmes were unheard of, and nearly all the PV panels in Manchester were on one building, the CIS tower. The 'buildings' category represents a broad range of property types, with a range of progress achieved over the past three years:

Housing emissions – driven by the GM Toasty campaign, the Manchester Warm Homes project before it, and other initiatives, more than 75,000 interventions – loft insulations, cavity wall insulation boiler replacements, and 'hard to treat' housing insulation schemes – have been completed in the city 2010–2012. A large proportion of this investment has been by the city's not-for-profit landlords, such as Northwards Housing, which are achieving savings of approximately £700,000 and 2,400 tonnes of CO₂ per year due to a range of energy-efficiency and renewable energy schemes.

Building Schools for the Future (BSF) – since 2009, 32 high schools and academies have completed capital projects under this improvements programme and four new primary schools have been built. All these works have included measures that improve energy-efficiency in the built fabric of a quarter of the city's schools.

Universities – Manchester Metropolitan University has reduced its carbon emissions by 18.5% over five years, while The University of Manchester has also continued to make progress towards its target of

reducing CO₂ by 40% by 2020. Both were winners of 'Green Gown Awards' in 2012 for their work on embedding sustainability into their operations and courses, and both have continued to develop ambitious energy-saving plans for their new and existing estates.

NHS – the city's Trusts have been developing and implementing carbon management plans and co-ordinating their activities through their own MACF NHS Group. University Hospital South Manchester has been awarded the title of Britain's Greenest Hospital for reducing its carbon emissions by 28% over five years.

Commercial property – there are signs that landlords are beginning to understand and address the complexities surrounding energy consumption in rented estates, and that tenants are starting to create demand for low-energy properties. However, with a few exceptions in this area, such as Argent, Ask, and Bruntwood, progress has been limited over the past three years.

Exemplar buildings – the development of two iconic buildings in the city centre – one new-build, one retrofit – will be completed in 2013: the Co-op's NOMA and the Council's refurbished Town Hall Extension and Central Library will be beacons for low-carbon buildings.

Green Deal – housing associations and councils across Greater Manchester have worked together to develop a Housing Retrofit Strategy and agreed the basis of a GM Green Deal programme to be launched in 2013.

ENERGY

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 scoped. Thinking on heat networks was still tied to a small number of unsuccessful schemes from the 1980s. Progress has been made since then:

Solar photovoltaics – despite rapid changes to Government policy, over 2,000 solar panel installations have been registered for the Feed-In-Tariff in Manchester since the scheme was launched in April 2010, equating to an installed energy-generating capacity of approximately 5.7MW of renewable electricity.

Smart grids and meters – Electricity North West are leading work on smart grids and energy management in the city. Energy monitors have been distributed to thousands of households in Manchester by energy supply companies, as well as those provided through the Manchester Smarter project. Energy monitors are also now available on loan from the city's public libraries.

Heat networks – proposals to deliver new heat networks have been put in place – in the city centre to serve the civic quarter around the Town Hall, in the Corridor at Manchester Metropolitan University and The University of Manchester, and in East Manchester to serve several new developments.

Energy centres and CHP – existing and new developments across the city have progressed plans to install low-carbon energy centres, including the Co-operative Group's new headquarters at their NOMA development.

Energy planning – Greater Manchester has an approved high-level energy plan, establishing a core evidence base, strategic priorities and targets from which a city-level plan can be developed.

Manchester Energy – has been developed by The University of Manchester to bring together its research development expertise with opportunities for implementation on its own estate and other organisations in the city.

Energy switching – the launch of the Greater Manchester energy-switching project in 2012 will enable residents to benefit from lower cost and lower

carbon supplies of energy, helping to create further demand to increase generation from renewable and low-carbon sources.

TRANSPORT

Since 2009, the city has made progress in planning for and implementing actions to tackle climate change. The GM-wide Local Transport Plan 3 (LTP3) has adopted 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. Greater Manchester has successfully secured over £30million of Government funding in the Local Sustainable Transport Fund (LSTF) to deliver projects between 2012 and 2015, which will help deliver sustainable development through transport:

Metrolink – throughout 2010–2012, Metrolink expansion has continued with new lines and stops being built, and new vehicles brought into service. Lines to Oldham Mumps, Chorlton, and MediaCityUK have opened since 2009; work on the extensions to Ashton, Oldham town centre, Didsbury, Wythenshawe and the Airport have all progressed.

Green buses – over 200 'green' buses (mainly electric hybrids) have been introduced since 2009, including shuttle services, and smaller, medium and double-decker sized buses.

Car journeys – the number of car trips into the city centre has continued to fall: from a peak of 37% of modal share in 2006 to 28% in 2012. Thus 72% of trips into the city centre are now made by public transport, by bike or on foot.

Cycling – an interim cycling strategy has been put in place for the city and work commenced on a GM strategy:

plans in place through LSTF for city cycle centres, cycle training and grants for employers and user groups.

Smart ticketing – LSTF funding has been secured for an integrated smart ticketing system that will be introduced over the next few years starting with Metrolink, then buses and trains.

Electric vehicles – work has commenced on GM's Plugged in Places project to install charging points across Greater Manchester and increase the opportunity for use of electric vehicles.

GREEN AND BLUE INFRASTRUCTURE

Driven by plans including the Biodiversity Strategy, the Tree Strategy, the Irk Valley Local Plan and others. By 2009 Manchester had established a track record of partnership working to protect and enhance the city's green and blue infrastructure: the network of parks, trees, river valleys, gardens, green roofs, ponds and many other areas of natural environment that make up this critical resource.

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.

Key work has also been completed on developing a much deeper understanding of the value of this critical infrastructure in terms of climate change adaptation and its wider social, economic and environmental value.

Tree planting – since 2009, more than 26,600 trees have been planted on known schemes, including 26 new community orchards and fruit tree groves. Ensuring that these and other

existing trees thrive and can be protected in a changing climate remains a challenge.

Third Sector – Red Rose Forest and Groundwork have continued to green the city, delivering schemes ranging from city centre tree planting, the ongoing regeneration of the Irk and Medlock river valleys, to delivering the city's first 'Meanwhile' community food growing projects.

Research – a growing body of research has been produced by Manchester's academic institutions focused at the Manchester and GM scale. The EcoCities, GRABS, i-Trees and other projects have highlighted and detailed the multifunctional benefits of GI across the city.

Baseline data – a detailed baseline of the city's green and blue infrastructure has now been established: this will be used to produce the city-wide Green and Blue Infrastructure Strategy in 2013.

SUSTAINABLE CONSUMPTION AND PRODUCTION

Manchester – A Certain Future identified several actions that involve the development of more sustainable forms of consumption and production as key elements of a low carbon future. In 2009, there was some knowledge and applications at a city-wide level. After three years, some progress has been made, but this remains the most complex challenge presented by our plan.

What has changed since 2009:

Business – led by the Greater Manchester LEP and the Chamber of Commerce and supported by programmes like ENWORKS and the Environmental Business Pledge, progress has been made in further improving environmental performance and resource efficiency in businesses as well as increasing the low-carbon goods and services sector of the city economy.

Universities – both Manchester Metropolitan University and The University of Manchester (UoM) have begun to plan for measuring embedded carbon in their environmental management regimes. Research projects at UoM on food, water, energy and adaptation have all begun to explore climate-change impacts beyond direct emissions.

Waste – recycling of domestic waste has increased substantially in the city since 2009 – 34% in 2011/12 against 18% in 2009/10. The 58,500 tonnes diverted from landfill is generating a saving of 16,000 tonnes of embodied carbon; and schools have been piloting a range of food waste recycling projects launched since 2009.

Food – Manchester's Food Futures partnership was launched in 2005, and has seen a significant increase in activity since 2009. Community and co-operative food-growing schemes have increased, led by the third sector and schools. The University of Manchester and the Council have begun to develop low-carbon meals and local sourcing.

ADAPTATION

In 2009, dealing with the causes of climate change (mitigation) was our main priority. The need to prepare for the future consequences of a changed climate (adaptation strategies) was included in our plan but the issue seemed, at the time in Manchester, to be less urgent than mitigation. As the direct local impacts of climate change are beginning to have an increasing impact however, the plan for the next three years has an increased focus on adaptation.

EcoCities – The University of Manchester/Bruntwood-led partnership programme has created an adaptation framework for Greater Manchester, launched in 2012.

Flood defence – local authorities in GM have taken up the changes in statutory responsibility for flood management, creating a new partnership Flood Board to work with the Environment Agency and United Utilities to drive forward co-ordinated plans and programmes for resilience, flood prevention and management.

City centre – research and co-ordination on the importance of the city centre's green infrastructure in terms of resilience and urban cooling has been progressed by CityCo, EcoCities, AGMA, and the Council.

Civil contingencies – Greater Manchester has established an integrated GM Civil Contingencies & Resilience Unit, which is taking up security issues related to climate-change adaptation.

Energy infrastructure – Electricity North West have been investing in flood defences across the region in order to provide greater security of supply to Manchester and other areas.

#3

CONTINUALLY IMPROVING THE PLAN

“THIS PLAN SETS HEADLINE ACTIONS FOR JUST ONE DECADE – TO 2020 – BUT ITS GOAL IS TO PROVIDE A STRONG STARTING POINT FOR A MUCH LONGER JOURNEY, THROUGH TO 2050 AND A RADICALLY CHANGED, LOW – CARBON FUTURE WHERE LARGE-SCALE EMISSIONS OF CARBON DIOXIDE (CO₂) HAVE BECOME A THING OF THE PAST.”

TAKEN FROM THE INTRODUCTION OF MANCHESTER: A CERTAIN FUTURE, 2009

When *Manchester – A Certain Future* was drafted in 2009, it was anticipated that the plan would need to be changed and updated as the years to 2020 progressed. It was not to be a plan set in stone but a plan that could adapt as circumstances changed and as knowledge and understanding of climate-change issues and opportunities developed.

In 2009 there was no clear process in place through which our stakeholder plan could be updated. The MACF Steering Group has now begun to develop this role, evolving a function as ‘custodians’ of MACF on behalf of all stakeholders. All the changes and updates to the plan set out here have been agreed by the Steering Group and some of them relate to the ways in which they, as a voluntary, constituted – but not incorporated – body propose to maintain co-ordinating the plan’s momentum, and keep *Manchester – A Certain Future* as a living plan that is responsive to the climate-change needs and opportunities of the city.

Other changes proposed in this section relate to the need for action across a range of spatial scales and the importance of understanding ‘place’ to enable us to take the most effective action in our local communities.

Developments at a Greater Manchester level and within the city’s neighbourhoods provide some of the most significant changes to the context of our plan.

The next three years to 2015 also marks a period of transition for *Manchester – A Certain Future*. The research, planning and policy making, partnership building, and the delivery of pilots since 2009 have given us a good platform to build from. 2013 to 2015 will see project and programme delivery on a much bigger scale than we have seen to date, but at the same time continuing the important research and planning work we need to prepare us for 2016 to 2020 and beyond.

Responding to these issues, the progress set out in Section 2 and new activities identified during the drafting process, the following key issues and additions will be addressed during the next three-year period.

LINKING TO THE GREATER MANCHESTER CLIMATE CHANGE STRATEGY

Recognition of the importance of the Greater Manchester scale was incorporated into *Manchester – A Certain Future* from the outset: many environmental, economic and social issues are better understood and influenced at this level, as flows of people and resources pass through the administrative boundaries between districts within GM.

This importance has increased since 2009. The abolition of much of the north west’s organisational infrastructure has accelerated further development of GM structures with the

Greater Manchester Combined Authority (GMCA) and the Greater Manchester Local Enterprise Partnership (GM LEP) featuring strongly in a renewed and evolving city region. The adoption of a Greater Manchester Climate Change Strategy (GMCCS) in 2011, together with the structures emerging in 2012 – a GM Low Carbon Hub Board, Energy Group, Natural Capital Group and the basis of a GM Green Deal programme – all form parts of a new ‘environmental architecture’ at GM level. These developments are critical to delivering objectives at both GM and city level and need to be acknowledged in our plan.

There are already close links between MACF and GMCCS, but there are advantages to improving this alignment. The five themes in GMCCS – Buildings, Energy, Transport, Green & Blue Infrastructure, and Sustainable Consumption & Production – now form the basis for planning, governance and programming with the GM Low Carbon Hub board. The MACF headings – Living, Working, Moving, Growing, Adapting – are similar, but not the same; from 2013 onwards we will adopt the GMCCS headings too, creating common alignment for everyone working at both spatial scales as well as facilitating the development of shared programmes, performance measures and indicators.

GMCCS has four main objectives, while MACF has two. The two plans share objectives on CO₂ reduction and cultural change, and consideration has been given to MACF adopting GMCCS' two other objectives – on climate change adaptation and the economy. These are both cross-cutting issues that are important on a city scale and we intend to give them more priority in the period 2013 to 2015; however, the main focus in MACF will continue to be on the two original headline objectives of emissions reduction and culture change.

GREATER MANCHESTER PROGRAMMES

Working at the Greater Manchester spatial level generates economies of scale, knowledge and connectivity, and strong correlations with more organic boundaries of the city region, its economy, and the travel-to-work area. The newly established GM Low Carbon Hub will give momentum to GM-wide programmes, shaped to deliver the actions set out in the GMCCS. Reflecting the beneficial alignment between MACF and GMCCS, we will work closely with GM partners where GM scale programmes provide the best investment, knowledge or capacity to address specific objectives. It will also be at the Greater Manchester level and through the Core Cities network that we will continue to work with the Government to ensure that cities have the tools they need to take action on climate change.

Examples of this include:

TfGM and GM Waste Disposal Authority – well-established GM institutions that drive momentum on transport policy and infrastructure, and waste disposal, respectively.

Green Deal – a retrofit programme incorporating Green Deal and ECO partners will be developed at GM level to drive a co-ordinated portfolio of projects with a range of providers to optimise development costs, economic benefits and result in emissions reduction and the alleviation of fuel poverty.

Manchester Carbon Literacy – while initiated in Manchester as part of MACF, this programme is already becoming established in other parts of Greater Manchester. Developing a GM programme is much more efficient than reinventing more local schemes.

Energy switching – across Greater Manchester fuel poverty is a major concern, with 220,000 households currently spending more than 10% of their income on fuel. This programme will jointly engage residents in Green Deal, carbon literacy, fuel poverty and energy-switching activities in order to save them money and carbon.

Environmental Business Pledge and ENWORKS – both these business support functions operate across Greater Manchester.

CARBON METRICS

Since 2009 we have worked with Greater Manchester partners to begin to establish a 'Total Carbon Footprint' (TCF) framework for the city region. This framework was intended to enable us to measure and report, not just the 'operational' emissions from energy use and transport, but also the emissions from aviation and shipping and those 'embedded' in the production and disposal of the products and services we consume. This approach will give us an understanding of our 'real' carbon footprint and the actions we would need to take to reduce it.

It will also help us to bring together different measurement methodologies so we can show how the efforts of every individual and organisation are contributing to our CO₂ reduction goals.

We had originally intended to put this framework in place by 2013 and have made progress by establishing, for the first time, a baseline TCF for the city region. However, progress outside the city has been slow, meaning that adopting a TCF approach from 2013, in the absence of a national framework of agreements, would not benefit the city.

The MACF Steering Group have agreed that we continue to adopt a twin-track approach to 2015, measuring and reporting our operational emissions, as we have done since 2009, while further developing our understanding and application of TCF approach, in preparation for further development of this agenda in the coming years.

CULTURE CHANGE

As set out in Section 2, much progress has been achieved since 2009, with examples of 'low carbon thinking' beginning to become embedded in the lifestyles and operations of individuals and organisations across the city. One of the key developments for 2013 to 2015 will be to adopt a set of indicators for tracking progress against this objective.

ADAPTATION

In 2009 we knew that preparing for hotter, drier summers, warmer, wetter winters, and more frequent periods of extreme weather would need to be a key part of our plan to 2020; this knowledge has been affirmed and strengthened over the past three years. The continued rise in global emissions that makes change inevitable is placing greater emphasis on adaptation and resilience. A range of pilots, investment in flood defences, combined with a significant programme of research through the EcoCities project, and other initiatives have helped to develop our progress and understanding in relation to climate-change adaptation.

From 2013 we will be monitoring the impact of our plan against the adaptation objective and indicators in the Greater Manchester Climate Change Strategy, helping us to understand how the city is 'preparing for and actively adapting to a rapidly changing climate', and what more we will need to do from 2016.

LOW-CARBON ECONOMY

Alignment with the Greater Manchester Climate Change Strategy also introduces the need to consider how MACF should best respond to the objective to make a rapid transition to a low-carbon economy. As with adaptation, we will also monitor the impact of MACF against this objective over the next three years. The MACF Steering Group have committed to work with partners to explore this issue in further detail, to develop a clear set of recommendations that can inform the plan for the period beyond 2016.

CLIMATE CHANGE ACTION IN COMMUNITIES

Since 2009 we have made good progress in creating the city-wide policies, plans and partnerships we committed to, creating the framework for delivery of MACF. This work, by its nature, has been strategic, often working with Greater Manchester partners and the Government to develop the right approach to enable climate-change action to happen all across the city in the places where it matters: our communities and businesses.

In parallel with this strategic activity, a wide range of organisations have been delivering practical projects – in their business or neighbourhood – and often in partnership with other organisations. We have not been successful in capturing all this activity across the city, and it is clear that scaling up and sharing inspiration and practice is more likely to happen at a more local level.

This partnership working is now beginning to be co-ordinated in each of the city's six Strategic Regeneration Framework areas, and there is an opportunity for action on climate change to integrate with this approach.

To reflect this approach, action plans have started to be developed by public sector partners and neighbourhoods in each of the Strategic Regeneration Framework areas. This plan for 2013 to 2015 includes indicative key projects in all parts of the city.

Over the next three years planning, policy, project development and delivery will be progressed at this level, to ensure that climate-change action can be informed by and help to improve the city's communities, each one with its own unique set of challenges and opportunities.

SMART CITIES AND THE GREEN DIGITAL AGENDA

Smart cities are places where economic activity and competitiveness go hand in hand with environmental protection and social capital, making best use of a city's key assets. Combining digital infrastructure with a capacity to access real-time information, the smart city concept has been promoted by the city in Europe through the Eurocities Green Digital Charter and is being developed as a key context for innovation in digital connectivity, data sourcing and energy-efficiency.

Through this initiative we are developing ways of engaging with our residents and organisations to demonstrate how digital technologies can contribute to creating a smart, low-carbon, competitive society and economy. There are a number of 'green digital' actions in our plan for the next three years. These will build on and contribute to the latest research in this area, helping to ensure that by 2020 Manchester remains at the forefront of this exciting new agenda.

ROLE OF THE STEERING GROUP

The MACF Steering Group was established in 2010 to represent the views of the city's stakeholders, engage them to undertake their own climate-change action, and to oversee and steer the plan's delivery. This role has evolved over the past three years, much as the plan itself has. In tandem with the drafting of this Refresh, the Steering

Group has undertaken a review of its role to ensure that it can add most value to the plan's delivery and continue to engage ever-wider groups of stakeholders to play their part.

From 2013 the Steering Group will be focused on a refreshed headline aim:

'To ensure that the climate change action plan for Manchester thrives.'

Fulfilling this challenging role, for a plan which contains such a breadth and depth of activity, will be achieved through a range of Steering Group activities, including the establishment of subgroups for each of the five themes in the plan, enabling focus and momentum in each area to be maintained at all times. This will allow the Steering Group to maintain oversight of the whole, driving and better communicating our collective progress to stakeholders across the city and beyond.

THE APPROACH TO THE PLAN

As in 2009, we now know – in 2013 – that as well as making short-term progress, our plan will need to continually evolve to ensure that we remain on track to our 2020 targets, underpinned by the latest science and progress in the city, and taking account of new developments in Manchester and beyond.

From 2013 MACF will take on an approach that reflects these needs, structuring our activities into 'delivery' of projects that will contribute towards our objectives, 'monitoring' the impact of our projects against these objectives and new 'research', and 'planning and policy' work to ensure that by 2016 we are ready for our next wave of action to 2020. This approach is not unique to Manchester, but importantly it is built on the programmes and partnerships we have built during 2010–12, establishing the momentum and strong base from which we can launch our ambitious plan for 2013 to 2015.

“WHAT YOU WILL QUICKLY DISCOVER IN THIS PLAN IS THAT URGENT ACTION IS NEEDED ON EVERY FRONT TO TACKLE CLIMATE CHANGE. IT IS A PLAN ABOUT DEEDS, NOT WORDS.”

SIR RICHARD LEESE, LEADER OF MANCHESTER CITY COUNCIL, FOREWORD TO MANCHESTER – A CERTAIN FUTURE

#4

COLLECTIVE ACTION PLAN 2013-15

WHAT WE ARE GOING TO DO NEXT

In the period 2010 to 2012, *Manchester – A Certain Future* has led to the creation and approval of some key plans, raised awareness, begun to develop delivery and generated some momentum for collective action on climate change in the city. In the next three years to 2015, we will need to build on what we have achieved and learned since 2009, and accelerate activity. In this section, we summarise headline actions for this period – reducing emissions, embedding culture change, innovating with new technologies and new forms of investment, creating jobs and furthering work to make our city more resilient and sustainable in the face of future climate change.

While continuing with plans and programmes already established and developing and testing the new ideas and technologies our future city will need, we will maintain a focus on the quality of life for residents, businesses and visitors. Integrating our actions on climate change with other drivers for prosperity and social change can be energised by green ICT, innovative digital projects and organisations like the city's Future Everything.

The rise of the 'smart city' and the increasing role of information and communication technology (ICT) reinforces MACF: ICT will have a key role in reducing the city's carbon emissions through enabling culture change, alongside the delivery of innovative new approaches to managing the CO2 emissions from our increasing use of ICT in all sectors. As the founder of the Eurocities Green Digital Charter and lead partner in a number of innovative new projects, we are well placed to maintain this position to 2015 and beyond.

The city's population is set to continue growing, economic pressures are forecast to remain high and the ongoing process of change in public services will continue to build local partnerships that strengthen neighbourhoods. Renewing wider participation and sufficiency involves a cultural change that resonates with more active lifestyles, increased wellbeing and a reduced carbon footprint.

Thus our headline actions will be developed and delivered so they complement other priorities in the city and respond to the pressures and opportunities presented by Government initiatives and policy, and the state of the national and global economy. Actions will need to be designed to achieve outcomes by 2015, at the same time preparing us for further activity that will need to be taken between 2016 and 2020, and beyond to 2050.

Detailed actions are set out in an appendix of tables, and fall into four categories – planning and policy, delivery, monitoring and metrics, and review and research. In the plan, headline actions are summarised by theme, while key projects and project areas are also identified for separate geographical areas of the city. When published, the plan will be accompanied by guides setting out how key stakeholder groups can play their part in delivering this plan.

ACTIONS BY THEME

BUILDINGS

Buildings (domestic, commercial, public and community buildings) are responsible for 78% of the city's direct CO₂ emissions. We know that up to 80% of the buildings we will use in 2050 are standing now – which makes retrofitting a priority; but low-carbon new buildings are important too. As energy prices continue to rise, making significant strides in the energy-efficiency of our buildings increases the viability of our businesses, the quality of life for the less prosperous in our neighbourhoods, and – potentially – increases the resources available for spending in the local economy.

Reducing emissions from our buildings requires both physical building improvements as well as changes in the way buildings are managed and used by their occupants. Green and blue infrastructure surrounding and built in to the fabric of buildings also has an important role to play, helping to regulate energy use throughout the year and reduce vulnerability to flooding. Different building types present different challenges: this section considers domestic, then commercial public and community buildings in turn.

BUILDINGS: DOMESTIC

Manchester's domestic properties are responsible for 31% of the city's direct CO₂ emissions and 20% (household fuel, electricity and domestic construction) of the city's consumption-based CO₂ emissions. There is a mixture of property types in the city, from hard-to-treat properties built at the turn of the century, to new apartments built in the past ten years.

The development of a Green Deal delivery partnership programme for Greater Manchester and the new national ECO

obligations of energy companies will create a new framework for energy-efficiency interventions in all buildings, but particularly in the housing sector, providing the city and the city region with the tools to help deliver the Greater Manchester Domestic Retrofit Strategy.

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 to 2017.

Domestic Building Headlines from 2015

5,000 homes (1,350 under the GM Delivery Partnership) will have been retrofitted through the Green Deal and ECO by 2015, and plans for retrofitting further homes by 2020 will be in place, embedded with our plans for neighbourhood regeneration.

All new-build housing development will be guided by the energy policies in the Manchester Core Strategy, ensuring that developers are on track to build zero-carbon housing from 2016 onwards.

All households will have received energy-efficiency advice, with targeted programmes aimed at alleviating fuel poverty in the poorest neighbourhoods.

Aligned with Manchester Carbon Literacy (MCL), 500 local people will have been trained in order to contribute to and benefit from a growing retrofit industry in the city. MCL will also be delivered to residents through various retrofitting schemes.

While our social housing providers continue to provide leadership on greening our housing stock, an increasing number of owner-occupiers and private landlords will be taking steps to reduce energy consumption and climate-proof their homes.

We will have a system for measuring and recording the energy performance of all housing in the city, ensuring that we can prioritise investment to areas in greatest need, particularly for those living in fuel poverty.

We will have a growing network of low-carbon show homes, demonstrating to residents and landlords the practical steps they can take to improve their own properties.

BUILDINGS: COMMERCIAL, PUBLIC AND COMMUNITY

The range of buildings and installations used by all our businesses and public bodies and all the city's schools, churches and community buildings represents a large part of our building stock. Manchester's commercial, public and community buildings are responsible for 47% of the city's direct CO₂ emissions.

The performance of commercial, public and community buildings will take on increasing importance over the next three years, as energy prices continue to increase, carbon taxes start to rise, and customers and employees demand ever-higher standards of environmental performance. In most cases, this will involve combining measures on the built fabric with culture change programmes that help us to use these buildings in a more energy-efficient way.

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

Other Building Headlines from 2015

We will have a full understanding of the total carbon emissions from commercial, public and community

buildings in the city and plans in place for stronger partnerships to secure investment, sharing and publicising data and good practice so that aggregate emissions can be reduced by 41% by 2020.

Development of GM's Green Deal will have stimulated access to a range of financial mechanisms to fund low-carbon building retrofit for commercial property owners, and initiated training programmes for professionals involved in the retrofitting of buildings.

New buildings will comply with the energy policies in the city's Core Strategy, ensuring that developers are on track for new commercial, public and community developments to be zero-carbon from 2019.

The universities, NHS hospitals and the Council all have plans to reduce emissions from their estates – mostly in line with the MACF objective – by 2020. All will be making significant progress against these targets by 2015.

Despite reduced levels of capital investment in schools in the period to 2015, the continuing increase in IT activity and rising primary school numbers, the emissions from schools will be 10% lower than in 2012.

We will use iconic public and commercial retrofit and new-build projects in the city centre as a centre of excellence for low-carbon, climate-adapted buildings to inspire and inform projects across Manchester; we will also make preparations to host a Low Carbon Buildings World Exhibition in 2017.

We will have developed a range of innovative applications using digital technologies to enable buildings to be better managed and more energy-efficient.

ENERGY

For over a hundred years, nearly all Manchester's energy has been sourced from a national centralised system of electricity and gas supply. Being reliant on this system means that Manchester has no direct control over the carbon emissions from its energy generation, the price we pay, or the security of our supply in the future. However, this has begun to change – a process that will accelerate towards 2020.

Manchester consumers are beginning to develop a greater understanding of how energy is generated and how it is used in their buildings and infrastructure. They are beginning to take greater control over where their energy comes from, creating greater demand for renewable sources and generating more in their own buildings.

Financial incentives such as the Feed-In Tariff and Renewable Heat Incentive have begun to increase the deployment of building-scale renewable technologies: this will continue, technologies will develop, and steadily mounting price rises will drive awareness and challenges, particularly for those in fuel poverty. The policies in Manchester's Core Strategy will provide further guidance and incentives that stimulate new development to incorporate localised energy generation; the Green Deal and ECO will stimulate local energy generation in existing properties.

Our future city will have complex energy systems digitally managed to optimise local generation and consumption. In 2013 to 2015, we will explore the development of these smart grid technologies and begin to establish energy planning as a corporate city function.

Headline aim: to increase knowledge, research and delivery of renewable energy technologies; understanding and planning of the city's energy needs and opportunities; and application of digital technologies for energy management.

Energy Headlines from 2015

Integrating policies from the Core Strategy with the framework of the GM Energy Plan, we will have developed a city-wide energy plan that sets out the major opportunities for renewable energy generation, embedded within the city's plans for neighbourhood regeneration.

Awareness and understanding of the sources of energy will be increased for organisations and residents, and programmes such as GM's Energy Switching scheme will have increased local demand for energy from renewable sources.

We will have progressed understanding and practice of smart energy management in the city through programmes including ENW's Capacity to Customers and CLASS projects, and outputs from Manchester Energy.

Large-scale energy generation and distribution systems will have begun to serve a small number of key areas of the city, establishing the basis for developing city-wide heat networks in the future.

We will have increased the installation of building-scale renewable and low-carbon heat and power technologies, including solar PV, geothermal, solar thermal, hydro power and heat pumps.

Partnerships, including our universities and Manchester Science Park, will have developed Manchester-dedicated research and demonstrator programmes that develop digital energy data, closed-loop fuel recycling, new applications such as hydrogen technology, and an understanding of the potential for locally produced biofuels.

We will have developed innovative demonstrators using open data and sensor networks to monitor energy use and help stimulate cultural change.

TRANSPORT

Plans to change the city's infrastructure that were being put in place in 2005 have been implemented between 2010 and 2012. By 2015 many of these plans will have been completed and new plans will be in place for the period to 2020.

Transport for Greater Manchester's (TfGM's) programme of ongoing expansion of the Metrolink and the development of Quality Bus Partnerships increases the availability of more sustainable modes of transport but needs to keep pace with an increase in the city's population and demand for mobility. Our city's transport programmes will need to be complemented by active travel schemes and the continued use and development of digital technology that increases flexible working for employers and online services for providers.

Plans to increase cycling and walking for shorter journeys need to be developed in closer alignment with health and wellbeing programmes that stimulate fitness and active lifestyles, and green and blue infrastructure programmes that improve the attractiveness and safety of active travel routes. These interventions will be linked to improvements in transport carbon metrics and sustainable travel research.

Headline aim: to deliver modal shift 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 to 2020.

Transport Headlines from 2015

More of us will have access to greener public transport – Metrolink lines to Didsbury, Droylsden, Wythenshawe and Rochdale will be operational and Quality Bus Partnerships will be further developed; SMART ticketing for the whole network will be in the process of being introduced.

An improving framework for increasing commuter cycling will be in place – cycle centres, training programmes, employer user groups, new cycle lanes and signage, improved integration with Metrolink – and plans for expansion will be in development as part of a new Greater Manchester cycle strategy.

Through an increase in active travel programmes and Manchester Carbon Literacy schemes, more residents and pupils will be more aware of the health and climate change impacts of their transport choices.

Many large and medium-sized employers, including the universities, the NHS hospitals, the Co-operative and the Council, will be delivering green travel plans and inspiring others to follow.

We will see more widespread 20mph zones in residential areas, helping to make walking and cycling a safer and more attractive option, and improving the wellbeing in our neighbourhoods.

An initial network of electric vehicle charging points will be operational across the region, including in Manchester, and use of the city car club will have increased by 50% with more cars available.

The development of Quality Bus Partnerships and cycling promotion in the south of the city centre will have begun to transform the Oxford Road Corridor into a centre of excellence for sustainable transport.

We will have begun to research and develop new ways of moving freight around in the city, exploring partnerships that include retailers, electric vehicles and new businesses.

GREEN AND BLUE INFRASTRUCTURE

61% of our city is made up of parks, woodlands, river valleys, fields, verges, canals and rivers, allotments and private gardens. This 'green and blue infrastructure' provides our city's residents with places to play and relax, routes to work, and contributes to the quality of the city's appearance for visitors and residents. Less obviously it increases property values and contributes significantly to air quality and our health and wellbeing. It also provides a resource for urban wildlife, for climate-change adaptation and – particularly in the city centre – for urban cooling and surface water management.

The distribution of this infrastructure doesn't necessarily currently meet all the city's needs, and its value may be underestimated. Protecting, promoting and developing our understanding of the multifunctionality of our green and blue spaces will continue as a priority during 2013 to 2015. Pressures on public sector finance, creating opportunities to meet increasing demand for local food-growing, challenges in the natural environment – including maintaining biodiversity for key species like bees, and tackling epidemics like 'ash die-back disease' – will stimulate stronger partnerships and new investment models.

Ensuring that the 'ecosystem services' this infrastructure provides are maintained will be a priority, as we will need to make more of these green and blue assets in the future, more fully realising their scope and value in developing Manchester as a low-carbon and climate-adapted city.

Headline aim: to ensure the city's green and blue infrastructure is providing the optimal benefits for the city in terms of quality of life, climate change adaptation, and wider social, economic and environmental benefits.

Green and Blue Headlines from 2015

A Green and Blue Infrastructure Strategy will be published and in use in all parts of the city, providing a framework for ensuring that natural environment benefits become and remain embedded in our plans for neighbourhoods and the city centre.

A programme of tree planting will have continued in the city, with an increase in street trees, green roofs and green walls delivered or planned in the city centre.

Investment in the quality and use of the city's waterways will be better aligned with other priorities so that flood-risk management, improved water quality, property values, recreational and urban cooling benefits are linked with urban development and refurbishment.

Community and friends groups, businesses and schools will be more actively involved in the city's green and blue spaces, and learn about the many benefits they can provide, including health, recreation, climate change adaptation and mitigation.

Data held on all the city's green and blue infrastructure will have been improved and updated and made publicly available, growing a shared understanding of its value for climate-change adaptation, biodiversity, health and wellbeing, education and recreation.

SUSTAINABLE CONSUMPTION AND PRODUCTION

Progressing the challenge of improving the sustainability and energy-efficiency of all our products and services throughout their life cycle will become a steadily increasing priority as our city grows and the pressures of climate change continue to mount.

Businesses, support organisations and universities will continue to research, innovate and develop programmes that can help to de-carbonise supply chains and maintain competitiveness. Pursuing and developing environmentally sustainable consumption and production that maximises the potential of businesses to turn environmental challenges into economic opportunities will form a key area of growth in our economy. This will provide more sustainable jobs, a better deal for residents and consumers, and a steadily growing contribution to Manchester's transition to a low-carbon city.

Stimulating environmental understanding, sustainable procurement and consumer choice, and influencing demand for low-carbon goods and services through programmes like the Green Deal and Manchester Carbon Literacy, we have the opportunity to develop 'closed loop' systems that generate benefits for residents, businesses and the environment. Progress will be supported by innovation through our universities and business support programmes such as the Environmental Business Pledge, ENWORKS and the Mayday Network.

Sustainable Consumption and Production is a complex and broad topic, the least understood or developed of our themes. It involves applying 'low-carbon decision-making' to our activities as individuals and organisations and includes a range of different but overlapping areas of activity, and we expect these to become clearer as understanding of the

links between cycles of manufacture, use and disposal and lifestyle and culture develops. Currently, we are focusing the theme in three areas: Organisations, Waste, and Food.

SUSTAINABLE CONSUMPTION AND PRODUCTION: ORGANISATIONS

More than 17,000 businesses and organisations operate in the city and we estimate that some 10–15% are currently engaged in the low-carbon agenda. 500 businesses operate in the low-carbon goods and services sector in the city, representing 25% of this part of the GM economy. This business sector is at the forefront of the growing low-carbon economy and is well placed to respond to the increased global demand for new technologies. The 1,800 organisations that are members of the Environmental Business Pledge are also important as they represent a significant proportion of businesses concerned with sustainable consumption through resource efficiency, sustainable procurement and promoting use of green technologies.

Headline aim: to grow understanding of sustainable consumption and production and to increase the number of organisations, including businesses, schools, public bodies and community organisations, that are actively engaged in 'low-carbon decision-making' in the way they manage and operate their activities.

Sustainable Organisations Headlines from 2015

20% more organisations will be working towards a recognised environmental standard than in 2012.

Sustainable procurement will be improving the environmental performance of our organisations, and creating demand for suppliers to provide low-carbon goods and services.

There will be more businesses in the city providing low-carbon goods and services.

Research from the Sustainable Consumption Institute and others will help to identify further opportunities for low-carbon activity from 2016.

SUSTAINABLE CONSUMPTION AND PRODUCTION: WASTE

We have made significant progress on waste 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 in 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.

In 2013–2015, we also need to explore the development of Manchester's 'thrift economy' – growth in local reuse and repair activity and an increase in the service-based economy, with more organisations set up to seize the opportunity to repair and recycle goods that just a few years ago would have been sent to landfill.

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.

Headlines from 2015

At least ten large organisations will be committed to sending zero waste to landfill by 2020.

The city will have a growing number of businesses repairing and reusing goods that would otherwise become waste.

We will have a full understanding of the city's commercial and industrial waste and be exploring options for increasing recycling and reducing the amount to landfill.

All new developments will be designed to facilitate best-practice waste management and maximise the amount of material sent for recycling.

SUSTAINABLE CONSUMPTION AND PRODUCTION: FOOD

Measured by 'direct' emissions, food plays only a very small part in our CO₂ emissions profile. However, the work undertaken on consumption-based (embodied) carbon metrics data in Greater Manchester in 2011 shows that nearly 20% of the total carbon footprint of a GM 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.

We can address this through developing a more sustainable food system for Manchester, building on work already undertaken and raising the profile of food issues, strategies to encourage an alternative food system, increased community food growing, and schemes to further reduce food waste at a resident and industry level.

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

Sustainable Food Headlines from 2015

By making land available and providing support, community food-growing projects will have sprung up all over the city, including schemes delivered as part of neighbourhood regeneration schemes and new developments.

Community growing, local food production and consumption, and reducing food waste will have a higher public profile through exemplar projects such as Wythenshawe Real Food, and Fareshare.

There will be an increase in Manchester-based businesses growing and processing food commercially for sale within the city.

Further progress will have been made in reducing and recycling domestic food waste, and initiatives that reduce and recycle commercial food waste will be increasing in scope and scale.

Manchester will have begun to build a reputation as a destination for sustainable food through large events and festivals, as well as neighbourhood food markets and projects.

CROSS-CUTTING ACTIONS

The actions in the above section are designed to achieve measurable reductions in CO₂ and changes to the city's culture. While each action is deliverable in its own right, critical to the success of Manchester – A Certain Future is the cumulative, co-ordinated impact of this wide range of actions. Cross-cutting actions for both objectives will support this, ensuring that we can measure and demonstrate progress against our headline objectives.

CARBON METRICS

Building on the work we have done since 2009, we will establish and maintain systems for monitoring both our operational CO₂ emissions (energy use and transport), and our total carbon footprint (all emissions associated with our activities). This will enable us to better understand the impact of activities across the city to 2015, and those required to 2020 to enable us to meet our 41% CO₂ reduction target. It will also prepare us to adopt a total carbon footprint framework from 2016, ensuring that the city can remain at the forefront of this agenda as its profile and understanding develops nationally and internationally.

CULTURE CHANGE

Achieving a 41% reduction in CO₂ by 2020 is challenging but achievable, with savings to come from the introduction of innovative new technologies, wider take-up of existing and developing approaches, and a gradual but marked shift in behaviours. However, beyond 2020, to 2050, savings of at least 80% – in line with the UK Climate Change Act, become increasingly challenging. Technology will continue to be part of the solution, but the collective and individual thinking and understanding of the city and its stakeholders will be driving demand for these technologies, instinctively and intuitively seeking the lowest carbon options in our daily lives.

Unlocking this understanding and establishing a 'low-carbon culture' will require climate-change knowledge to be acquired both directly, through training, and indirectly, through low-carbon practices becoming a larger part of the way the city works.

Carbon and Culture Headlines from 2015:

All residents, workers and learners will have been given access to a day's worth of Manchester Carbon Literacy training and encouraged to take it up.

We will see regular updates on the city's progress on climate-change, and several awards for the actions of our organisations, communities, residents and the city as a whole.

We will have a set of indicators for culture change so we can better measure and celebrate our progress against this objective.

ACTIONS BY LOCATION: LOCAL ACTION ON CLIMATE CHANGE

The next three years to 2015 will see climate-change action happen increasingly in the places where it really matters: in our communities. This activity will build on the planning, projects and partnership-building we have delivered from 2010 to 2012, enabling us to start to see things happen at scale across the whole city. It will be across the spectrum of actions set out above but, importantly, it will be tailored to the unique local circumstances that exist in our many and diverse communities. Different building types, different transport options, different partners and many other factors will influence how activity is delivered, but always with the same overarching aim – that taking action on climate change will help to secure a better, healthier, certain future for our communities.

To help us to achieve this, bespoke approaches and projects will start to be delivered in each of the city's Strategic Regeneration Framework areas and the city centre by all stakeholders who live and work there. Our shared vision for the future will help build collaboration between different communities, and at times also create healthy competition as they vie for the title of Manchester's Greenest Community.

CITY-WIDE CLIMATE CHANGE PRIORITIES:

As well as specific local priorities, all areas will be taking action in the following areas:

Manchester Carbon Literacy will be developed and implemented so that organisations and resident groups can access training programmes.

Residents will be reducing their energy bills and CO₂ emissions by having their homes retrofitted through the Green Deal. They will also be travelling around the city using the new 'Green Corridor' and other safe, accessible walking and cycling routes.

Businesses will continue to improve their environmental performance through signing up to support programmes, including the Environmental Business Pledge. There will also be growth in the number of businesses providing low-carbon goods and services, and the number of the city's residents employed in this sector.

Schools will continue to work with the Eco-Schools programme in order to embed environmental education in the curriculum and to prepare students for employment in the city's growing low-carbon economy.

Planning and policy work will be delivered to enable MACF and its actions to become embedded and delivered as part of the implementation of Strategic Regeneration Frameworks and local plans.

NORTH MANCHESTER

Wards: Higher Blackley, Charlestown, Moston, Harpurhey, Crumpsall, Cheetham

Example actions will include:

The low-carbon, climate-adapted redevelopment of Collyhurst and Lower Irk Valley will be underway.

Central Harpurhey will be redeveloped with sustainable design principles at its heart.

The continued delivery of the Irk Valley Local Plan will be maximising the potential to adapt the local area to climate change through growing local food and providing routes for walking and cycling.

EAST MANCHESTER

Wards: Miles Platting & Newton Heath, Ancoats & Clayton, Bradford, Gorton North, Gorton South

Example actions will include:

The Etihad Campus and new Beswick Leisure Centre will be delivered as leading examples of low-carbon, climate-adapted development.

The next phases of the Sharp Project on Oldham Road will be designed to establish this as a centre of excellence and learning in climate-ready design.

Renaturalisation of sections of the River Medlock will be delivered to reduce flood risk, improve water quality, and create a valuable asset for residents, businesses and wildlife.

CITY CENTRE

Example actions will include:

The refurbishment of the Town Hall Extension and Central Library will be completed, including employing state-of-the-art digital sensors, open data and new applications to establish the complex as a demonstrator 'smart building'.

The city centre's first new district heating network will be delivered, integrated with the redevelopment of St Peter's Square and providing surrounding buildings with low-cost, low-carbon energy.

Completing the first phase of the NOMA development will establish this as the city's new sustainable business district, including its own low-carbon energy centre.

The Metrolink Second City Crossing will be nearing completion and delivery of the cross-city bus package will be significantly improving bus access into the city centre.

CENTRAL MANCHESTER

Wards: Hulme, Moss Side, Ardwick, Rusholme, Longsight

Example actions will include:

The University of Manchester's ambitious £1billion programme of rationalisation and redevelopment will be underway, helping to establish a low-carbon estate fit for the 21st century, on track to achieve 40% CO₂ reduction targets by 2020.

Manchester Metropolitan University will deliver its Birley Fields campus to exemplary low-carbon standards and will continue to deliver a range of energy-efficiency improvements to reduce CO₂ emissions by 35% by 2015/16.

Central Manchester Foundation Hospital Trust NHS will continue to retrofit listed buildings, install a voltage optimiser, update energy-monitoring systems, install variable speed fans, and put in place a variety of other measures to continue to reduce its carbon emissions.

The delivery of the cross-city bus package will significantly improve bus, pedestrian and cycling access along the Oxford Road Corridor, and installed digital technology and open data will have begun to establish the Corridor as a 'living laboratory', with residents, students, researchers and businesses interacting with smart services.

SOUTH

Wards: Burnage, Chorlton, Chorlton Park, Didsbury East, Didsbury West, Fallowfield, Levenshulme, Old Moat, Whalley Range, Withington

Example actions will include:

The new joint library-leisure centres at Chorlton and Levenshulme will be delivered as leading examples of low-carbon and climate-adapted buildings.

The regeneration of Alexandra Park will be completed; this will provide a resource at the heart of the community for sustainable travel, recreation and help to adapt Whalley Range and Moss Side to climate change.

The Mersey Valley will be managed to maximise its value to the local community and to manage flood risk in this part of the city.

The South Manchester Environment Forum will be helping to run and promote a number of schemes to engage local residents in climate-change action.

WYTHENSHAW

Wards: Brooklands, Northenden, Sharston, Baguley, Woodhouse Park

Example actions will include:

The implementation of a new Wythenshawe town centre travel plan will increase use of sustainable modes of travel and reduce private car use.

Residents and organisations will benefit from healthy, sustainable food through the £1million Wythenshawe Real Food project, and the Garden City Festival will continue to showcase 'green' activity across the area.

The Airport will achieve zero carbon in its ground operations by 2015.

Wythenshawe Hospital will continue to improve and maintain its position as the 'greenest' hospital in the country.

ACTIONS BY STAKEHOLDER GROUP

As well as looking at MACF in terms of its different themes or by local area, many people will also want to know 'what can I do as a resident?', or 'how can my organisation contribute to MACF?'

As a supplement to this refreshed document, guides have been produced for three key stakeholder groups, providing information on what they can do to help deliver MACF:

Residents and communities

Staff, businesses and organisations

Pupils, students, schools, colleges and universities.

Guides can be downloaded from www.manchesterclimate.com

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