

Planning, Housing & Environment Overview & Scrutiny Committee

Date: 17 April 2018

Subject: Green Summit

Report of: Councillor Alex Ganotis, Green City Region Portfolio Lead and
Mark Atherton, Assistant Director of Environment, GMCA

1. PURPOSE OF REPORT

1.1 The purpose of this paper is to review the Green Summit, held on 21st March, its outcomes and the co-creative approach used to develop the Summit and its content.

1.2 Significant (UK leading) analysis has been undertaken:

- to define a date by which GM should be carbon neutral, if it is to be fully compliant with the Paris agreement, and
- for the first time at a UK City level, devise indicative pathways for moving GM towards this.

2. RECOMMENDATIONS

2.1 That the committee:

- a) Note and comment on the outcomes of the Green Summit.
- b) Note and comment on the conclusions of the carbon neutrality work.
- c) Note and comment on the initial feedback from the Listening Events and online survey.
- d) Agree the next steps.

3. NEXT STEPS:

3.1 The next steps include:

- Conclude the analysis of the online survey to glean further insight (UoM).
- Embed the outcomes from the Summit into the Greater Manchester Strategy (GMS) Implementation Plan and, where appropriate GMCA work programmes.
- Analyse the 200+ pledges that have been made by public, private and community sector organisations to support the environment vision and engage further with pledging organisations.
- Publish a strategic environmental vision which communicates the outcomes of the Summit by summer 2018.

- Develop, with partners, workstreams that will support the further delivery of the aspirations identified at the held Summit on 21st March 2018.
- Plan and organise a further Summit in 6-10 months to evaluate progress, re-engage with the wider audience and set out a pathway for the next 5 years which will move Greater Manchester towards carbon neutrality. This summit will be used to formally set out our target for the date of carbon neutrality.

3. CONTACT OFFICERS

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The following is a list of the background papers on which this report is based in accordance with the requirements of Section 100D(1) of the Local Government Act 1972. It does not include documents, which would disclose exempt or confidential information as identified by that Act.

- A previous update on the Green Summit was set out in a paper to Leaders on 20th March 2018.
- Green Summit Agenda, Speaker Biographies and Presentations can be downloaded from https://www.greatermanchester-ca.gov.uk/info/20005/green_city_region/117/green_summit

1. BACKGROUND

The objective of the Green Summit was to set out a new environmental vision for Greater Manchester to become one of Europe's leading green cities. As part of this, the Summit set out to consider how Greater Manchester can accelerate its activities to reduce carbon emissions to tackle climate change and in doing so, to position the city region as a global leader for smart energy innovation.

It is recognised that these ambitions cannot be realised by local government acting alone; it will require concerted effort from national government, business and communities working together. In recognition of this, the Summit was framed as GMCA facilitating wider discussion and collaboration, rather than 'owning' the Summit and being responsible for everything that results from it. The Green Summit was an opportunity to announce a 'call to action' to realise the changes required to make the city region fit for the future. Key messages arising from the Summit are presented at Annex 1.

2. GREEN SUMMIT REVIEW

The Green Summit, held on 21st March, attracted significant interest. There were over 1000 applications to attend the Summit for a venue size of 600. Over 700 people (including speakers and facilitators) attended the Summit. Those who are unable to attend the Summit in person were able to view the Summit via live streaming on the GMCA and BBC websites. Adverts for the live streaming events appeared at selected metro stops. The recording of the Summit can still be viewed online <https://goo.gl/mZtcH>.

The online survey attracted 2,274 responses and nearly 20,000 individual comments. 42 'listening events' were also held in advance of the Summit, engaging over 1200 individuals, with a spread

across all districts. Approximately 10 of these were organised by either the GMCA or districts, with the remainder being organised by community and interest groups. The condensed and analysed feedback results from the listening events were reported back to the Green Summit.

The Summit event was split into three sections:

- Inspiration – engaging keynote speakers and questions from the audience
- Dialogue – discussion on feedback from the listening events and survey responses
- Resolution – plenary of the key actions to be considered, what the new vision should be, pledges from the audience and on-line as to what commitments others will make towards the new vision.

Over 200 pledges have been made already and this continues to rise.

3. OVERVIEW OF SURVEY FEEDBACK

From the survey results, the two words that appeared most frequently (by some margin) were 'green' and 'environmentally friendly'. It is clear from the feedback that, whilst tackling climate change and setting a carbon reduction target is an important part of the summit, the general public's aspirations for Greater Manchester are broader. The over-whelming feedback to questions which asked whether GM was doing enough on quality greenspace, pollution, clean air, recycling, green transport and green energy was 'not really'. In contrast, people believed that a green future is good for jobs and local businesses. Utilising the feedback from the online survey, a draft vision statement was prepared and presented to the summit.

A deeper analysis of the responses to the question "The one thing I would like the Mayor to do is..." revealed that the most frequently mentioned topics were waste, transport, energy, air quality and then green infrastructure.

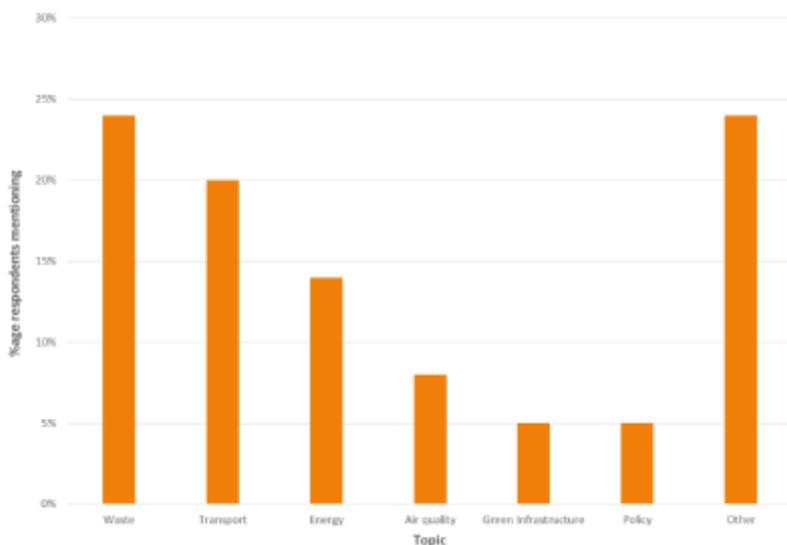


Fig. 1 – Responses to the Question “The one thing I would like the Mayor to do is...”

Waste had a focus on recycling and packaging (tackle single use plastics and improve recycling facilities). Transport was focused on public transport, cycling, the cost of travel and then cars (improve walking and cycling, work towards regular cheap public transport). Energy was focused on energy in homes and electric vehicles (support energy efficiency schemes and new charging installations). Comments on air quality most often related to imposition of traffic restrictions in town and city centre and the creation of clean air zones. Green Infrastructure was focused on greenbelt, trees, parks, recycling, development and litter (plant more trees, use brownfield sites, protect greenspaces, develop urban parks).

The survey also suggested that the development of new policies, raising public awareness and listening to the public were all important factors in starting a vision, delivering real change and instilling a sense of pride in the people of Greater Manchester in their natural environment).

More detailed (anonymised) analysis of the survey results is now being undertaken by Manchester University students, however it is already clear that many respondents made the link between improved environmental quality (including climate change risks) and the associated health, social and economic benefits it brings.

4. IMPLICATIONS OF SETTING AN ACCELERATED CARBON REDUCTION AMBITION:

4.1 Carbon Neutral Target Date – Tyndall Centre

Work undertaken by Tyndall Centre for Climate Research on carbon target setting concluded that, for Greater Manchester to make its 'fair' contribution towards the 2°C commitment enshrined in the Paris agreement, Greater Manchester would need to:

- Take prompt action to put GM on a path to 'carbon neutrality' by 2038
- Hold cumulative carbon dioxide emissions at under 71 million tonnes (range of 45-104 MtCO₂)
- Initiate an immediate programme of mitigation delivering an annual average of 15% cuts in emissions (range of 10-20%)
- Have greater engagement with other global carbon target setting cities to share knowledge.

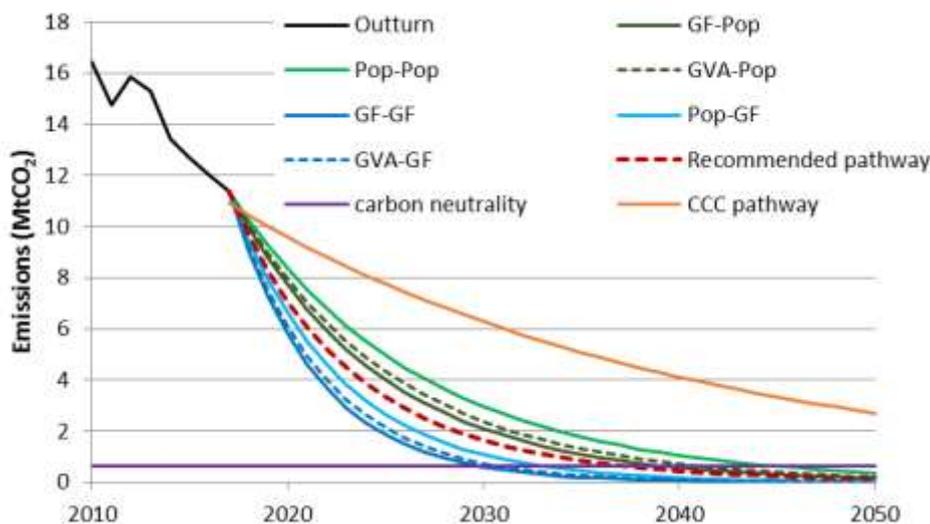


Fig. 2 - Fossil fuel CO₂ only emissions pathways (2010-2050) for Greater Manchester

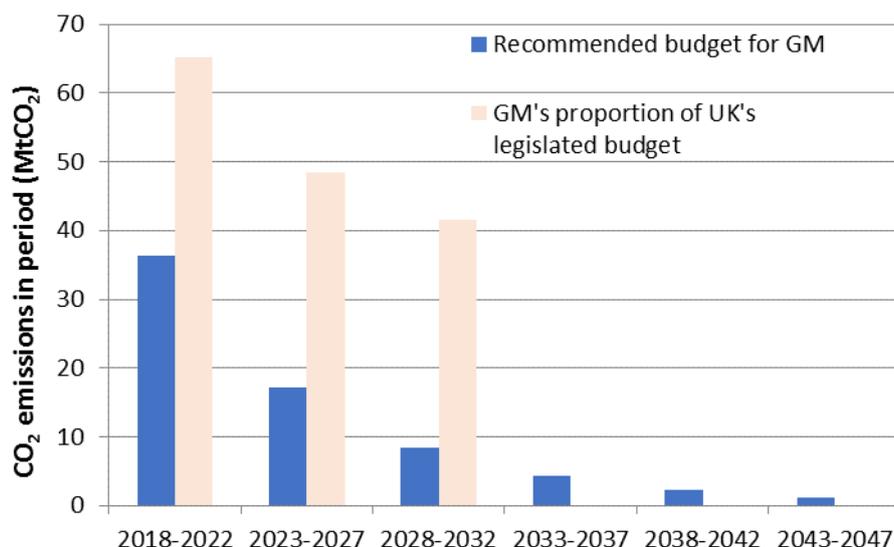


Fig. 3: Recommended carbon budgets for Greater Manchester from 2018 to 2047

As can be seen from Figs.2 and 3, Tyndall's recommended pathway is far more stringent than the pathway set out by the UK Committee on Climate Change (CCC), largely because the Tyndall work excludes an allowance for "highly speculative" negative emissions technologies such as Carbon Capture and Storage (CCS). The work also recognises that significant action will also be needed at a national level in order to achieve this level of change. However, the report is useful from a 'top down' perspective of understanding what GM's fair and equitable contribution to the Paris agreement should be and it recommends that the pathway is reviewed every 5 years to take account of emerging technology change.

Many cities and regions around the world are committed to ambitious carbon emissions reduction targets including the achievement of carbon neutrality. Some have been planning for accelerated carbon neutrality for many years already, making achievement easier. Some examples of carbon targets for other city regions are provided below:

- **Copenhagen:** Copenhagen City Council adopted a climate plan in 2012 to make the city the first carbon neutral capital in the world by 2025.
- **Adelaide:** The Government of South Australia and Adelaide City Council (ACC) have announced their intention to make Adelaide the world's first carbon neutral city before 2020.
- **Oslo:** Oslo's city government has announced its intention of halving its carbon emissions by 2020 from 1990 levels, and becoming completely carbon neutral by 2030 (95% by 2030 compared to 1990 levels).
- **New York City:** The City of New York has committed to reduce its greenhouse gas emissions to 80% by 2050, compared to 2005 levels across all sectors using existing technologies (a target it refers to as 80x50).
- **Scotland:** The Scottish Government has proposed to increase its greenhouse gas emissions target to achieve a reduction of 90% below 1990 levels by 2050.

Further details are provided in Annex 02.

3.2 Low Carbon Pathway - Anthesis

The BEIS funded Setting City area Target and Trajectories for Emissions Reduction (SCATTER) research has now also become available and was presented at the Summit by Cllr Ganotis. This work provides a 'bottom up' approach of what feasible carbon pathways for Greater Manchester may look like. Anthesis is now producing quantitative outputs from the SCATTER model. The model takes into account GM's forecast economic growth ambitions; work by Energy Saving

Catapult has suggested that, without intervention, Greater Manchester's carbon emissions could increase by 3% as a result.

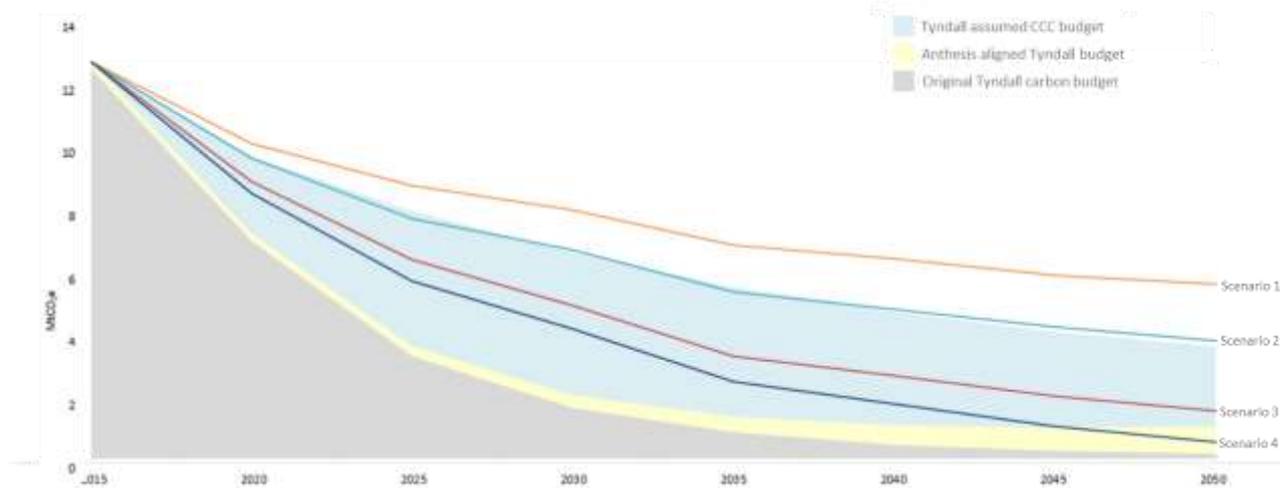


Fig. 4 – GM Carbon Reduction Pathway Scenarios compared against Tyndall and assumed UK CCC projections for GM

Note: The calculator is based on energy supply (e.g. energy provided by solar PV) and energy demand (e.g. energy consumed by domestic appliances). Both 'sides' interact with each other within the model. In this graph, we are comparing a 'top down' global to local carbon budget (Tyndall) with a 'bottom up' local to national carbon assessment. The 'Anthesis aligned Tyndall budget' allows these two methodologies to be equitably compared against each other and against the assumed UK Committee on Climate Change carbon budget.

SCATTER analyses a range of approx. 40 potential interventions and looks at applying each of these in Greater Manchester with an intensity from 1-4 (min. to max). The four scenarios mapped on the chart illustrate carbon reduction pathways where the relevant level (1-4) of ambition threshold is chosen for the interventions available; i.e. Scenario 3 illustrates a pathway where ambition threshold 3 is chosen for each intervention. However, there are a number of interventions, both related to energy supply and demand, that have been judged not to be under the direct influence of a Local Authority and threshold ambitions for these interventions have not been applied; rather, forecast levels have been fixed and cannot be chosen by the model user. Most supply-related interventions in this category have been 'fixed' at the National Grid Two Degree Future Scenario level. **There is therefore a significant role for Local Authorities to lobby Government to continue to decarbonise the national grid and national transport systems.**

The graph (Fig. 4) shows that, whilst it would be extremely challenging, it is possible to achieve carbon neutrality with scenario 4, but not 2038. The model confirms and provides greater detail on the areas that have the potential to generate the most significant emissions savings in Greater Manchester. The top carbon reduction performers under GM influence (at scenario 4 levels) are:

Decarbonise Electricity

Decarbonisation of the national grid will require national action, as noted above. However there are local actions that can be taken to decarbonise electricity:

- **Increase solar PV installation** - such that 11% of GM energy demand is met with solar PV by 2050. This equates to PV coverage of 16m² per household on 50% of all households in GM. A residual 16.8km² is also required on commercial rooftops or on ground mounted installations. Solar PV would represent 6.0TWh/year (12%) of GM energy demand.

- **Increased bioenergy use** - such that 17% of GM energy demand is met with bioenergy by 2050. In other words 1.1 GW of installed capacity to provide 8.8 TWh/year. This links to heat network development below. There is approximately 165MW of total installed capacity from bioenergy at present.

Enable next generation Mobility

- **Shift transport to zero emissions** – such that 100% of buses are zero emissions by 2035 and 66% of cars are zero emission by 2030 (100% by 2050).
- **Domestic transport behaviour** – a 25% reduction in passenger distance travelled (km) by 2035.

Optimise Energy in Buildings (Domestic & Commercial Heating)

- **Reduce heat demand for domestic properties** - Approximately 60% of all GM households (688,530) subject to enhanced insulation measures by 2050, reducing the average thermal leakiness by 75%. The costs will vary depending on the house type and the current energy efficiency of the house. LA owned homes will already be relatively well insulated.
- **Increase low carbon heat sources (electrification / heat networks)** - 80%-100% of households and commercial buildings are electrically heated by 2050. Technologies include ground source/air source heat pumps, with the remaining energy provided by low carbon heat networks.
- **Reduce heat demand for public & commercial buildings** - By 2050, space heating demand has dropped by 40%, hot water demand by 30% and cooling demand by 60%.

Improved Waste Management

- Embedded energy in materials and waste is not accounted for within the model however it is assumed that a proportion of the biomass energy referenced above will come from waste energy. The potential impact on local air quality would need to be assessed on a case by case basis.

Initial results indicate that a Level 4 scenario (currently most ambitious - 111MtCO₂e), does illustrate a way of meeting the budget required to be carbon neutral in line with Paris agreement (114MtCO₂e). However, this is due to some very ambitious national assumptions in relation to surplus renewables capacity within the grid and bioenergy availability and displacement of fossil fuels. This is on the boundaries of the application of current technologies and would require unprecedented transformational change and extraordinary national financial investment.

Moreover, this assumes UK government commitments will follow at least the ambition set out by the National Grid Two Degree scenario. Local interventions are heavily dependent on a decarbonised grid. Therefore, if this level of grid decarbonisation does not happen in line with this expectation, it could undermine the overall plausibility of the modelled scenarios.

Currently, this means that Level 4 line is more ambitious than UK targets. GM also has the ability to add a bespoke 'illustrative GM pathway' based on the combination of measures that Leaders and others, via the Green Summit, might feel able to pursue.

5. FEEDBACK FROM LISTENING EVENTS

The Green Summit has generated significant interest, expectation and support. This section summarises the main issues raised from over 40 'listening events'. The feedback from these events was tested with the Green Summit audience through a series of breakout sessions. A full analysis of the collated feedback from the listening events is provided in Annex 3. These are colour coded to reflect the level of feedback (green – higher; red – Lower)

Nature:

- Establish a nature & greenspace plan; to include good quality, clean, safe, attractive, multi-functional and interlinked greenspaces
- GM planning policy for net green gain and developer offsetting on constrained sites
- Sustainable tree planting, managed trees and hedges throughout the city, towns and parks e.g. school tree planting to reduce air pollution and buffer schools from road pollution
- Edible landscapes, designed for social cohesion, promoting local biodiversity
- Green bank - require credits from developers where net green gain/renewables cannot be implemented on site; funds to be made available to finance greening projects (use GM spatial framework to deliver)
- Community buy-in – support for communities that love and are connected to local greenspaces - increasing % of people engaged with nature (volunteers to lead and guide) supported by young people
- Planning - integrating sustainable development into the heart of decision-making, high quality public realm, green infrastructure integrated into new developments, safeguarding greenbelt; green links between home and work at strategic level

Education & Awareness

- Environmental and climate change education (incl. GM impacts) to be taught to youth throughout GM as early as possible
- Support/require councillors and public employees, and businesses to do carbon literacy & environmental training; including capacity to embed climate change adaptation into all activities; active travel, green infrastructure & health linkages/benefits
- create more forums like `listening events`/climate change town hall events, where citizens can inform policy / reporting back, information sharing between citizens and local government
- create an environmental culture through youth leadership, empowerment, action

Buildings:

- Establish a zero carbon building standard, requiring solar panels on new builds to stimulate a low carbon supply chain & jobs in maintenance (quality not just quantity; creating sustainable places, link to mayor's Town Centre Challenge)
- All new buildings to be net zero carbon to incentivise onsite energy generation (or fund offsite generation)
- New buildings should incorporate sustainable urban drainage i.e. no net water gain to drainage or watercourses
- Set a GM Retrofit standard and programme with delivery targets
- Set a GM wide design policy for public spaces around residential developments for quality multi-functional greenspace. Requires a planning policy that follows through to ensure delivery of active communities is not lost at the viability stage
- Private finance options e.g. banks/building societies to offer green mortgages with preferential interests rates or loan-to-value, linked to GM retrofit standard (offer more finance to enable retrofit to EPC A/B at lower interest rate: keeping cost of repayments the same)
- Incentivise home owners and landlords to re-insulate / retrofit their homes (e.g. green rents)

Energy:

- Develop a GM energy company which accelerates deployment of energy generation, storage and aggregation, using renewable sources and reinvests profit back into the system. Develop using the public estate first, then with private sector collaboration, with opportunities for community shares/community ownership and involvement.

- Develop a GM energy plan - whole system plan with decarbonised electricity & gas supply to manage and reduce future demand (plan to estimate and map future supply and demand including heat, waste and ultra low emission vehicles)
- Support community energy (citizen led) initiatives to trial, innovate, deliver and own new energy projects
- Scale up energy system planning to create effective dialogue about future energy networks, support decision-making across networks and drive significant action at scale
- Undertake a skills audit for energy related trades, establish apprenticeships, training programmes and quality standards (including further education)
- Demonstrate energy innovation at scale, e.g. via an innovation zone, to demonstrate models that reduce the cost of the electrification of heat

Transport:

- Provide more & better integrated, affordable, public transport system with sufficient capacity
- Increase public transit use through creating a single flexible contactless ticketing system for all modes of travel (eg London's Oyster card call it the Bee Card) or allow contactless cards to be used as tickets
- Boost cycling rates by supporting improved quality & quantity of cycling infrastructure in the right places, based on studies of traffic patterns and efficient routes. Invest in infrastructure based on usage; map walking & cycling potential across the city region.
- Public transport, walking & cycling to be the main method of travel to work - made the easy choice over private cars through greater integration, contactless card technologies and online planning tools
- Travel and green networks: very strong links to active travel (walking/cycling) in terms of green infrastructure development and transport policy; connected networks key (not a patchwork); develop a set of active travel standards in GM Spatial Framework, linked to green infrastructure for each local authority to adopt; active travel to be enshrined in policy.
- Expand and increase frequency of bus/tram services in and between urban peripheries, public transport is inconvenient for users on fringes of urban core.

Sustainable Consumption and Production:

- More locally grown food, more allotments, urban agriculture, community gardening courses, especially in low income areas with high food bank use
- Establish GM as a zero to Landfill region: Reduce waste and recycle more; zero export of waste; local composting & recycling
- Purchasing goods (public procurement) that implement low waste packaging, have high environmental standards and support growth in the low carbon & environmental goods/services sector
- City farms, veg growing, local food outlets and hubs, fruit trees throughout the city
- Encourage/enforce local businesses and producers to use less packaging/generate less waste. Lobby for higher tax on waste or penalties on businesses/organisations that don't comply (plastics reduction)
- more efficient recycling programmes; standardized colours of bins across the city
- vegetarian / vegan diet: all GM food outlets to provide meat free Mondays

Cross-cutting (Connections between themes)

- Adopt a whole-systems approach; coordination, connections and co-benefits
- Action by citizens in cooperation with local government; ongoing engagement and ownership in communities (particularly in health, planning, energy and food)
- Post-summit forums for people to share information so no wheel-inventing required. GMCA to act as a facilitator; organising councils, partners and public to act in unison

- Environmental justice: consideration of the impacts of climate change beyond GM and focus on equality within GM and beyond.
- Put sustainability ahead of profit/unsustainable growth, social justice as a key driver. Ensure most vulnerable and least able to deal with climate change impacts are protected.
- Connect themes (eg ensure resilience of GM economy, people, green & grey infrastructure, get wider benefits such as improved water and air quality)
- Communication, branding, marketing : GM to loudly champion the vision for a carbon neutral city region, regularly promoting the many steps individuals can take and the big impact that collective action can make
- Resource/ring-fence finance / introduce financial incentives to change behaviour
- Promote business cases with whole lifecycle costs; claim health costs; embed active travel policy and low carbon policies in investment decisions; Economic growth does not reflect people's sense of prosperity at the moment; wellbeing, health and community linkages and purpose
- Skills/awareness, capacity and technical skills not present for all partners/orgs (therefore sharing very important)

Some of these views reflect those of `experts' but also significantly reflect town hall feedback from `non-expert' local people. There is a high degree of compatibility between what the Listening events are telling us that people want, with the top carbon reduction performers identified by the SCATTER model.

The Summit further evaluated all of the responses. This final feedback will be analysed and then an environmental vision document will be produced, prior to summer 2018, which will focus on those transformational actions which will have the biggest impact, also being clear on what GM would need central government to do in order to achieve these and wider carbon reductions. An initial assessment of the implications of this feedback for local authorities is provided below.

6. IMPLICATIONS FOR GMCA AND LOCAL AUTHORITIES

There are a number of roles that GMCA and local authorities can play to deliver a new environmental vision for GM. These include: leadership & delivery, coordination, engagement, policy, planning and finance. Some of these roles are already being undertaken, but require acceleration and upscaling. Others require detailed due diligence before they can be formally considered. These should not be seen as a burden on local authorities as many could, in time, result in cost savings or income generation through, for example, more energy efficient buildings or surplus energy generation from the public estate/assets to help manage peak demand. Detailed cost benefit analysis will be required before actions can be taken.

6.1 Leadership & Delivery

Many of the interventions identified will require local authorities (and wider public sector) to demonstrate leadership on energy efficiency and energy generation in buildings, particularly on the public estate, including decarbonisation of public sector transport fleets. For the public sector, these interventions should be on the basis on `invest to save' models. European Investment Bank (EIB) funding is available to increase LA capacity to develop energy efficiency and generation projects on the public estate and (up to £273m in 2015/6) 0% salix finance is available for delivery of energy efficiency (and some generation) measures. £80m of salix is already being used by the public sector in GM.

Outside of the public estate, there are opportunities to explore how businesses and communities can be `nudged' towards a low carbon transition through incentives, Mayoral `calls to action' and campaigns and through greater transparency of data (eg building energy performance data).

Lobby for National Interventions

There is also a strong role for GMCA/LAs to lobby government to deliver the commitments made in national grid's 'two degrees future' report and to attract greater national finance to GM, potentially through agreeing local carbon budgets or devolution of taxes (eg landfill tax).

The 'two degrees future' report sets out the national grids plans for decarbonising the grid. Other areas under national government jurisdiction include the electrification of the transport network, final approval of large scale energy generation projects (e.g. Scout Moor expansion) and the transparency of data being collected through smart meters.

In the Tyndall model, aviation has been treated as a national issue. In looking at a Paris compliant carbon budget there is an assumption that emissions nationally from all flights should hold steady to 2030 and then reduce to zero by 2075, including those by Manchester citizens', and that such emissions should be monitored. (CO₂ emissions nationally from aviation have been flat 2012–2015 but demand grew 1%.) We need to be clear that this requires national action, both in terms of what the airline industry can do to reduce emissions, and also in terms of changing overall consumer behaviours.

6.2 Co-ordination and Engagement

We cannot achieve our ambitions without the commitment to change behaviours by our residents. We need to have genuine community engagement to achieve this change, with bottom up, grass roots action. Many people want to help and do more, but don't know where to start or what to do.

Greater coordination of activities could be realised through establishing mechanisms to bring together the public, private, academic and voluntary sector. There is appetite for continuing the engagement started at the summit through forming communities of interest (possibly online) to continue to develop the workstreams identified at the summit e.g buildings retrofit, energy innovation/transition which require more technical solutions. Businesses and specialist organisations have offered to support workstreams where medium term solutions and cohesive plans are required to deliver the required outcomes.

A GM energy company could accelerate deployment of low carbon infrastructure and support alleviation of fuel poverty; a GM energy innovation zone could support the trial and demonstration of new technologies, increase research and innovation to accelerate local sector growth and development.

There are also opportunities to empower others to stimulate local action by delegating functions to them to support communities to act e.g. leading on improving local sustainable food systems, harnessing the collective power of the many local food initiatives established in GM. There is also a key opportunity to better engage with citizens on wider environmental issues through the My wild city programme (LWT/HLF Financed) which includes My wild school which provides every child to have regular contact with nature.

Better skills development could be established through working with schools and colleges and employers to develop the right skills for the future workforce and on the job training for existing employees (eg with retrofit installers).

6.3 Policy and Planning Levers

The publication of GMSF offers the opportunity to set new policy into the planning process. This may include carbon standards for new build; environmental net gain, electric vehicle and public transport infrastructure or integrated development (work/home proximity or connected by public transport).

Setting new standards on their own are unlikely to be sufficient and consideration will be needed as to how to prompt retrofit of the existing building stock and further decarbonise public transport. Setting local targets for energy generation and efficiency, training for planners and strong support from LA cabinets and planning committees may also be needed.

How we locate and manage our local public services will have an impact on the need to travel, and could create unintended pressures on our environment. For example medical treatments and hospital stays generates a considerable number of vehicle journeys and these will have to be borne in mind as services are reconfigured. Cohesive policies across the Local Authority remit which assess their impact on the environment is critical. Exploring detailed GM master-planning for energy and natural environment infrastructure to prioritise future investment will also be essential.

6.4 Finance

Establishing finance mechanisms to enable delivery of decarbonisation measures, is seen as an important role for GMCA/LAs, particularly to retrofit buildings at scale. LA/GMCA's access to very low interest loan funds (Public Works Loan Board (PWLB)) or via higher public sector credit ratings (for green bonds) are seen as opportunities for financing some measures e.g. retrofit loans and trialling these. This would require further exploration, although some LAs already have home improvement loans' and staff to support these.

Setting up a loan/grant fund for community energy and putting properties into a community energy asset bank, as per the Oldham model could be another opportunity. This could then be promoted to local businesses / buildings to put their buildings onto the same system. The establishment of a GM carbon offsetting/environment fund has been proposed and some feasibility works suggests that it may be viable. Further investigatory work and due diligence would be required to confirm this. The establishment of local carbon budgets affords the opportunity for Greater Manchester to discuss an energy devolution deal with government that includes an element of devolved levies and environmental taxes.

The GM pension fund (GMPF) has set out the fund's long-term goal for 100% of assets to be compatible with the net zero emissions ambition by c2050 in line with the Paris agreement. The GMPF has the highest holding of LGPS funds in Local low carbon and renewable energy technology and its largest direct transaction is £200million in Clyde windfarms, the largest in the UK and one of largest in Europe. The pension fund has undertaken some work to establish how it can accelerate achieving net zero emissions. This work already includes considering opportunities of investing in local energy efficiency and generation schemes, which have the potential to generate a suitable return on investment, where suitable opportunities arise.

7. NEXT STEPS:

The next steps include:

- Conclude the analysis of the online survey to glean further insight (UoM)
- Embed the outcomes from the Summit into the Greater Manchester Strategy (GMS) Implementation Plan and, where appropriate GMCA work programmes
- Analyse the 200+ pledges that have been made by public, private and community sector organisations to support the environment vision and engage further with pledging organisations.
- Publish a strategic environmental vision which communicates the outcomes of the Summit by summer 2018.

- Develop, with partners, workstreams that will support the further delivery of the aspirations identified at the held Summit on 21st March.
- Plan and organise a further Summit in 6-10 months to evaluate progress, re-engage with the wider audience and set out a pathway for the next 5 years which will move Greater Manchester towards carbon neutrality. This summit will be used to formally set out our target for the date of carbon neutrality.

Annex 1

ANNOUNCEMENTS ARISING FROM THE GM GREEN SUMMIT ON 21ST MARCH

Overarching

- As Mayor, Andy Burnham proposed that we **bring forward the date** by which we make Greater Manchester carbon neutral by at least a decade. But he emphasized that we can only do this if everyone in the room today, as well as individuals and organisations across GM, agrees & signs up to play their part. This goal would need to be debated today (at the Summit), what it would mean for ordinary people & see whether we can build the necessary consensus. If there is enough agreement, we will then undertake further detailed work & look to bring it back to another Summit within six months to a year to confirm it.
- GM is now one of the few global cities that has taken a **science based approach** to calculating carbon targets and trajectories
- GM cannot do this alone. We will **work with Government** to ensure it delivers those things that require national action, including decarbonising the national grid and transport infrastructure and seek to negotiate agreements for greater flexibilities and finance through further devolution
- We also need to lever the strength of our universities to support our endeavours, working with the >100,000 strong student body, as well as accessing the academic expertise on offer.

Natural Environment

- GM is already designated as **Defra's UK Urban Pioneer city** which means we have the opportunity to find new ways to value, manage and invest in our Natural Environment
- GM will further explore how we could create a **GM Environment Fund** to support our aims and, if so, how it could be sustainably funded working with Government, agencies and the private sector
- GM will produce a **Natural Capital Investment Plan** by Dec 18 which would identify those natural assets which could provide strategic benefit to local communities across Greater Manchester

Energy

- GM will explore the creation of a **GM Energy Company** that is able to invest in energy generation, storage and control technologies in buildings to generate revenue from 'grid balancing'
- GM will produce a **Smart Energy Plan** by Sept 18, as part of an overall GM wide infrastructure strategy which will also cover digital, EV's and green and blue infrastructure
- Electricity Northwest will lead a workstream to assess how more **future energy demand** can be met from smart, local renewable sources

Buildings

We need to move to considering the whole life cost of our domestic and commercial buildings, including their construction and running costs, rather than just focusing on their construction costs. It has also been estimated that 50% of the energy used in our commercial and public buildings could be saved simply through better energy management. To support work on reducing carbon emissions arising from GM's buildings:

- The UK Green Buildings Council will lead a workstream to assess how our current building stock can affordably be **retrofit** to cost efficient standards. A significant deep retrofitting campaign has the potential to create 55,000 jobs, if an appropriate finance mechanism can be found

- The GMSF will include a **date by which all new homes built across GM will need to be net zero carbon** (Further work would need to be done to agree this date)
- Andy called on the public sector to consider not renewing leasing on buildings that they occupy which do not meet **minimum energy performance standards**

Transport

- GM will establish a new public sector-led commercial model for the GM EV charging network this year that will be at least double the size of the present system
- GM wants to move to an **emissions free bus fleet** and we will look at whether our new bus powers can help us to achieve this faster
- GM will **transform cycling and walking** in the City Region by investing up to £50m per year for three years from 19/20 through the Transforming Cities Fund
- GM will strive to ensure that **TfGM's 2040 Strategy** – and wider transport investment – is fully aligned with our carbon neutral ambition

Waste

- Building on the Government's recent announcement about investigating how it can use the tax system to reduce plastic waste, it was announced that there will be a **#Plastic Free GM Campaign** to see how GM can be at the forefront of taking action to eliminate single use plastics
- To support this, a number of GM's tourism and hospitality companies have already signed a pledge to eradicate the use of single use plastics by 2020. Within the next 6 months, these businesses will set out a plan to achieve this and, as a first step, will have begun to replace plastic with recyclable straws.

Launches

The Green Summit also launched a number of initiatives which support the overall Environmental agenda:

- Tyndall Centre have published their report which quantifies the impact of the Paris agreement for Greater Manchester <http://www.mace.manchester.ac.uk/our-research/centres-institutes/tyndall-manchester/news-events/new-tyndall-manchester-report-quantifying-the-implications-of-the-paris-agreement-for-greater-manchester.htm>
- The Wildlife Trust will launch **'My Wild City'** in Manchester, a £225k campaign to support local action and natural environment awareness
- Oldham MBC launched their **Community Energy Asset Bank**, an online service to match up community energy groups with asset owners interested in having their roofspace or land developed for renewable energy by a local community energy group. They will encourage other areas to get involved in this, and it could link to the potential GM Energy Company
- A wide range of local action on food by the public, private and voluntary sector will be coordinated via the launch of **Good Food Greater Manchester**, a strategic food Board for GM
- The new GM **Natural Capital Group Website** 'Nature Greater Manchester' went live on the day of the summit <https://naturegreatermanchester.co.uk>

Annex 2

How Have Other Cities Set Targets

Many cities and regions around the world are committed to ambitious carbon emissions reduction targets including the achievement of carbon neutrality. Some examples of carbon targets for other city regions are provided below:

Copenhagen: Copenhagen City Council adopted a Climate Plan in 2012 to make the city the first carbon neutral capital in the world by 2025. The goal is to achieve zero carbon dioxide emissions from all energy sectors by 2025. Additionally, the Climate Plan has specific targets for each sector compared to a 2010 baseline. The carbon neutrality goal set by Copenhagen includes emissions from the city's energy system and the activities of utility companies owned by the city elsewhere. Excess renewable energy generation from their utilities is assumed to displace coal power generation when consumed by customers outside the city. As other parts of Denmark decarbonise, the carbon intensity of the displaced energy consumption will decrease, in turn reducing the degree to which the city could compensate for its carbon emissions in this way.

Adelaide: The Government of South Australia and Adelaide City Council (ACC) have announced their intention to make Adelaide the world's first carbon neutral city before 2020. ACC defines carbon neutrality as net GHG emissions associated with operational activities within the city region to be zero or else offset by sequestering emissions outside the ACC boundary. The offsets would be required to comply with the Australian government rules and methodologies and accredited under the National Carbon Offsets Standard (NCOS). The NCOS standard provides guidance on how to measure, reduce, offset, report and audit emissions to enhance the credibility of claims of carbon neutrality. In addition to offsetting, they envisage a 50% emissions reduction by 2020 compared to 2007 and 65% by 2025. ACC have also provided a long term strategy out to 2050 including moving towards a 100% renewable transport and electricity system, an energy efficient built-environment and utilising carbon sequestration. It is not specified in the plans if or how the reduction rates are related to global carbon budgets.

Oslo: Oslo's city government has announced its intention of halving its carbon emissions by 2020 from 1990 levels, and becoming completely carbon neutral by 2030 (95% by 2030 compared to 1990 levels). The majority of the city's electricity consumption is already supplied from hydro power stations and its heating is mainly electric. Hence the target is mainly focused on decarbonising the transport sector, which represents more than 60% of the city's emissions, and development of a carbon capture and storage facility at its waste to energy plant at Klemetsrud. The Oil-Free project intends to phase out fossil fuels for heating following a ban on oil heating from 2020 (16). The city also intends to purchase carbon credits to offset any residual emissions from both within and outwith the EU. We were not able to identify a publicly available source that explains the process of developing the targets or a definition of carbon neutrality in the context of the 95% target.

New York City: The City of New York has committed to reduce its greenhouse gas emissions to 80% by 2050, compared to 2005 levels across all sectors using existing technologies (a target it refers to as 80x50). In 2017, the city announced its intention to align its 80x50 strategies with the Paris agreement goal of limiting global temperature rise to 1.5°C. The city also committed to develop guidance on a path to carbon neutrality including a shared definition of carbon neutrality with C40 and other cities. This was made, at least partly, in response to President Trump's announcement of his intention to withdraw the United States from the Paris agreement. New York's strategy states that it intends to pursue carbon sequestration and carbon offsets to account for residual GHG emissions after all "technically feasible" emissions reductions are achieved in order to achieve carbon neutrality. New York states that it has based its 1.5°C alignment on the Arup report 'Deadline 2020' for C40 cities, which modelled a pathway for C40 cities to reduce emissions in line with the Paris Climate agreement. The pathway suggested that most cities need to peak their emissions by 2020 and by 2030 average GHG emissions across all C40 cities need to be 3 tonnes per person per year or less. However, this pathway requires substantial negative emissions technology deployment such that net global emissions are negative by 2050. We were not able to identify a publicly available source that gave a detailed explanation of the process of developing the 1.5°C alignment of New York City from the C40 pathway.

Scotland: The Scottish Government has proposed to increase its greenhouse gas emissions target to achieve a reduction of 90% below 1990 levels by 2050. By doing so it seeks to “provide certainty to investors, businesses and communities and to create the conditions to maximise opportunities to export our technology innovations and knowledge as other economies make their low carbon transition.”

Annex 3

COLLATED FEEDBACK FROM LISTENING EVENTS

Level of feedback: Green = higher, red = lower

BUILDINGS THEME

- Establish a zero carbon building standard, requiring PV on new builds to stimulate a low carbon supply chain & jobs in maintenance (quality not just quantity; creating sustainable places, link to mayor's Town Centre Challenge)
- All new buildings to be net zero carbon to either incentivise onsite generation (or fund offsite generation)
- New buildings should also incorporate Sustainable Urban Drainage i.e. no net water gain to drainage or watercourses
- Set a GM Retrofit standard and programme with delivery targets
- Set a GM wide design policy for Public Realm and residential developments for quality (multi-functional greenspace) planning policy that follows through to ensure delivery of active communities not lost at viability discussion stage
- Private finance options including banks/building societies offering green mortgages with preferential interests rates or loan-to-value linked to GM retrofit standard (offer more finance to enable retrofit to EPC A/B at lower interest rate: keeping cost of repayments the same)
- Require solar PV on new buildings
- Incentivise home owners and landlords to re-insulate / retrofit their homes (green rents)
- Developed Phases (link to the Retrofit Standard) on an area-based /community/ street-level retrofit project in GM, housing association and community based partners using local supply chain training and developing accreditation scheme with view to municipal retrofit delivery model
- Update GM retrofit strategy all buildings to be energy efficient (high B and above)
- As part of the phased programme: develop skills: Engage skills/trades in developing skills and training - needs demand side stimulus (retrofit, air tightness, ventilation)
- non-residential buildings: better data (open data) on actual performance of buildings in operation: GM wide operational energy ratings- led by building owners
- Create tax incentive programmes/subsidies for retrofitting existing buildings with GI & energy efficiency elements
- Reintroduce free loft insulation
- Revise planning regs and promote grants for insulation and green build
- Develop a low cost (revolving) loan fund for domestic retrofit with lower rates of interest for higher energy savings (linked to retrofit standard) for private owners/landlords
- Create a GM EPC /GM Retrofit standard with a focus on the outcomes for residents (rather than prescribed measures) and trial it on housing types then rapidly roll out to test cross-tenure approaches at community scale
- Planning requirements for new buildings and refurbishments to disclose energy use in operation (link to industry initiative: Design for Performance)
- GMCA lobby government re EPCs not for just public buildings but also commercial buildings to show a DEC; when properties are being leased oblige them to show 'total cost of occupation' including energy bills.
- GMCA to lead through public procurement - only occupying buildings above specified energy performance level - at least commit to the Greening Government commitments/ seek green leases share upgrade costs and ROIs
- Link business rates to Energy & Carbon Performance /climate change agreements with property sector
- Sharing success stories of building best practice including significant energy bill savings; promote GM as a high quality energy efficient place to do business; high level CSR to attract and retain talent

- **Public - private developer collaborations with holistic approach integrating social value**
- **Attracting social impact investment - consider an impact fund or investment product for GM to deliver sustainable places**
- **Demonstrator healthy development showcasing development of a physical development that promotes healthy lifestyles**
- **Develop local supply chains of trained (directory of) qualified knowledgeable trades people (building up to expected 55k jobs); planning policy increases update of energy efficient designs and technologies in buildings and supports local energy technology sector growth**

ENERGY THEME

- **Develop a GM energy company which accelerates deployment of energy generation, storage and aggregation, using renewable sources and reinvests profit back into the system. Develop using the public estate first, then with private sector collaboration, with opportunities for community shares/community ownership and involvement.**
- **Develop a strategic GM smart energy plan – a whole system plan to decarbonize electricity & gas supply, manage/reduce future demand and create effective dialogue about future networks and drive real action (plan to including heat, waste and ULEVs)**
- **Support community energy (citizen led) initiatives to trial, innovate, deliver and own new energy projects**
- **Undertake a skills audit for CE/trades, establish apprenticeships, training programmes and quality standards (including Further Education)**
- **Demonstrate Innovation at scale, e.g. innovation zone to demonstrate reduced cost of electrification of heat (via digitization of network)**
- **GMCA provides coordination role to bring organisations together to accelerate change (possibly Pan-Northern) towards zero carbon energy generation, solar PV, smart buildings and District Heating schemes**
- **Investment in the renewable sector**
- **Zero carbon energy generation, solar PV, smart buildings and District Heating schemes**
- **Linking up whole terraces to solar PV that pays the tenants back**
- **Establish a GM investment fund to leverage private finance to support CE & renewable projects**
- **Engage skills/trades in developing skills and training - needs demand side stimulus**
- **GM Energy Plan (Energy Aggregator to provide revenue finance for retrofit across public and private housing sector)**
- **Lobby for devolution of carbon taxes/levies/regulatory flexibility - build local support for biomass CHP, hydrogen, rail electrification, RHI and onshore wind**
- **Link to Zero Carbon Building standard to incentivize on-site generation and create offsite generation fund.**
- **EV charging network must allow for diversity of charging to spread electricity demand.**
- **Gas network for home heating in medium term - replace gas in domestic properties with Hydrogen and biogas injection and develop Hydrogen pipelines for commercial use.**

TRANSPORT THEME

- Provide more & better *integrated* affordable public transport system with sufficient capacity
- Increase public transit usage through creating a single flexible contactless ticketing system for all modes of travel (e.g. London's Oyster card call it the Bee Card) or allow contactless cards to be used as tickets
- Boost cycling rates by supporting improved quality & quantity of cycling infrastructure in the right places. Based on studies of traffic patterns and efficient routes to develop. Invest in infrastructure based on usage; including mapping walking & cycling potential across the city region.
- Public transport, walking & cycling to be the main method of travel to work - made the easy choice over private cars through greater integration, contactless technologies and online planning tools
- Travel and green networks: very strong links to active travel (walking/cycling) in terms of infrastructure and policy; connected networks key (not a patchwork) ; develop in GMSF set of active standards linked to GI for each LA to adopt; active travel to be enshrined in policy
- Expand and more regular bus/tram services in and between urban peripheries, transport is inconvenient for users on fringes
- Have a congestion charge / clean air zones charging / EVs only in areas of high air pollution
- Creating pedestrianized zones within dense urban core areas (car ban in town centres)
- Create a voucher scheme to incentivize financially public transport / make public transport affordable
- lack of safety measures for cycling, separated bike paths
- integrated TfGM owned system - bus reregulation; use GM powers to dictate bus routes
- Young people / low income to have freedom/subsidy to travel, affordable and accessible transport
- More EVs, EV taxis, park and ride schemes to lessen the impact of cars; city region backing the transition to EVs using maximum available government support for charging points plus taxi licensing & business rates to reward the shift to electric
- allow bikes on trains and trams (to enable bike use for 'last mile')
- synchronizing timetables between bus/tram/trains to improve flow and online planning tools
- **Connection with Green Infrastructure**
- **Creating strong nodes where gaps exist**
- **Reduce costs of public transport to incentivize public transit use**
- **Freight and delivery consolidation; reduce freight traffic; use waterways for business logistics especially 'the last mile'**
- **More park and ride**

SUSTAINABLE CONSUMPTION AND PRODUCTION THEME

- More locally grown food, fruit trees throughout the city, urban agriculture, more allotments, local food outlets and hubs, community gardening courses especially in low income areas with high food bank use
- GM as a Zero to Landfill region: Reduce waste and recycle more; zero export of waste; local composting & recycling
- Purchasing goods (public procurement) that implement low waste packaging, have high environmental standards and that supports the low carbon & environmental goods and services sector
- Supporting and helping organisations that promote and deliver sustainable food
- Encourage/enforce local businesses and producers to use less packaging/generate less waste
- Have more efficient recycling programmes ; standardized colours of bins across the city
- Vegetarian / vegan diet: all GM food outlets to provide Meat free Mondays
- Food compost at GMCA scale or LA scale
- Start bottle return schemes
- Instal drinking fountains networks
- Identify and promote the 'common best' of sustainable products / green suppliers' directory
- Develop a strong local food economy
- Map local production, growing, greenspace and food waste reduction
- Create a Circular Economy plan for GM to provide step changes not just achieving waste strategy; link to urban pioneer; reduce trade waste going to landfill
- Waste as resource: explore growth of the sharing economy via collaboration
- Promote knowledge of alternatives to plastics

NATURAL CAPITAL THEME

- Establish a Nature & Greenspace plan; to include good quality, clean, safe, attractive, multi-functional and interlinked greenspace
- GM planning policy for net green gain and developer offsetting on constrained sites
- Sustainable tree planting, managed trees and hedges throughout the city, towns and parks (soak up pollution) e.g. school tree planting to reduce air pollution and buffer schools from road pollution
- Travel and green networks: very strong links to active travel (walking/cycling) in terms of infrastructure and policy; connected networks key (not a patchwork)
- Edible landscapes, designed for social cohesion, promoting local biodiversity
- Green Bank - require credits from developers where net green gain/renewables cannot be implemented; debits to be made to finance greening projects (use GMSF to deliver)
- Community buy-in - communities that love and are connected to and are for local greenspaces - increasing % of people engaged with nature (volunteers to lead and guide) supported by young people
- Planning - integrating sustainable development into heart of decision-making, high quality public realm, Green Infrastructure integrated into new developments, safeguarding greenbelt; green links between home and work at strategic level
- **Something very different to status quo will be needed to green the city region; more of the same will not suffice**
- **Connections to transport plus Greening the tram and train networks**
- **Connection to nature, access to nature and emotional connections to nature and greenspace support people's health & wellbeing ; reinforce health & GI messages and enable people to find their voice**
- **Sponge city - green walls, roofs, spaces and SUDs**
- **Natural cooling and resilience**
- **Green and blue corridors; ecologically rich interconnecting natural corridors linking greenspaces, people and places throughout the city**
- **Plant 3m trees**
- **Urban Re-Wilding in forgotten places including food growing and recreation**
- **GM Wide GI vision & strategy crossing LA barriers ; with citizen input; identifying multiple benefits**
- **Develop Natural Capital metrics for GM model approaches (tie into health links evidence over long term to prove GI cheaper than health intervention alternatives)**

EDUCATION AND AWARENESS THEME

- Environmental education and climate change (incl. GM impacts) to be taught to youth throughout GM as early as possible
- Support/require councilors, public employees and businesses to do carbon literacy & environmental training; including capacity to embed climate change adaptation into all activities; active travel, Green Infrastructure & health linkages/benefits
- Create more forums like listening events/climate change town hall events where citizens can inform policy / reporting back, share information
- Create an environmental culture through youth leadership, empowerment, action
- Green infrastructure: playspaces, school playgrounds with wild natural space, access to exercise, be in nature for physical and mental wellbeing, including GP Green Prescriptions
- Spending time volunteering and campaigning for local environmental initiatives
- Create opportunities for better climate change education to instigate behavioral changes
- Educate young people and decision makers to develop understanding of Natural Capital - Green Infrastructure as the life support system of the city
- Develop skills for energy and building supply chains in family businesses and trades including a retrofit skills training programme
- Community Education - arts and culture (and Faith) can help change the public mindset on big societal challenges: using engaging media like film, theatre music, to educate audience and show them how to act
- Community education and involvement designating a 'People's Pollinator Park' in each town centre in GM ; activities that attract people into green space

CROSS CUTTING THEMES

- Adopt a Whole-systems approach; coordination, connections and co-benefits
- Action by citizens in cooperation with local government ; ongoing engagement and ownership in communities strong theme in health & planning, and in Energy Observatory; food
- A post-summit forums for people to share information so no wheel-inventing required
- Environmental Justice: consideration of the impacts of climate change beyond GM and focus on equality within GM and beyond.
- Put sustainability ahead of profit/unsustainable growth, social justice as a key driver. Ensure most vulnerable and least able to deal with cc impacts are protected.
- Connecting themes (e.g. ensure resilience of GM economy, people, green & grey infrastructure, get wider benefits e.g. water and air quality)
- Communication, branding, marketing : GM to loudly champion the vision for a carbon neutral city region and regularly promote the many steps individuals can take and the big differences that collective action can make
- Resource/Ringfence finance / introduce financial incentives to change behaviour
- INCLUSIVITY: Support, advice, small grant funded activities help communities to engage significantly
- GMCA to act as a facilitator on climate policy; organising councils, partners and public to act in unison
- Manchester Arts & Sustainability Team supporting - no strong 'asks' but want to help once Charter developed to support it and win hearts and minds ; as for Faith sector
- Finance: promote business case through lifecycle costs; claim health costs; embed active travel policy and low carbon policies in investment decisions; Economic growth does not reflect people's sense of prosperity at the moment; wellbeing, health and community linkages and purpose
- Skills/awareness, capacity and technical skills not present for all partners/orgs (therefore sharing v important)
- GMCA to spread good/best practice on mitigation and resilience across all 10 boroughs; resource and finance
- Robust monitoring and reporting processes
- Young people are keen to be involved
- People's role in being involved in decision-making around energy at an LA level and involved in local energy supply and demand side management projects
- GM should include assessment of cost/benefit to environment in key strategic plans eg GMS, Spatial Framework and Industrial strategy and only take action that supports the environment vision