Public Document

GMCA GREATER MANCHESTER COMBINED AUTHORITY

GREATER MANCHESTER HOUSING PLANNING AND ENVIRONMENT OVERVIEW AND SCRUTINY

DATE: **Wednesday, 13th December, 2017**

TIME: **6.00 pm**

VENUE: **Churchgate House,**

BOLTON	**MANCHESTER**	**ROCHDALE**	**STOCKPORT**	**TRAFFORD**
BURY	**OLDHAM**	**SALFORD**	**TAMESIDE**	**WIGAN**

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Overview & Scrutiny Committee Agenda

GMCA
GREATER MANCHESTER COMBINED AUTHORITY

Title: **Housing, Planning & Environment**

Date: **Wednesday 13 December 2017**

Time: **6.00 pm to 8.00 pm**

Venue: **GMCA, Churchgate House, 56 Oxford Street, Manchester M1 6EU**
(location map attached)

Notes:

- The Contact Officer for this agenda is Susan Ford, Governance & Scrutiny, GMCA ☏ 0161 778 7009 ✉ susan.ford@greatermanchester-ca.gov.uk.

- If any Member requires advice on any agenda item involving a possible Declaration of interest, which could affect their ability to speak or vote are advised to contact Jenny Hollamby at least 24 hours in advance of the meeting.

- For copies of papers and further information on this meeting please refer to the website www.greatermanchester-ca.gov.uk. Alternatively, contact the above Officer.

- Please note that this meeting will be held in public and will be livestreamed (except where confidential or exempt information is being considered).

Membership:

Councillor Andrew Morgan	Conservative Member for Bolton
Councillor Elaine Sherrington	Labour Member for Bolton
Councillor Jamie Walker	Labour Member for Bury
Councillor James Wilson	Labour Member for Manchester
Councillor Hannah Roberts	Labour Member for Oldham
Councillor Linda Robinson	Labour Member for Rochdale
Councillor Michele Barnes	Labour Member for Salford
Councillor Robert Sharpe	Labour Member for Salford
Councillor Lisa Smart	Liberal Democrat Member for Stockport
Councillor Elise Wilson	Labour Member for Stockport
Councillor Gill Peet	Labour Member for Tameside
Councillor Bernard Sharp	Conservative Member for Trafford
Councillor Lynn Holland	Labour Member for Wigan
Councillor Fred Walker	Labour Member for Wigan
Vacancy	Conservative Member

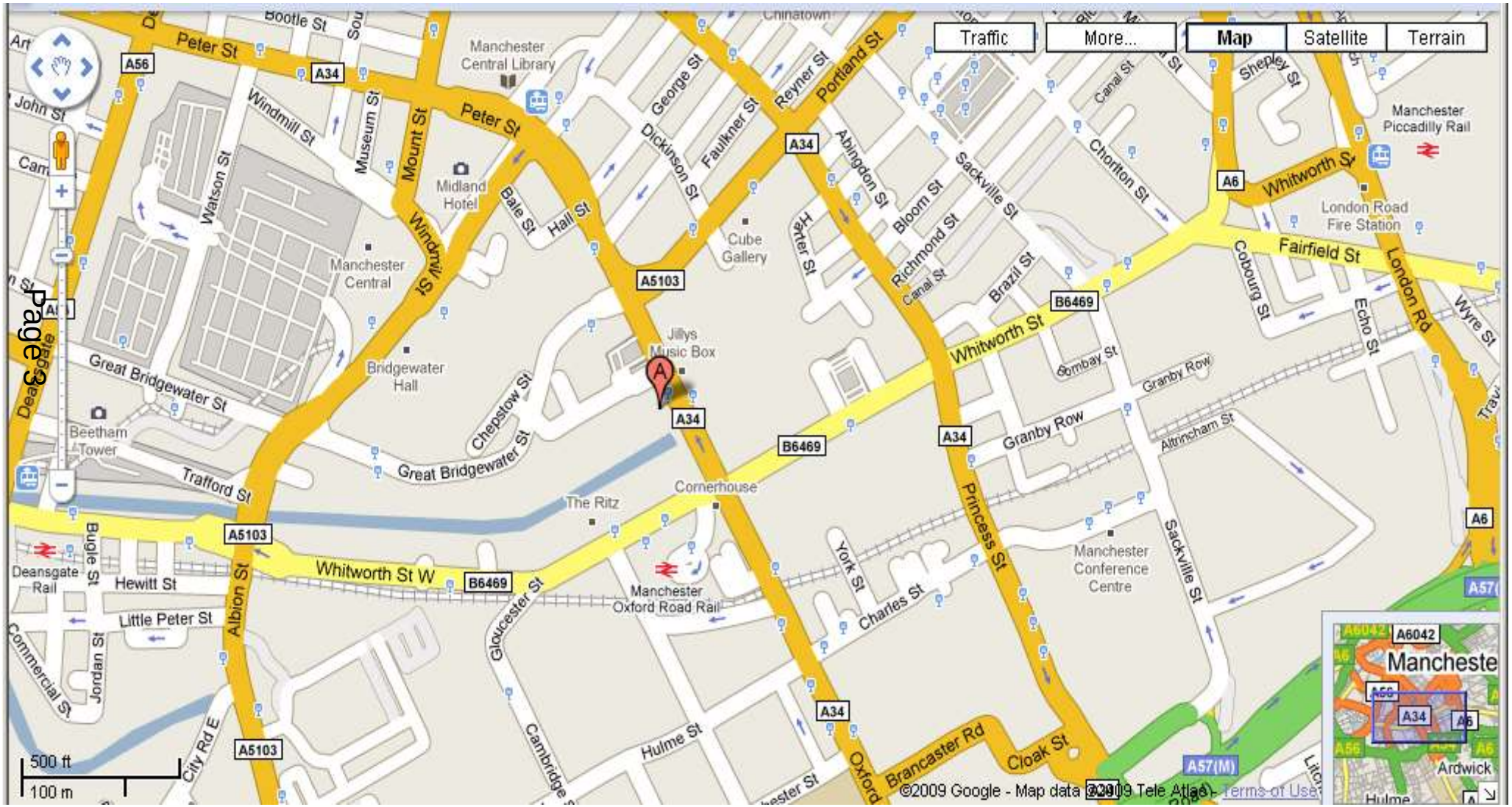
Substitutes: At the GMCA meeting on 29 September 2017, it was agreed that the following be appointed as substitutes to each of the three committees:

Councillor David Greenhalgh	Conservative Member for Bolton
Councillor Debbie Newall	Labour Member for Bolton
Councillor Rebecca Moore	Labour Member Manchester
Councillor John McCann	Liberal Democrat Member for Oldham
Councillor Peter Malcolm	Labour Member for Rochdale
Councillor Christopher Clarkson	Conservative Member for Salford
Councillor Karen Garrido	Conservative Member for Salford
Councillor Adrian Pearce	Labour Member for Tameside
Councillor Ruth Welsh	Conservative Member for Tameside
Councillor James Grundy	Conservative Member for Wigan
Councillor Michael Winstanley	Conservative Member for Wigan

Eamonn Boylan
Secretary and Chief Executive, GMCA

Location Map: Churchgate House, Churchgate House, 56 Oxford Street, Manchester M1 6EU

Nearest parking- NCP Great Bridgewater Street
Nearest disabled parking – Great Bridgewater Street on street parking
Churchgate House is facing Valerie Patisserie on Oxford Street



Housing, Planning & Environment Overview & Scrutiny Committee

Declaration of Interests in Items appearing on the Agenda

NAME _____

Minute Item No. / Agenda Item No.	Nature of Interest	Type of Interest
		Personal / Prejudicial / Disclosable Pecuniary
		Personal / Prejudicial / Disclosable Pecuniary
		Personal / Prejudicial / Disclosable Pecuniary
		Personal / Prejudicial / Disclosable Pecuniary
		Personal / Prejudicial / Disclosable Pecuniary
		Personal / Prejudicial / Disclosable Pecuniary

GREATER MANCHESTER COMBINED AUTHORITY (GMCA) HOUSING, PLANNING AND ENVIRONMENT OVERVIEW & SCRUTINY COMMITTEE, 16 NOVEMBER 2017 AT 10.30 AM, LORD MAYOR'S PARLOUR, MANCHESTER TOWN HALL

Present:	Councillor:	Lisa Smart (in the Chair)
	Councillors:	Elaine Sherrington (Bolton) Andrew Morgan (Bolton) James Wilson (Manchester) Rebecca Moore (Manchester – Substitute) Hannah Roberts (Oldham) Peter Malcolm (Rochdale – Substitute) Linda Robinson (Rochdale) Michele Barnes (Salford) Councillor Adrian Pearce (Tameside – Substitute) Bernard Sharp (Trafford - Substitute) James Wright (Trafford – Substitute) Fred Walker (Wigan)
	Officers:	Eamonn Boylan (Chief Executive, GMCA) Julie Connor (Assistant Director, Governance and Scrutiny, GMCA), City Mayor Paul Dennett (Salford), Rod Fawcett (Transport Policy Manager, TfGM), Susan Ford (Statutory Scrutiny Officer, GMCA), David Hodcroft (Principal, GMCA), Nicola Kane (Head of Planning Strategy, GMCA), Steve Rumbelow (Lead Chief Executive, Rochdale), Steve Fyfe, (Head of Housing Strategy, GMCA), Elise Wilson (Stockport), and Lynn Holland (Wigan)
Apologies:	Councillors:	Anne Stott (Rochdale), Robert Sharpe (Salford) and Gillian Peet (Tameside)

M18/HPE COMMITTEE MEMBERSHIP AND APPOINTMENT OF VICE-CHAIR

The Committee were informed of the following changes to its membership:

- Councillor Bernard Sharp (Trafford) will be joining the committee as a full member following the resignation of Cllr Robert Chilton. (For this meeting Councillor Sharp was attending as a substitute).
- Councillor Jamie Walker was noted as Bury's nomination (replacing Councillor Rachel Skillen).

Councillors Sharp and Walker will be formally appointed at the GMCA meeting on 24 November 2017.

Councillor Anne Stott (Rochdale) who was appointed as Vice-Chair at the Committee's last meeting had resigned from the committee due to clashes with meeting dates and attendance. Members asked and the Chair agreed to appoint a Vice-Chair at the meeting. The Chair asked for nominations for the role of Vice-Chair, Councillor Elaine Sherrington proposed Councillor Andrew Morgan and Councillor Michele Barnes seconded the proposal.

RESOLVED: That Councillor Andrew Morgan be appointed as Vice-Chair of the Housing, Planning & Environment Overview & Scrutiny committee for the 2017/18 municipal year.

M19/HPE URGENT BUSINESS, IF ANY, INTRODUCED BY THE CHAIR

There was no urgent business introduced by the Chair.

M20/HPE DECLARATIONS OF INTEREST

There were no declarations of interest received at the meeting.

M21/HPE TO APPROVE THE MINUTES OF THE LAST MEETING DATED 18 OCTOBER 2017

It was reported that a briefing note on homelessness and information on planning appeals requested at the last meeting was circulated to Members on 15 November 2017. The Head of Planning Strategy, GMCA advised that the planning information provided appeals lost in terms of the five year housing issues and was the most up to date list from districts. It was reported that appeals on green belt land were not being lost. However, the appeals lost in Bolton and Wigan that were discussed at the meeting, were about proposed developments on protected land rather than green belt.

RESOLVED: That the committee approved the minutes of the last meeting on 18 October 2017 as a correct record.

M22/HPE GREATER MANCHESTER HOUSING AFFORDABILITY

Members considered the report of the Portfolio Lead for Planning, Housing and Homelessness that provided the committee with baseline evidence on housing affordability and related issues in Greater Manchester (GM). City Mayor Paul Dennett welcomed the Committee's engagement in the development of the GMCA's housing strategy moving forward and suggested that scrutiny representatives be invited to attend the Housing and Planning Commission to participate and influence this important area of policy.

The report and presentation provided an overview of the complex issues relating to housing affordability in GM. The presentation brought together the most up to date data available from published sources. It provided the committee with a starting point for discussion around the issues raised and to inform considerations of where the committee might want to focus attention on in future meetings.

The main points raised to were:

- Members acknowledged it was a complex area, nonetheless it was important for GM to identify priorities. Members were reminded that much of the work around housing was a district responsibility and so a GM housing strategy had to work closely with districts to address issues. Collaborative work on the GMSF would address the conurbation's housing numbers, but a richer understanding of housing needs around affordability and tenure was required.

Work in this area would continue as the strategy evolved, and once agreed there would be an operational plan underpinning the strategy to deliver the outcomes GM needed.

- A discussion took place about the difference between social and private rental costs. In some wards there was a significant difference. The current lack of traction the planning process to provide enough affordable housing was noted. It was suggested that the definition of affordability and the difference between social rents, affordable rents and market rents was variable across the conurbation. For some districts there was only marginal difference between these, whilst in the city centre there was a significant variation, between social and affordable rents and market rental values. Currently GM is exploring a number of mechanisms to increase the affordability of homes being built, including providing support with land remediation costs.

- There was also a further challenge for GM to raise the income levels of residents to give them allow more choice in the housing options. It was advised there was no agreed definition and there was no relationship to income and the housing market. Data was highlighted an important. Whilst there were national data sets, the methodologies behind them were debate. It was suggested that an organisation like a fair rents commission could be beneficial in GM.

- Members questioned the appetite of the government to intervene in the private rented sector and recommended that Districts should use the powers they had effectively, for example landlord licensing. One positive development in GM was that a private rental sector market was emerging, with larger investors who had a longer term view of their investments. It was also noted that it was important that residents in private rented accommodation understood their rights. Tenant groups were identified as one way of ensuring this information was readily available.

- The Committee were informed that the new Department of Communities and Local Government figures for last year's housing completions had just been released. For GM there were 7892 completions in 2016-17. This was a 28% rise on the previous year (for England it was 15%), but GM was still behind target of 10,708 units. There was variability across districts in delivery for example Salford had contributed 2.5k units.

- Members asked for assurance that districts were sharing best practice. Officers confirmed that this was the case.

- Land banking was a problem for GM and a radical solution was required. Whilst discussions were underway with government, it was not a quick solution. It was suggested that there may be potential to unlock the viability of particular site using the existing powers of districts.

- In terms of affordable housing, the strategy needed mechanisms to address those people in larger homes, who wanted to move, an attractive option was needed.

- A Member asked about demographics, particularly the increase in the numbers of older people and suggested that this was an issue for Districts. GMSF, health, social care and housing. Officers confirmed that joint work on this issue was already underway.

- Members were reassured that the current work on the housing strategy was both addressing the complexity of this policy issue and was seeking deliverable solutions to these challenges.

- Members would be circulated with further information about how they might be involved with this work. Councillor Linda Robinson expressed an interest in the ten year homelessness strategy.

RESOLVED: That the committee:

1. Noted the presentation.
2. Circulate an email to the permanent members of the committee outlining the opportunities to be involved in this area of work and to consider which members may like to support this work going forward.
3. Requested that as work on housing affordability and the GMCA housing strategy develops that it be brought to the committee prior to it being considered by the GMCA.

M23/HPE GM TRANSPORT STRATEGY 2040: A SUSTAINABLE URBAN MOBILITY PLAN FOR THE FUTURE

Consideration was given to a presentation provided by the Transport Policy Manger and Head of Strategic Planning and Research (Transport for Greater Manchester (TfGM)), which described TfGMs aim for a fully integrated public transport network.

The main points referred to were:

- Cycling safety was a major issue. TfGM acknowledged there was work to do in this area in terms of funding. In addition, work was taking place on a longer term walking and cycling strategy. More work was needed to address public concerns around safety as well as increasing the numbers of cycling routes outside the city centre.

- Disabled access at both Metrolink and railway stations was highlighted as an ongoing challenge in the design for ease of access and the maintenance of stations. Lifts which were out of order were a particular issue. Officers agreed and advised that a disability design reference group had been set up to provide views and advise on topics such service provision and facility design.

- A Member pointed out that the fabric of Bury Metrolink stop (as one of the first stops on the network) was dated. Members drew attention to further access issues across the Metrolink network, for instance the lifts at the Sale stop.

- Officers acknowledged that some stations did look tired and infrastructure needed to be constantly refreshed, and updated to take into account the access needs of all users. This was part of the current refurbishment programme.

- A discussion took place about Bolton's new bus rail interchange and it was suggested that the comments of disability groups had not been implemented in the final build.

- Members suggested that a deeper dive was required to understand the issues involved. Officers recommended that a Project Manager attend a future meeting to explain the design process and how issues were addressed. Members with issues about particular stations were asked to send questions to TfGM officers.

- It was suggested that Wythenshawe be considered as a transport hub within GM's strategic work on improving transport connectivity. Officers agreed that Wythenshawe was important and issues such as poor transport connections were being addressed through improving bus services and a more integrated ticketing.

- Members were concerned about poor transport links and the lack of integration between different transport modes. Better communication and information to explain how travellers could undertake journeys across different operators and transport modes. Officers explained that in order to provide a truly integrated system, greater powers to influence the provision of services was needed.

- Members welcomed the presentation but would like to know more about implementation rather than strategies.

RESOLVED: 1. That the presentation be noted.
2. That an item exploring inclusive design, access and safety issues be brought to a future meeting.

M24/HPE INTERMIN NATIONAL INFRASTRUCTURE ASSESSMENT CONSULTATION

The Head of Planning Strategy, GMCA presented a report that provided a briefing for Members on the interim national infrastructure consultation that was launched on 13 October 2017.

It was agreed that the draft response to the consultation would be sent to Members for comment and views would be fed back to the GMCA. The response would then be considered at the next meeting on 13 December 2017.

It was highlighted that Lord Andrew Adonis, Chair of the National Infrastructure Commission was visiting the GM Mayor to discuss the interface of the high-speed railway (HS2), classic rail and northern power house rail.

In response to a question, it was reported that remediation work on land with major structural issues was not covered in the consultation as the Commission did not see this as part of its remit. It was considered as infrastructure. This point would be added to the consultation response.

RESOLVED: That the committee:

1. Noted the report and key issues identified in Section 2.4 of the report.
2. Noted the previously GMCA/Local Enterprise Partnership (LEP) recommendations in Section 3.4 of the report.
3. Requested that the draft consultation response be brought to the next meeting.

M25/HPE WORK PROGRAMME

The Statutory Scrutiny officer, GMCA presented a report that set out the committee's work programme for Members to develop, review and then agree. Members were asked to outline specific requests to ensure that the committee's work programme remained current.

Members and officers identified the following areas, which would be used developed to the work programme by the Statutory Scrutiny officer, GMCA:

Meeting Date	Topic
13 December 2017	• National infrastructure consultation draft response. • Greater Manchester Spatial Framework (GMSF). • GM Carbon Neutral. • Congestion – response to the Mayoral consultation.
15 January 2018	• Work around town centres. • Transport – accessibility and embedding it in the GM strategy including cycling safety.
To be scheduled	• Housing. • Work being undertaken on busses, regulation and providers. • Waste.

RESOLVED: That the committee:

1. Requested the Statutory Scrutiny Officer, GMCA to update the work programme.
2. Agreed that transport investment training would be provided prior to the next meeting on 13 December 2017 at 5.00 pm.

Planning, Housing & Environment Overview & Scrutiny Committee

GMCA GREATER MANCHESTER COMBINED AUTHORITY

Date: 13 December 2018

Subject: Carbon Neutral Greater Manchester – Setting the Vision, Goals and Targets beyond 2020

Report of: Cllr Alex Ganotis, Portfolio Holder for Green City Region

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PURPOSE OF REPORT

The purpose of this report is to outline existing greenhouse gas emission reduction targets for Greater Manchester and relate the work currently underway to assess a new Environmental Vision and target date for `carbon neutrality' as part of the upcoming Mayoral Green Summit.

RECOMMENDATIONS:

Scrutiny Committee is requested to:

- Note the report which sets out the requirement for a definitive goal and targets for greenhouse gas emissions beyond 2020;
- Note the accompanying presentation which outlines the challenges and opportunities of achieving the target set;
- Agree to the consideration of carbon impacts as a core requirement in all relevant cross cutting and issue specific policies, strategies and plans.

CONTACT OFFICERS:

Mark Atherton, GM Asst Director of Environment
(mark.atherton@greatermanchester-ca.gov.uk)

BACKGROUND PAPERS:

- Climate Change and Low Emissions Implementation Plan (2016-2020)
- Greater Manchester Annual Environment Report 2016

1. EXECUTIVE SUMMARY

1.1 This paper sets out our proposed approach to establishing longer term emission reduction targets for Greater Manchester. Whilst recognising that a range of goals relating to a low carbon economy, climate adaptation, natural environment and sustainable societies are required, this paper focuses specifically on identifying GMCA's preferred approach to greenhouse gas emissions reduction, across the whole of Greater Manchester, beyond 2020.

1.2 During his election campaign, the Mayor gave a commitment to hold a green summit within the first twelve months "To declare a new accelerated ambition for Greater Manchester on the green economy and carbon-neutrality and, in the meantime, ask experts and city stakeholders to lead a public debate on what that new goal should be." Work on establishing the summit (to be held on 21st March 2018) is underway and a range of `listening events' are being organised.

1.3 Greater Manchester's current plans for reducing our carbon emissions include a 48% reduction by 2020 (from 1990) and an 80-90% reduction by 2050. Although the latter is marginally above existing UK government targets, some climate scientist believe that this is now insufficient to keep global warming below 2°C. A full list of GM's local, national and international commitments is provided at **Annex 01**.

1.4 By 2050, it is estimated that 70% of the world's population will live in cities. We want our city to be an economic powerhouse of the North and a global leader in innovation. To accommodate these aspirations, create jobs and also meet our commitments to tackling climate change, we need to set a new ambition for Greater Manchester.

1.5 To reduce our carbon emissions significantly, we need to use energy more efficiently (particularly from buildings), generate more local energy from low carbon sources and make changes to the way we use transport and manage waste and create a circular economy. Post-2020 targets are therefore required to inform the scale and speed of delivery by 2020 and inform longer term decision-making to achieve best value delivery.

1.6 Any post-2020 target will require significant levels of transformation as, in essence, we need to phase out fossil fuels, and shift from a low capital, high revenue energy consumption system, towards significant capital investment in low carbon and efficient generation and use which will, in the medium term, significantly reduce revenue costs for authorities, businesses and residents. The sort of changes required, aligned with scenarios mapped out at national, and international levels using modelling undertaken by the UN, DECC and ETI are provided in **Annex 02.** The level of transition required will require a 3D (decarbonisation, digitalisation and decentralisation) transformation of our energy distribution systems which is already underway.

1.7 Other key GM strategies and plans, which have strategic implications for carbon reduction in the city region, are currently under development (GMSF, Transport Plan). A transparent decision on the timescales and level of ambition to deliver a low carbon economy for Greater Manchester is required to inform the development of these. It is likely that additional low carbon requirements within these plans would require a clear public target and commitment.

2. STRATEGIC CONTEXT

2.1 The existing strategic context for action is based on a Greater Manchester Strategy (GMS) Commitment to cut direct CO_2e emissions by 48% between 1990 and 2020. The delivery approach was further developed in the 2011 Climate Change Strategy, 2012-15 Implementation Plan, and the new 2016-20 Climate Change and Low Emissions Implementation Plan. Greater Manchester's progress against these commitments are published annually in the GM Annual Environment Report; the latest version (2016) is provided as a handout.

2.2 The economic case for action was made in 2009's Mini Stern Report for Greater Manchester, which highlighted a £20 billion opportunity cost should we fail to act, sitting alongside a range of adverse health, productivity and prosperity outcomes identified in subsequent work. In 2016, 45,000 people were working in the sector within Greater Manchester, which contributed £6.7 billion GVA to Greater Manchester's economy.

2.3 In addition, GM needs to meet the DEFRA Air Quality Objective Levels for Nitrogen Dioxide emissions by 2020 and will then need to work to maintain acceptable levels whilst accommodating growth; some of the carbon reduction proposals will support these aims.

2.4 The Low Carbon economy represents a fundamental shift from capital light, revenue intensive fossil fuel energy expenditure to capital intensive, revenue light energy efficiency and local low carbon generation systems. The scale of investment required is substantial – best estimates suggest around £15 billion. However this isn't new money. Greater Manchester's economy already invests £5 billion a year to buy fossil fuel-based energy (petrol, electricity and gas) extracted, processed and retailed by non-GM based organisations, with little or no return on investment.

2.5 To reduce the productivity and prosperity risks of an economy reliant on high levels of imported energy, to ensure we have the necessary levers of control, and the agency to deliver on our targets, the establishment of energy generation, trading and retail within Greater Manchester's economy might be a solution. Another Mayoral manifesto commitment was to relook at the potential for a GM Energy Company which would, if owned and based in GM, allow taxes and levies to be increasingly repatriated and invested in Greater Manchester. Work to investigate the potential for a GM Energy Enterprise is also underway.

2.6 There are clear differences between UK and GM attitudes to and appetite for specific generation and infrastructure like windfarms, smart grids, nuclear, fracking etc. The introduction of clear targets, and a clear justification for these policy differences will make GM more able to defend decisions which deviate from national policy, more able to accrue economic benefits from deploying and owning infrastructure and less vulnerable to high levels of revenue expenditure on energy generated outside of GM.

2.7 The world climate summit (COP 21) took place in Paris in December 2015, attended by Tony Lloyd and Sir Richard Leese. The key headline from the

conference was '*the rise of the cities'*. For the first time, cities action, presence and commitments outstripped corporate commitments and those of nation states, providing a strong platform for the discussion of disaggregating national targets down to local areas and emphasising the critical importance of the decisions made in cities for achieving global emissions reduction. The agreement to keep global temperature increases close to 1.5 and well below 2°C would indicate that targets in excess of 80% by 2050 will be required.

3. SCATTER (Setting City Area Targets and Trajectories for Emission Reduction)

3.1 There is a wide body of research on the benefits of adopting a whole energy systems approach to carbon reduction across multiple sectors (transport, built environment and engineering) investigating energy use and potential new technologies that will reduce the reliance on using fossil fuels.

3.2 Whilst there are broad international pathways set out, there is currently no specific Greater Manchester low carbon pathway. GM has received funding from BEIS to develop a city region transition pathway to 2050 (SCATTER), developing future energy scenarios which will help to inform what a future carbon neutral target date should be. The goal of this work is to rapidly evolve the knowledge base and assessment tools that are needed for a comprehensive understanding of the whole future energy system.

3.3 This process will include a number of stakeholder engagement events which will culminate in a report to the Mayoral Green Summit.

4. CONCLUSION

4.1 There are fundamental policy implications associated with a carbon neutral target set for, or before 2050. A globally ambitious target is achievable, but the only world cities who are currently achieving cuts at this scale are doing so by using every local regulation and policy measure at their disposal, for example vehicle exclusion zones, local emissions taxes, active enforcement of zero carbon planning and building standards (resolving disjoints between property ownership and occupation, and property build values and occupants costs, could require direct intervention at local level).

4.2 It is unlikely that enablement, encouragement and investment alone will deliver the required result – increased enforcement may also need to be part of the plan. For example, although Greater Manchester currently has the necessary powers to issue enforcement notices on landlords renting out properties which don't meet minimum UK energy standards, use of these powers is not prioritised in our limited enforcement budgets. The use of existing and new policy requirements, minimum standards and enforcement levers will need to be actively considered if Greater Manchester is to achieve an ambitious target.

4.3 Rather than climate change being treated as one consideration amongst many in strategic decision making, globally leading cities will need to consider it a binding commitment to achieve compliance. As such, it is important for GMCA to set a target which can then be transparently applied across the full range of strategies, policies and initiatives it undertakes, and with a full understanding of its likely implications.

Annex 1

EXISTING LANDSCAPE OF COMMITMENTS

1 Local Commitments

Some Greater Manchester Authorities have made external commitments and/or published plans which set targets beyond 2020.

- By March 2017, all Greater Manchester's Authorities will have signed a public declaration to run on '100% clean energy' by 2050
- GM Fire and Rescue Service is committed to becoming net carbon positive in its operations by 2040; and
- Individual authorities have milestone targets for 2025 and 2030 in their local policies.

2 UK Commitments

The UK currently has a legally binding climate change target, overseen and monitored by the Committee on Climate Change. The target is based on successive 4 year 'carbon budget' periods reflecting the scientific reality that if cuts are delayed, greater cuts are needed further down the line to account for the additional greenhouse gas accumulation in the atmosphere.

3 International Compacts and Agreements:

Greater Manchester is a signatory to 3 International Commitments:

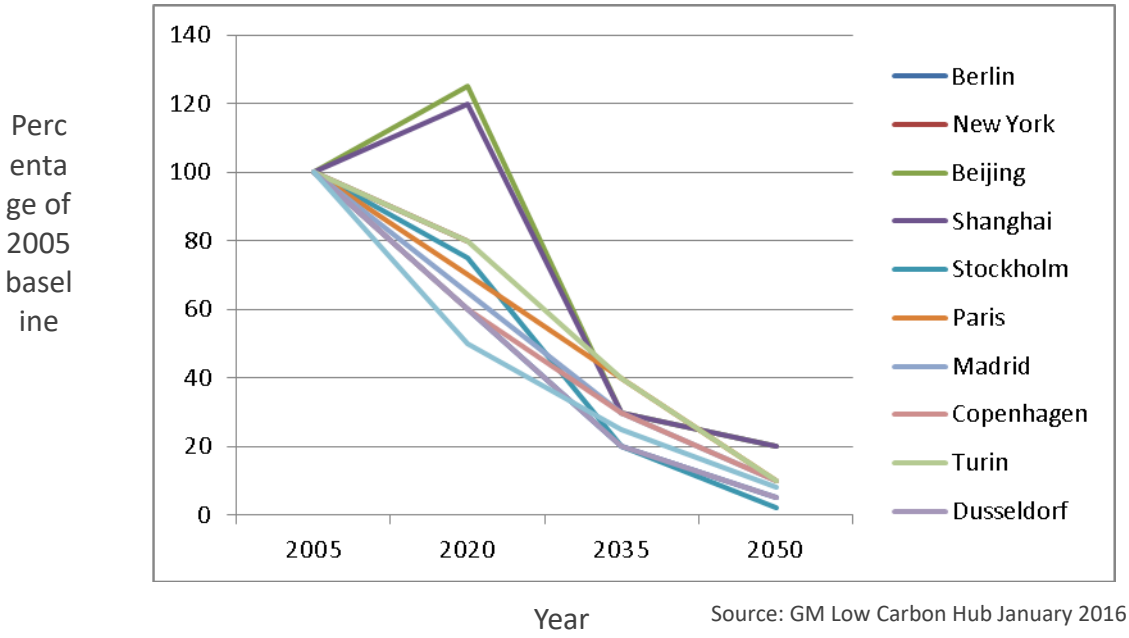
- The Integrated Covenant of Mayors requires Greater Manchester to set targets aligned with or exceeding an 80% emissions reduction by 2050, and to achieve a 40% reduction between 2005 and 2030. The commitment also requires comprehensive action planning, monitoring and reporting using their specific methodologies. These are closely aligned to the Compact of Mayors requirements.
- Compact of Mayors: This requires the submission of detailed information and reporting using the Carbon Disclosure Protocol, including emission reduction and energy decarbonisation action, aligned with the overall 80% by 2050 goal. In order to achieve 'compliant' status, data and reporting must be presented using the GPC greenhouse gas emissions reporting protocol.
- Under 2 MOU requires cities to commit to achieving emissions reductions of at least 80% by 2050, and/or achieving a total emissions per capita of a maximum 2 tonnes per person by 2050. There is no specific reporting requirements, although this is a new commitment, so further requirements may be proposed over time.

A key part of these disclosures is for Authorities to also report their operational emissions. Following the abolition of the NI reporting framework, which included an NI186 indicator for operational emissions, many of Greater Manchester's authorities ceased to gather and publicly report this data. If Greater Manchester is to achieve 'compliant' status in the Compact of Mayors protocol, and anticipating DECC's moves to reintroduce a requirement for this as part of pending changes to cross sector reporting legislation, local authorities will need to reintroduce monitoring and reporting arrangements in order to comply.

4 World City Commitments

Cities around the world have set a range of targets and public commitments. There are variations in the type of targets set, with some pledging to decarbonise energy and transport, and others setting direct emission reduction targets. An overview of a sample of global cities is shown in the graph below.

Emissions pledges made by sample cities during / leading up to COP21



Source: GM Low Carbon Hub January 2016

Annex 2

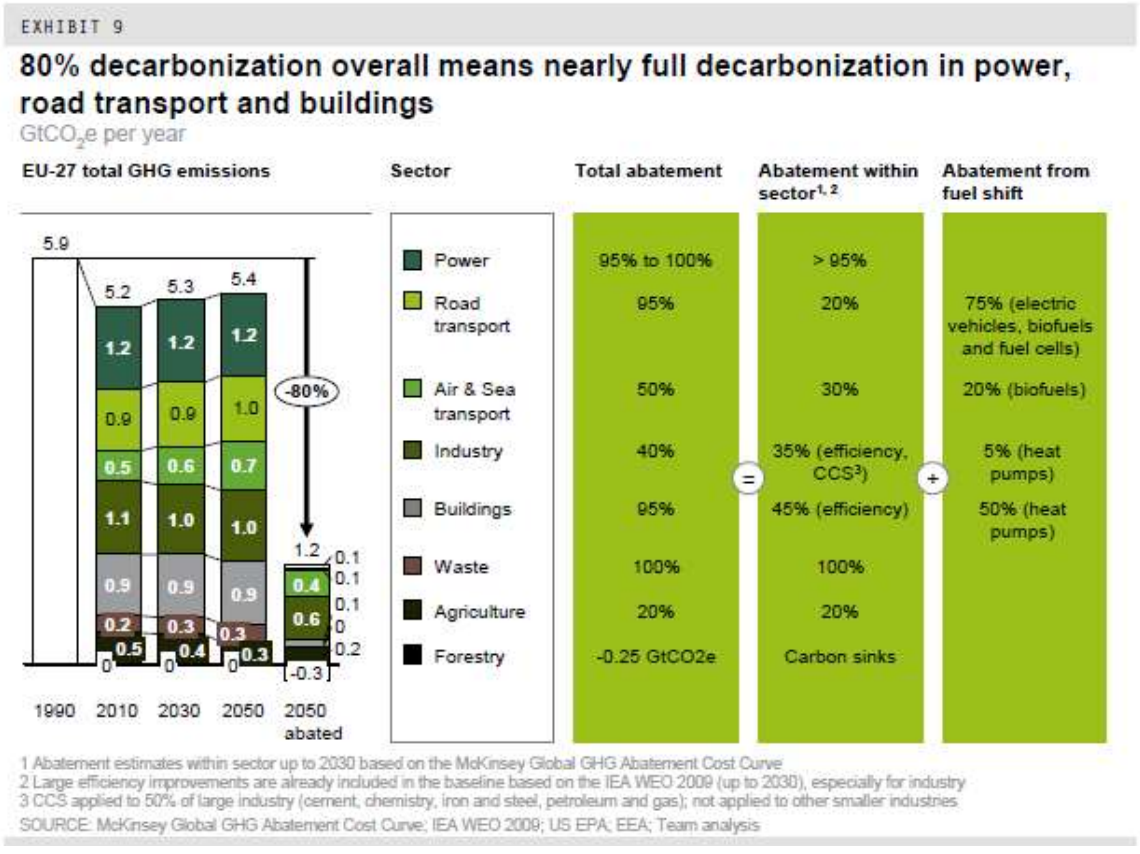
Key Actions and Pathways to 2050.

A number of different projects have been undertaken by DECC/BEIS, the Committee on Climate Change, The Energy Technology Institute and the European Commission, aiming to identify and time the key transformative actions that will be needed to secure a low carbon, climate compliant economy and society. Some examples of their findings are shown below.

As demonstrated in the EU's Pathways to 2050 analysis (below), 80% decarbonisation by 2050 actually requires decarbonation at a rate of 100% for waste, 95% for road transport, power and buildings (including heat), 50% for air and sea transport, 40% for Industry and 20% for agriculture.

The graph shows the contribution required over time from different sources, and the green columns show the total decarbonisation (Column 1, described as Total abatement) as a product of the reduction in demand / storage (column 2) plus the decarbonisation of source fuels and feedstocks (column 3).

All scenarios assume a significant shift in the energy intensity of appliances, and that people will deliver significant changes in more responsible use of energy and resources.



Source: Roadmap 2050 0 a practical guide to a prosperous, low carbon Europe.

The following two graphs show the 'Markal Model', seen as the central scenario developed using DECC's 'Pathways to 2050' scenario planning model and analysis. This tool was used in a local Hackday to develop a Greater Manchester Scenario, and the workshop's findings will be drawn upon in the current SCATTER work with Anthesis consulting and the Tyndall Centre.

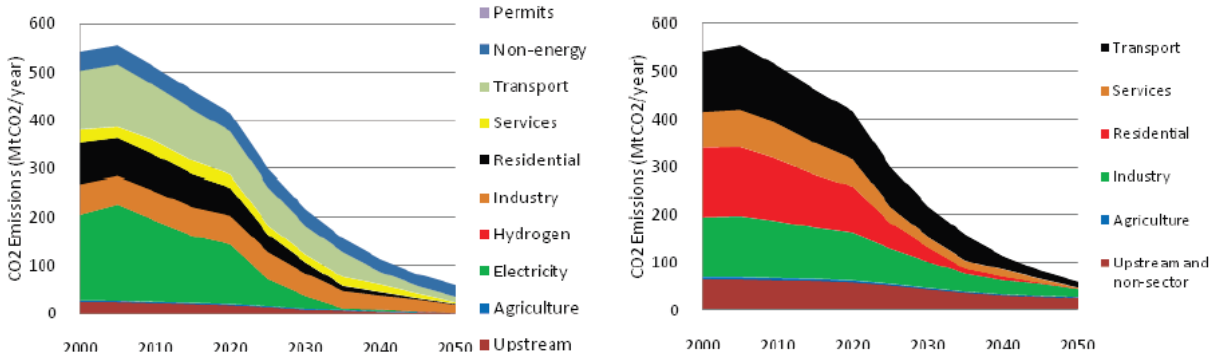
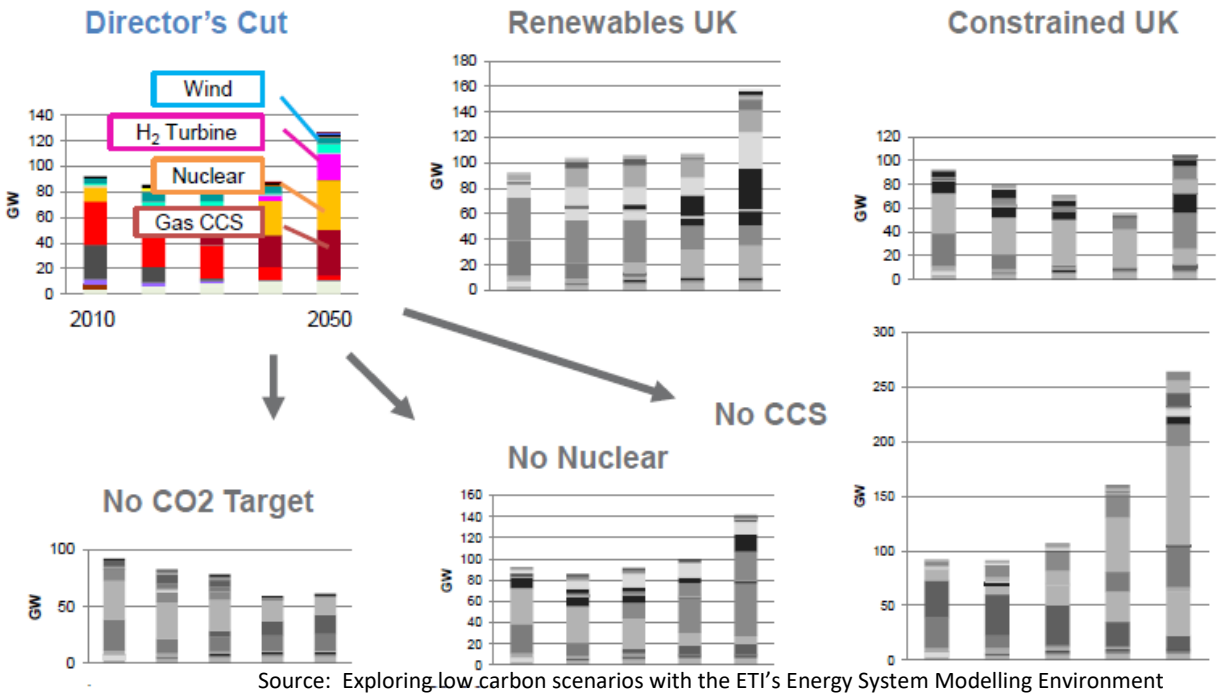


Figure 3: Sectoral and End-use Sectoral CO_2 Emissions

Source: Pathways to 2050 – Key Results MARKAL Model Review and Scenarios for DECC's 4th Carbon Budget Evidence Base

The Energy Technology Institute (ETI) produced the ESME energy system scenario planning tool, and a refined version of this will be one of the tools used in developing the Greater Manchester Energy Opportunities map, as part of Phase 1 of the Smart Systems and Heat project. A range of models were produced in order to a central scenario.



Source: Exploring low carbon scenarios with the ETI's Energy System Modelling Environment (ESME)

Pathways for Greater Manchester

The following non-exhaustive list provides some headline issues and actions identified in this national work where full implementation would be required for the higher end of ambition to be realised. All measures assume that behavioural change to more carbon efficient lifestyles will take place alongside and as part of the technological shifts shown below. Drawing on the scenarios outlined in the above reports, a critical path for Greater Manchester arising from the SCATTER could resemble the following:

Late 2010s

Buildings and Heat

- Development of fully compliant Planning, Housing and Transport Strategies and Plans;
- Deployment of first wave of new heat networks;
- Active use and enforcement of building regulations and landlord minimum standards powers;

Power:

- Development of a detailed energy opportunities investment pipeline;
- Accelerate deployment of PV and existing energy generation opportunities;
- Substantial business support to decarbonise and boost productivity;

Transport:

- Significant scale up of hybrid, ULEV and Electric vehicle deployment (e.g. 2015:1000, 2020 6-10,000 registered vehicles);

Early 2020s:

Power:

- Mass deployment of demand response systems to reduce peak power demand and re-profile consumption to match cheap renewable supply;
- Penetration of time of use and flexible, local energy contracts linked to storage;
- Deployment of solar PV schemes on cc30% of viable stock;

Waste:

- Significantly increased recycling rates, less waste production

Buildings and Heat

- Significant roll out of heat networks, and penetration of heat networks into domestic properties;
- Net zero emissions from new build, both domestic and commercial;
- No new gas boilers being fitted in domestic properties; and
- Greater local use of RDF (refuse derived fuel)

Transport:

- Further electrification of public transport

Mid 2020s

Buildings and Heat

- The retrofit or demolition and replacement of almost all hard to treat and inefficient building stock;

Power:

- Extensive deployment of demand side response systems;
- Delivery of every proposed wind, hydro, heat network and biomass scheme identified as viable from an techno-economic perspective and increased deployment of energy storage;

By 2030

Buildings and Heat

- An almost total elimination of gas at home or building level, with a residual use of carbon-abated gas for heat networks;

Power

- Mass deployment of solar PV on all suitable building stock;

Transport

- A shift in private car and other road vehicles use to over 50% penetration of electric and ULEV vehicles, with the remainder being ultra low emission stock, and no new fossil fuel vehicles being bought.

During the 2040s

Transport

- No remaining fossil fuel vehicles on the road (deminimis)

Buildings and Heat

- Elimination of fossil fuels from transition technologies including heat networks;

Power

- Elimination of fossil fuels from peak, standby and general power generation from sources without carbon abatement.

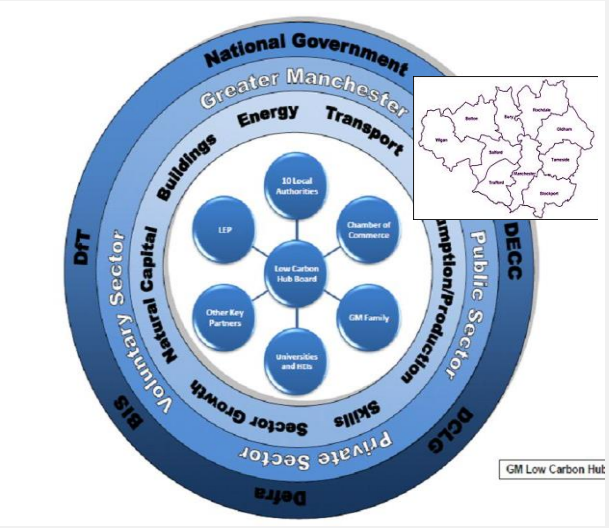
Towards a Carbon Neutral Greater Manchester

Mark Atherton
Asst. Director Environment - GMCA

Greater Manchester Combined Authority

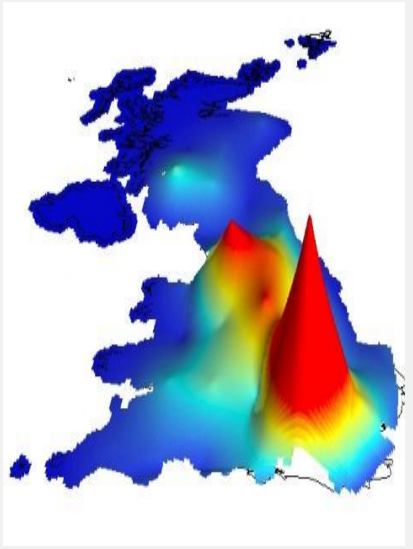
Combined Authority (GMCA)

- AGMA established in 1986, GMCA formed in 2011
- 10 Local Authorities of Greater Manchester working at scale
- Established a Low Carbon Hub in 2012
- A centre of excellence for achieving economic gain through integrated delivery of carbon reduction.

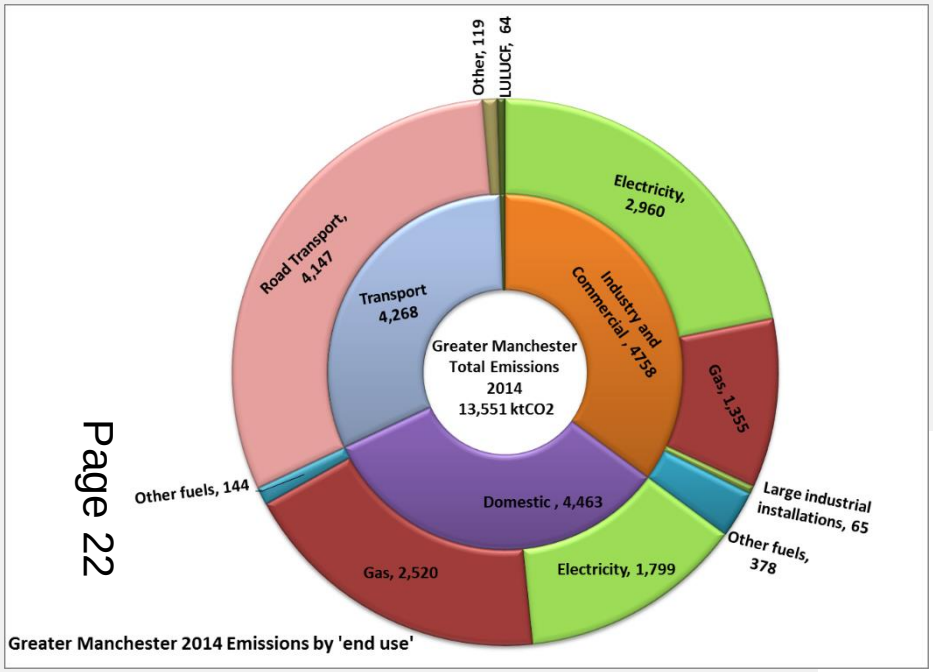


Greater Manchester (GM)

- UK's **largest** & fastest growing regional economy: GVA **£46bn**
- 2.7 million residents and a (ttw) workforce of 7.2 million people
- Low carbon and environmental goods sector worth **£6.7 billion**, 2400 companies, which supports 45,000 jobs - growing at 6% pa
- 1.2m households, 25% are social homes
- 95% of homes use gas for space and water heating; **5%** of postcodes in GM **'off-gas'**
- Homes in GM account for **37%** of total energy demand
- **77%** of domestic demand is **heating and hot water**

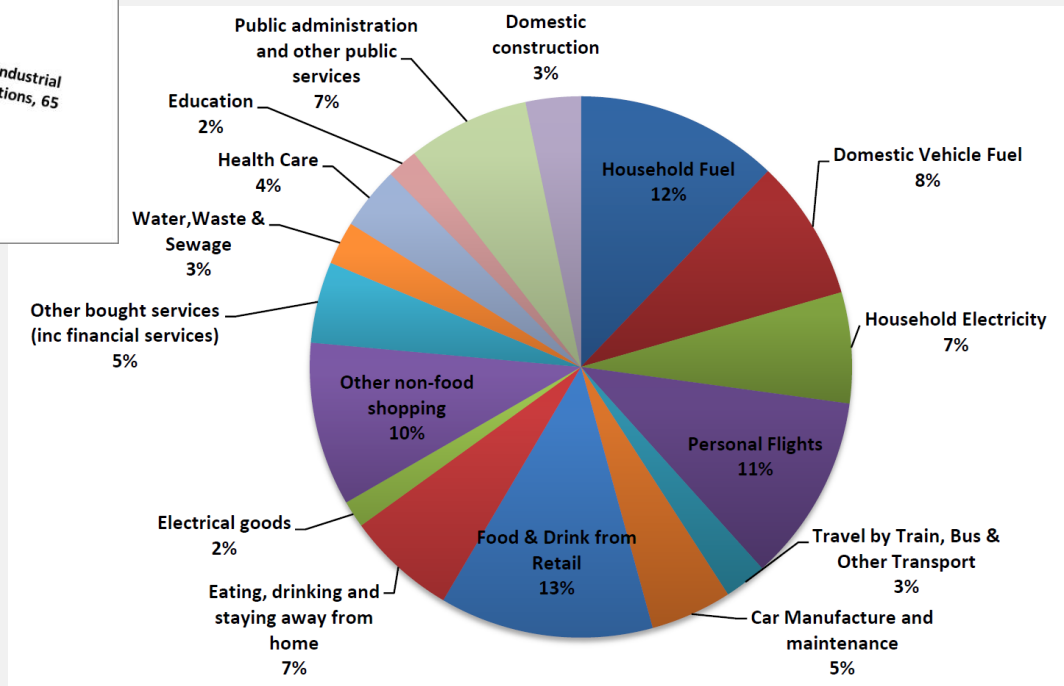


GM Carbon Emissions By Source



Greater Manchester 2014 Emissions by 'end use'

'carbon neutrality' - a situation where global anthropogenic carbon dioxide emissions from energy, industry, and land use / land cover change (LULC) are quantitatively balanced to be 'net zero' by carbon dioxide removals

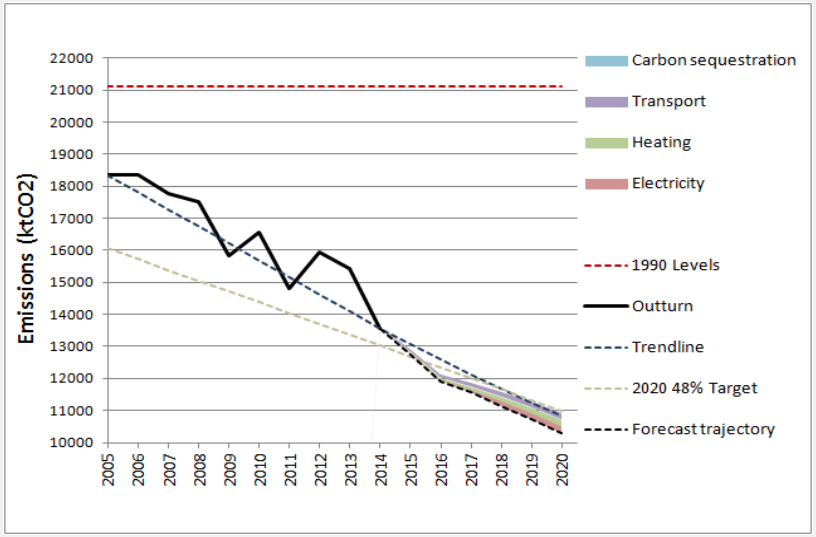


Greater Manchester Emissions Strategy

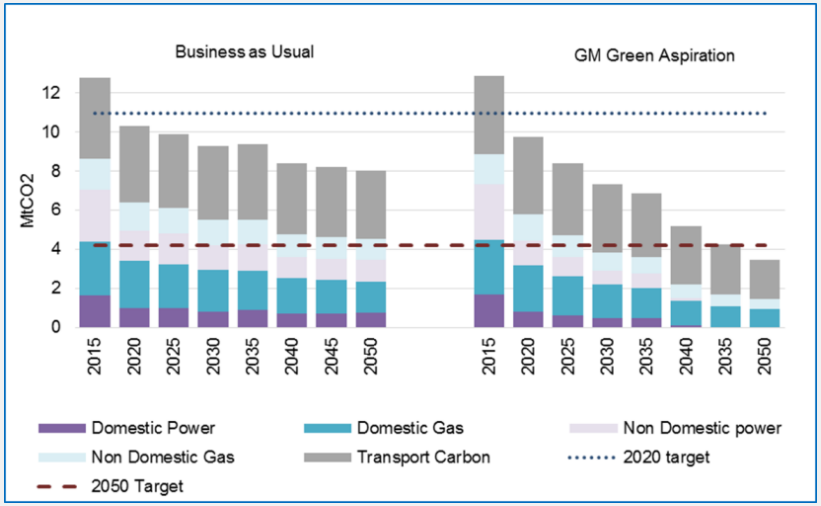
Themes

- **Energy**
- **Buildings**
- **Transport**
- **Sustainable Consumption & Production**
- **Natural Capital**
- Skills and Growth
- Climate Resilience

} Cross cutting



- Implementation Plan outlines actions to meet carbon target to 2020
- `Business as Usual' not enough for 2050
- Significantly scale up our energy efficiency and generation activities with smart energy infrastructure



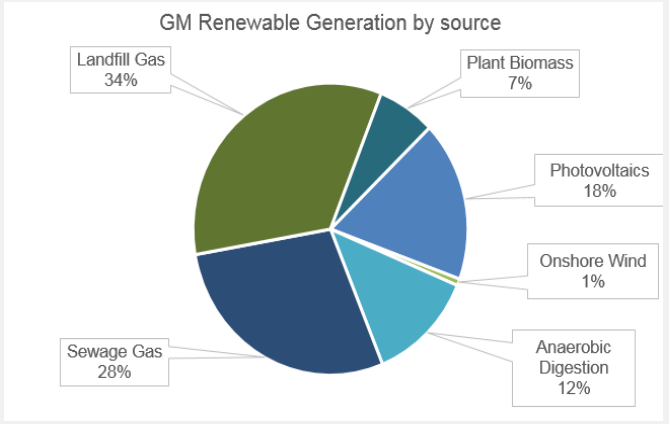
Research & Evidence

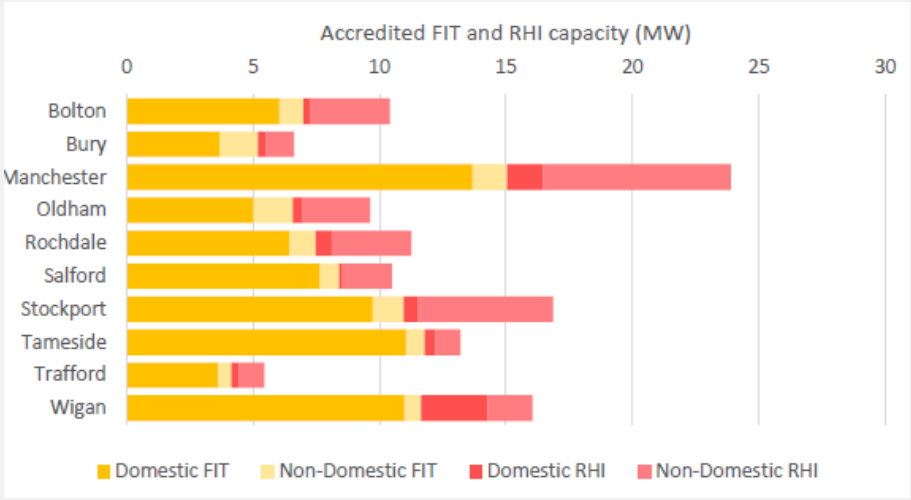
An Evidence Based Approach:

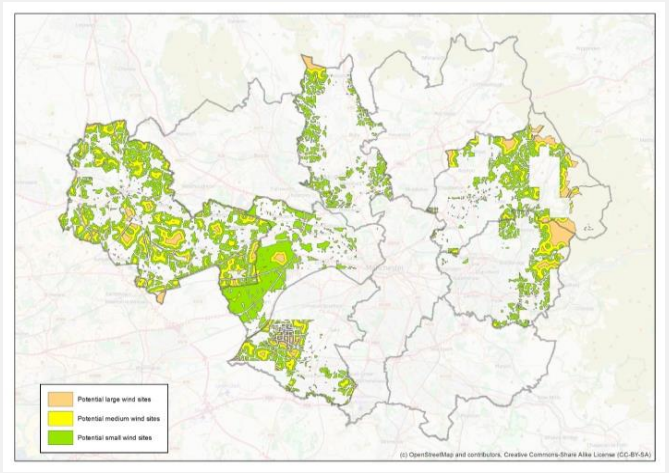
- GM spends over £5 bn/pa on energy (all)
- Use of electricity and gas in buildings accounts for 72% of direct CO_2 emissions
- Longer term targets require energy efficiency, low or zero carbon heating
- GM has 140MW of installed renewable electricity & 29MW of heat capacity.
- However, technical potential for 9% of our electricity demand and 68% of our heat demand to come from renewable sources.

Evidence: Low Carbon Generation

- **140MW** of installed renewable electricity capacity.
- **29MW** of installed renewable heat capacity
- The majority of GM renewable generation is from Landfill, sewage and AD gas (74%).
- Wide variation in installed small scale renewables (<5MW) across districts
- Limitations to role of onshore wind in GM in current policy/planning environment

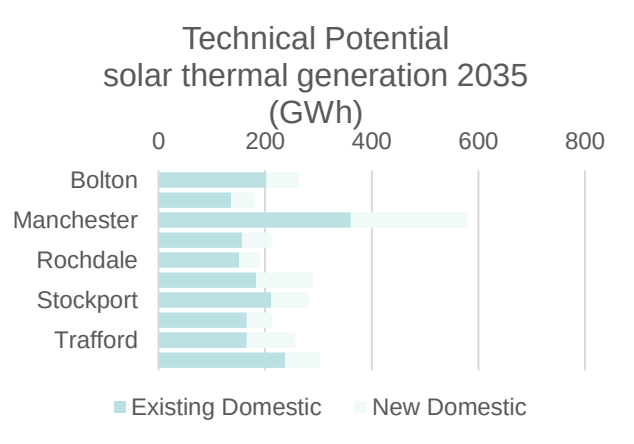


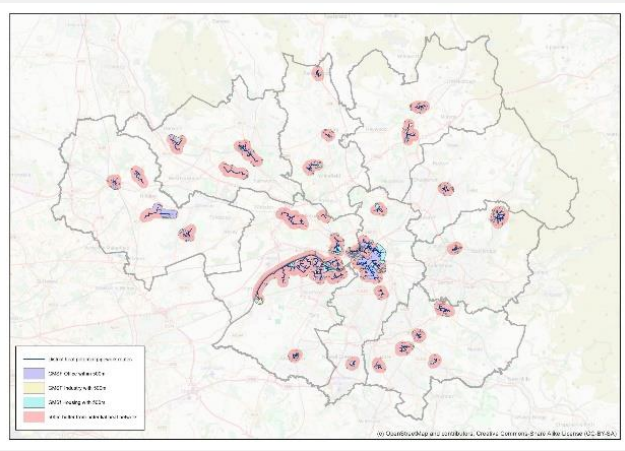


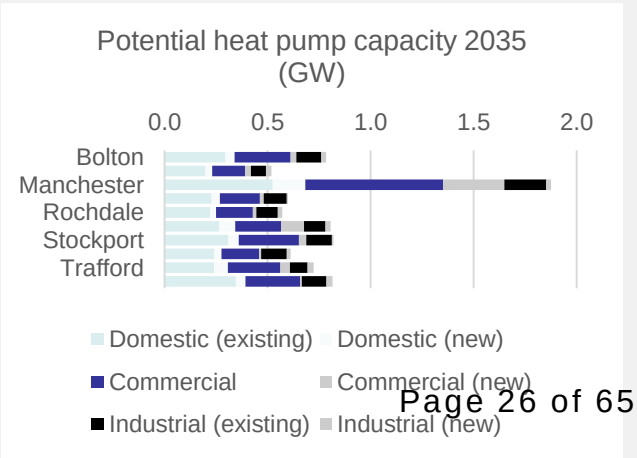


GM Energy Potential

- Significant technical potential in GM for future energy demand met by:
  - **Heat networks**
  - **Solar technologies (heat and power)**
  - **Heat pumps**
  - **Biofuel**
- Other technologies (**hydro, geothermal**) could have role but lesser technical potential in GM.
- Important to recognise **economic barriers** to realising technical potential
- Increasing decentralised generation may create **challenges for networks**
- Number of **potential game changers** including **hydrogen** and **storage**

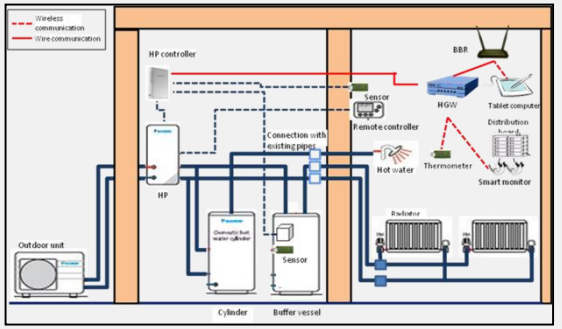






Existing Projects

- **Smart Systems and Heat (SSH)** –national pilot with the Energy Systems Catapult to deliver advanced energy master-planning and a potential £30million demonstrator
- **NEDO** project – a £20+ million partnership with the Japanese Gvt Agency to pilot Demand Side Response in 550 social homes with air source heat pumps



- **Buildings Efficiency** - Award Winning £9m Green Deal domestic energy efficiency programme & a £10m ECO Fuel Poverty Programme. £20m investment opportunity identified with Salix for non-domestic
- **Heat Networks** - £2.7m ELENA funding for project development capacity on heat networks and LED street-lighting. £10m funding for first two networks agreed.

- **Transport -** Electric Vehicle recharging Infrastructure, £23m Velocity Cycling Network, Extension of Metrolink
- **Business support -** £3m Green Growth programme.

Smart Systems and Heat Programme

Whole System Analysis

Convene key stakeholders, develop and apply research, analysis and modelling capabilities to help UK make strategic choices about transition pathways and innovation prioriities collaborating with industry, Government and academia

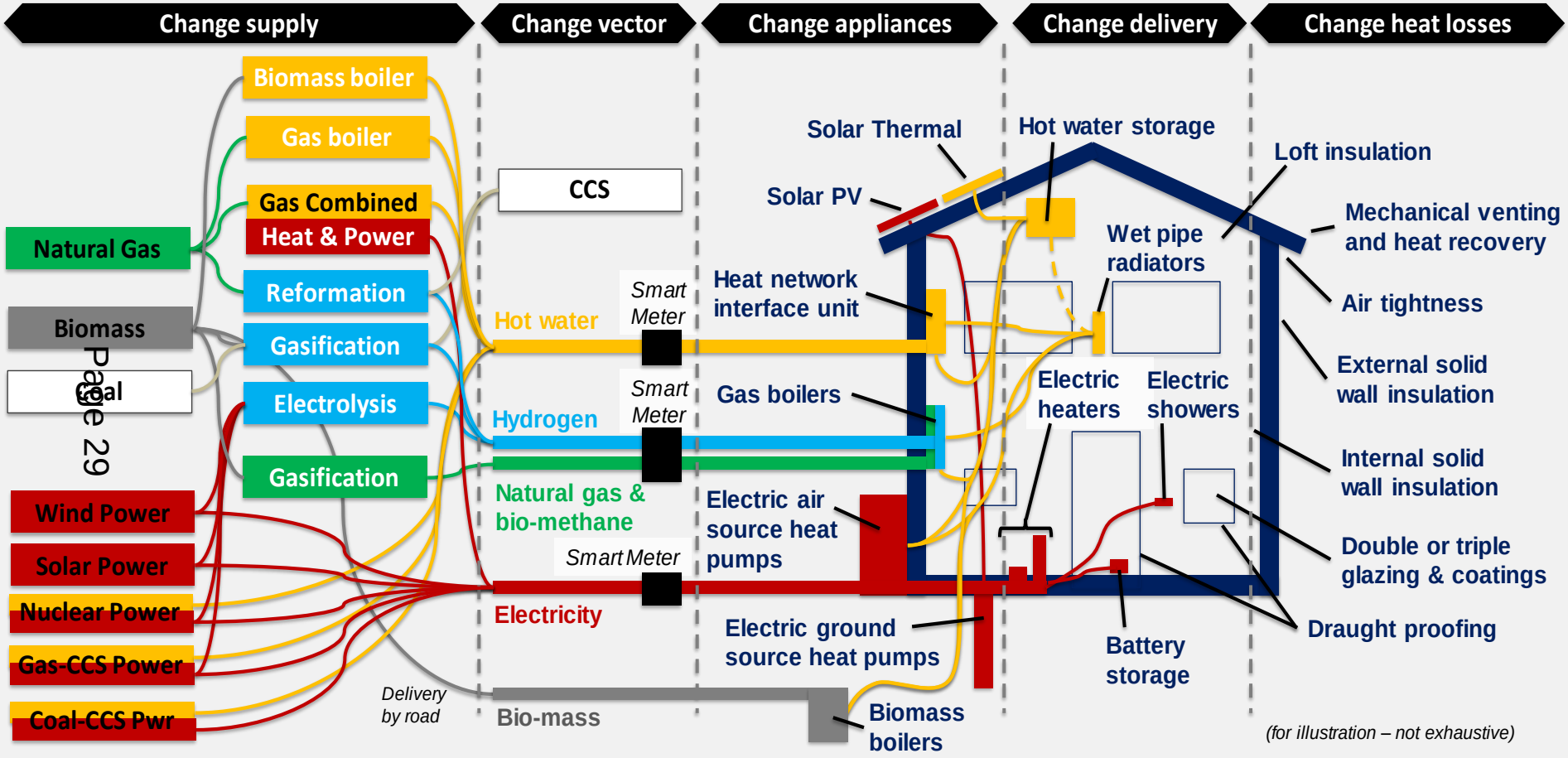
Innovation & Commercialisation

Whole systems architectures; systems integration; consumer insights; subject matter experts; development; “product” management; energy knowledge exchange; collaboration; targeted support for SMEs

Test & Demonstration Platform

Whole systems; facilities, capabilities and best practice; alliances and partnerships; appropriate scale; multi-vector; technical, commercial, business; Consumers insights; mitigate risk and reduce time to market; realistic pricing of risk

Decarbonising Domestic Energy



EnergyPath Networks

Strategic, spatial planning to meet future carbon targets in a local area – focusing on decarbonising building energy demands, specifically heat

- Takes a ‘systems’ view
  - What? Where? When?
  - For investments in Buildings, Networks and Energy Production
  - Across Heat, Electricity, Gas
- Supports proactive planning and investment
- Identifies local energy network build and reinforcement
- Aids consensus building - stakeholders and local communities
- Works on a cost to society basis, so without current subsidies and taxes

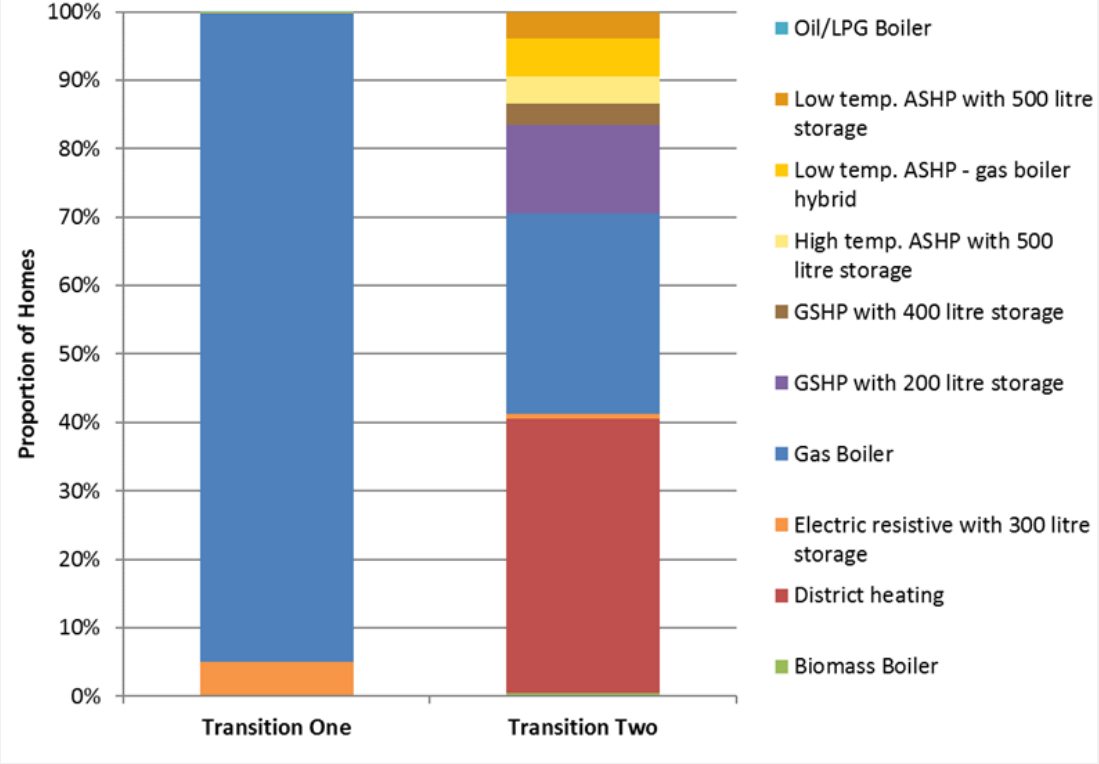
Potential Future System - Domestic

Delivered by CATAPULT Energy Systems

To reach the proposed emission level, domestic heating systems in Districts may have to radically change between now and 2050

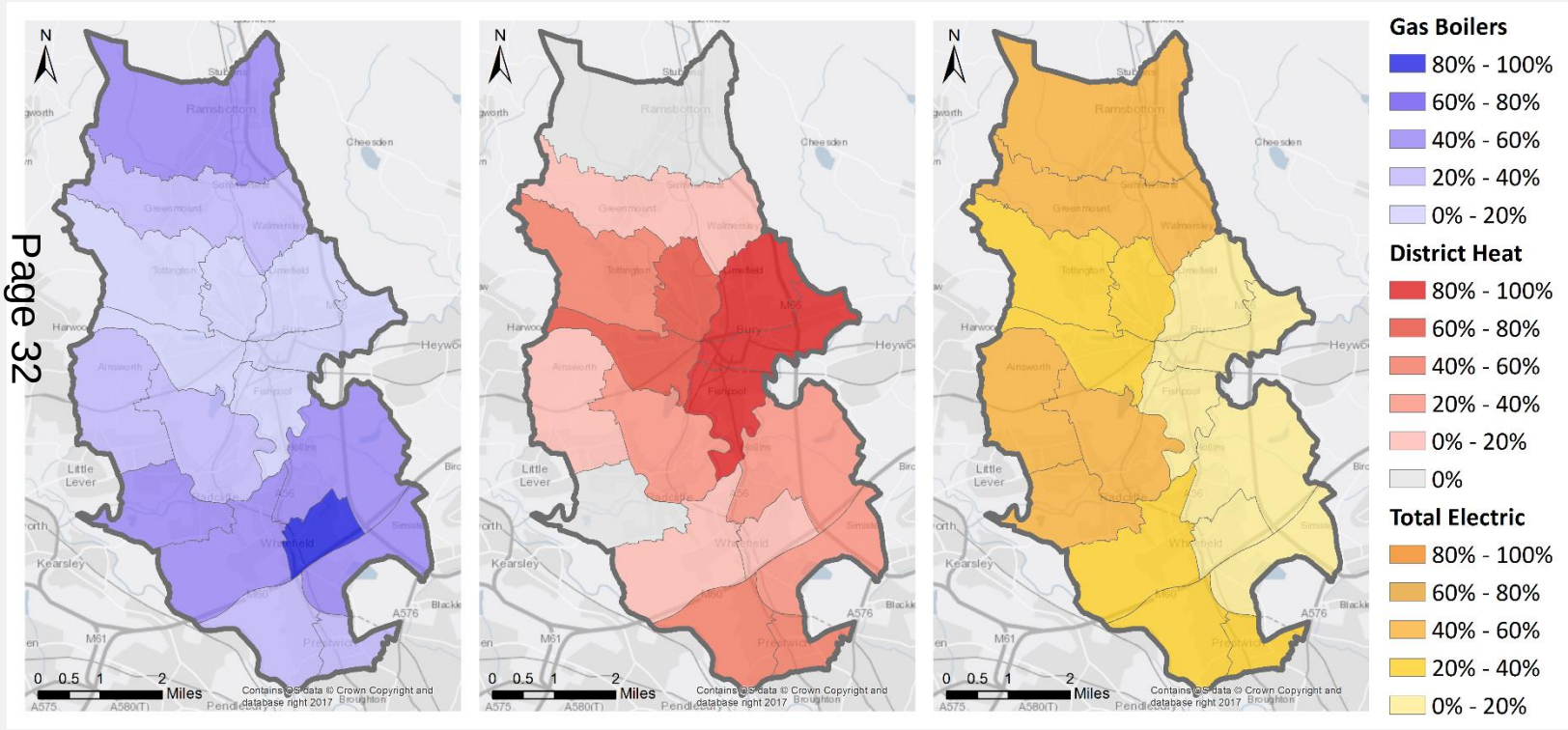
Our (draft) modelling suggests the most cost effective pathway would be for:

- **30%** of domestic buildings to stay on gas
- **40%** to switch to district heat
- **30%** to use an electric heat pump option



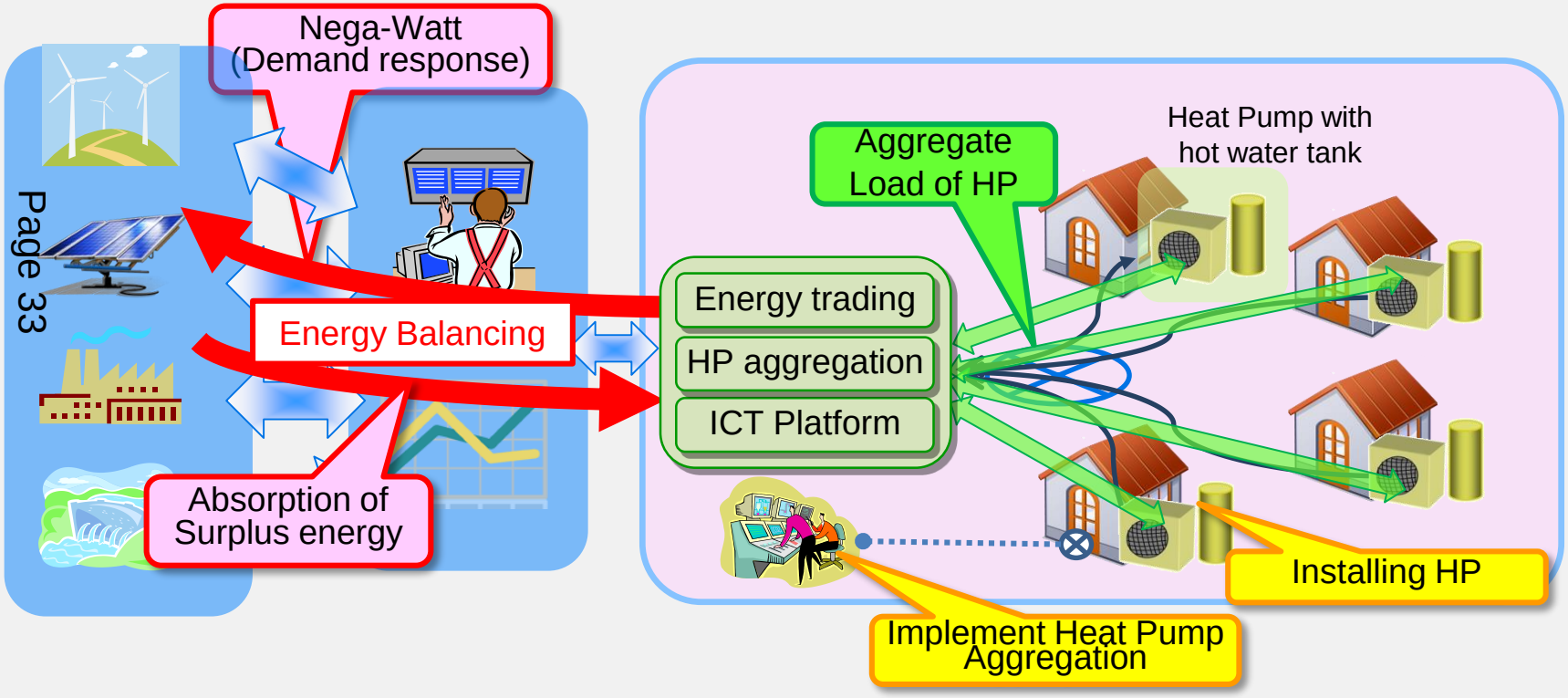
Domestic Buildings – Transition 2

The modelled type of domestic heating systems varies significantly across District

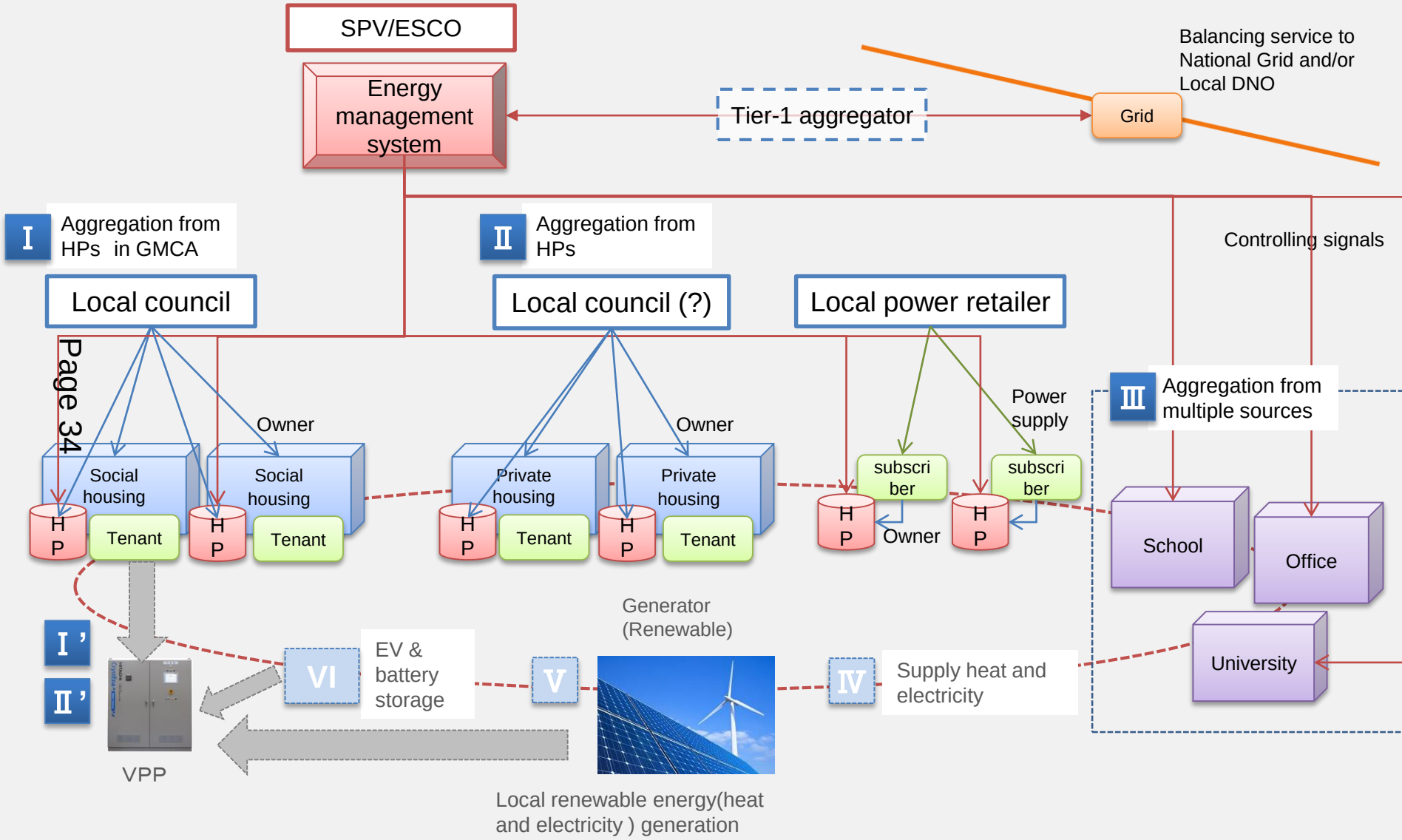


Domestic Smart Energy Proposition

Reduce energy demand and cut carbon emissions by bringing together low carbon energy technologies with advanced IT.

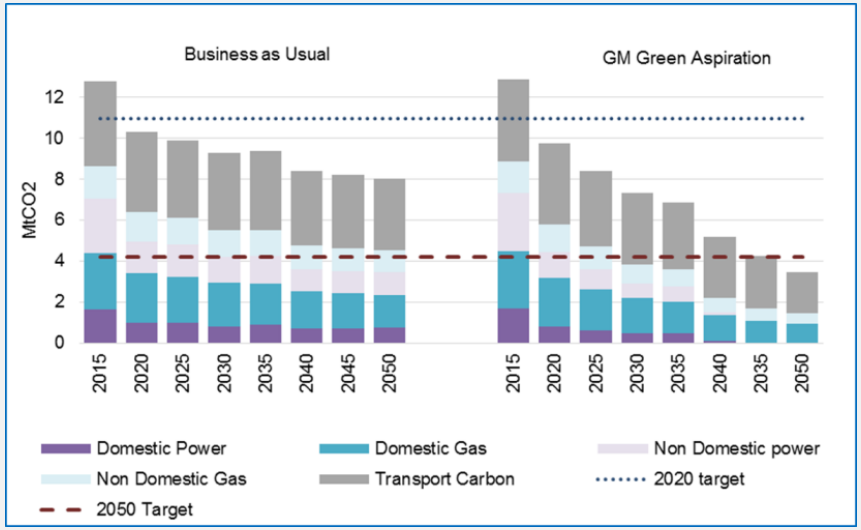


Future Possibilities for Delivery



Conclusion

- We have an opportunity to create a new vision for Greater Manchester
- `Business as Usual' not enough to achieve carbon neutral by 2050
- We must significantly scale up our environment, energy generation & efficiency activities
- Partner collaboration, with citizens, business and academia is key to accelerating progress.



We need to:

- Maximise the value of existing partnerships, strategic approaches and joined up thinking
- Create frameworks which provide capacity for viable project development.
- Build business cases for investment in viable natural capital, energy and transport solutions.
- Incentivise investment by others though stronger local policies.

Greater Manchester Environment Report 2016

Cutting carbon emissions by 48% between 1990 and 2020

Growing a low carbon economy

Rapidly adapting to a changing climate

Embedding low carbon behaviours

Achieving air quality thresholds

Governance

A new style of local government has brought together GM's 10 local authorities to become the UK's first Combined Authority. With more local control comes the enhanced ability to deliver positive air quality and low carbon impacts.

The LCH Board:

- Provides strategic guidance on low carbon, waste and environmental issues
- Oversees project development and delivery, ensuring transparency
- Establishes and maintains external links within the sector
- Is GMCA's advocate and champion for low carbon, environment and waste.

The LCH Board comprises:

- A GM local Authority Leader and Chief Executive
- Board representatives from TfGM, GM Waste Disposal Authority, New Economy, the Growth Company and Core Investment Team.
- Business, third sector and academic thought leaders.

The Board meets quarterly. It establishes and oversees a wide range of public and private sector initiatives, task groups and project groups. It reports into the GMCA's Executive via its Chair, Salford City Mayor, Paul Dennett.

Small teams within GM the delivery organisations support the policy, research and programme work of the Low Carbon Hub.

Policy

- Greater Manchester's Climate Change Strategy 2010-20 shapes the work of the Low Carbon Hub. Priority interventions are summarised in **GM's Climate Change Strategy Implementation Plan 2016-20**.
- Northern Cities are critical to the UK's carbon reduction and low carbon economic challenge. The **Northern Powerhouse** concept, new governance and delivery arrangements provide the building blocks for GM to deliver a powerful transition to a low carbon and low emissions economy. Such a transition requires decreasing fossil fuel consumption, improving system-wide energy efficiency and increasing energy generation.
- Greater Manchester are proud to have been selected as **DEFRA's Urban Pioneer**, identifying good practice and innovative solutions as Defra begin to implement their 25 Year Environment Plan.
- GM have recently agreed with the Government a **GM Devolution Energy Deal** - to work together on reducing UK emissions in line with carbon budgets and tackling the impacts of unavoidable climate change.
- Consultation phase complete of the **GM Spatial Framework,** comprehensive review for Spring 2017 **–** ensuring we protect our environmental assets and plan for a clean, green infrastructure.
- Carbon reduction features as a key theme for the Greater Manchester Strategy consultation.
- Bolton Council published Supplementary Planning Documents (SPDs) to increase uptake of sustainable building and development solutions.
- Manchester Climate Change Agency launched their Climate Change Strategy 2050.

Finance

Greater Manchester has created a strong funding platform for future project delivery:

- £21m ERDF funding established for Sustainable Urban Development to be focused on smart energy innovation and a further £15m ERDF funding secured for a Low carbon investment Fund.
- £6m Government Green Deal Communities funding bolstered by additional funds fro m customer contributions, Local Authorities and energy company obligation funds (ECO), making the net worth of the project c£9
- £1.3m funding secured for continuation of business support activities to develop and grow the local LCEGS sector.
- Over £110m of energy and low carbon research income is in place across GM's academic institutions.
- Investment pipeline of £200m in heat networks, energy efficiency and generation projects identified.
- Secured a proportion of £14m through EU Life Integrated Project to provide capacity for Natural Capital activity and improve water quality in GM through the project – Natural Course.
- £67k additional funding secured to undertake next stage of work for Bolton Raikes Lane, additional funding also identified for Manchester Piccadilly and Salford Charlestown heat networks. Three funding applications submitted to pilot of the Heat Network Investment Programme - if successful, secures £12m capital funding for the St Johns, Trafford City Gateway and Civic Quarter Heat Networks. This will in turn leverage a further £40m private and public investment.
- MOU proposed with Salix Finance to provide £10m of 0% finance over 3 years. Two demonstrators include a £3m investment in the 1st wave of school retrofit programmes, and a circa £1m RE:FIT corporate buildings programme
- Oldham Council (on behalf of GM) secured €1.2m funds for Community Energy Sector project and a further £200K to support sustainable food supply chains.

ACHIEVEMENTS 2016:

Climate Change Adaptation and Resilience

Partnership working has helped to focus research and progress essential work on adaptation and resilience.

- RESIN: investigating climate change resilience in European cities, £1.1m funded by Horizon 2020. It combines existing approaches to climate change and disaster risk assessment to develop guidelines that can be used and ultimately shared widely.
- £12m work now completed on Salford Flood Defence basin on land north of the Castle Irwell Student Village to increase protection for 1400 homes and 500 businesses in Lower Broughton and Lower Kersal. Partners include University of Salford, the Environment Agency and Salford City Council.
- Bury Council incorporating Climate Change mitigation into Health and Well Being strategy.

Energy

- Smart Systems and Heat – An ETI and Energy System Catapult Energy master-plan funded to create a GM evidence base .
- Three year £20m NEDO funded programme due to complete February 2017. Over 550 ICT linked air source heat pumps, testing demand side response in 'smart communities' in Bury, Manchester & Wigan.
- 'The District Energy Procurement Agency' (DEPA) a proposed municipal not-for-profit procurement cooperative specialising in goods and services in the district energy market. The PDU have supported the Phase 1 works. This includes developing a business case and drafting legal documents relating to company formation.
- Completion of EU funded research: District Information Modelling and Management of Energy Reduction (DIMMER) programme.
- District Heat Masterplanning and mapping completed for Trafford Park and Manchester Piccadilly, with feasibility studies also completed for MediaCityUK, NOMA, Oxford Road Corridor, Ashton Town Centre, Bury Town Centre and Bolton.
- £60K secured from DECC to run a community energy innovation project.

Buildings

- Award winning Green Deal for Communities project, completed on time, exceeded targets and within budget - over 900 fuel poor households received external wall insulation and over 400 households received other retrofit measures.
- £2M ECO funds ring-fenced for GM fuel poor residents, via OJUE procured GM GD and ECO Framework . Agreement signed with E.ON.
- Business cases developed for 379 LA buildings including schools, across 5 local authorities, totalling £19m investment opportunity.
- £6m Wigan Town Hall refurbishment completed following a green 'deep dive' report, in conjunction with agile working principals, delivering 38% reduction in gas consumption and only a 20% increase in electricity consumption despite increasing occupancy from circa 250 to 517 staff. Case study to be produced to assist other GM civic refurbishments.
- Parrs Wood High School solar roof completed, hosting 1K solar panels, generating more than 200,000 kWh of power per year.

Transport

- Delivery of Metrolink line to Rochdale Town Centre 2 months ahead of schedule and to the Airport 12 months ahead of schedule
- 167 electric vehicle charging infrastructure stations delivered, and over 2,500 GM registered e-vehicles.
- GM awarded £42 million to fund the development of the City Region's cycling strategy, Velocity 2025.
- Through LSTF funding, four cycle hubs opened in Rochdale, Ashton-under-Lyne, Bury and the Regional Centre
- Converting 41 yellow school buses out of a fleet of 93, to green, delivering significant environmental benefits and reducing children's exposure to harmful air pollutants
- Trafford Council making £XXK improvements to cycling routes including Transpennine Trail. Stockport Council invest £500K on walking and cycling route improvements.

Natural Capital

- GM selected as a national 'Urban Pioneer' Defra's 25 year environment plan: sharing good practice and innovation over the next 3 years.
- Commencement of 'Natural Course' a £14m, 10 year project funded by EU Life IP to implement the Water Framework Directive (WFD) in the North West River Basin District, improving water quality.
- City of Trees: planting 55,780 trees, creating 30 community orchards, planting 846 fruit trees and inspiring 2,412 schoolchildren to love trees.
- Manchester City Council awarded £11.5m Grow Green funding to provide nature based infrastructure solutions.

Sustainable Production & Consumption

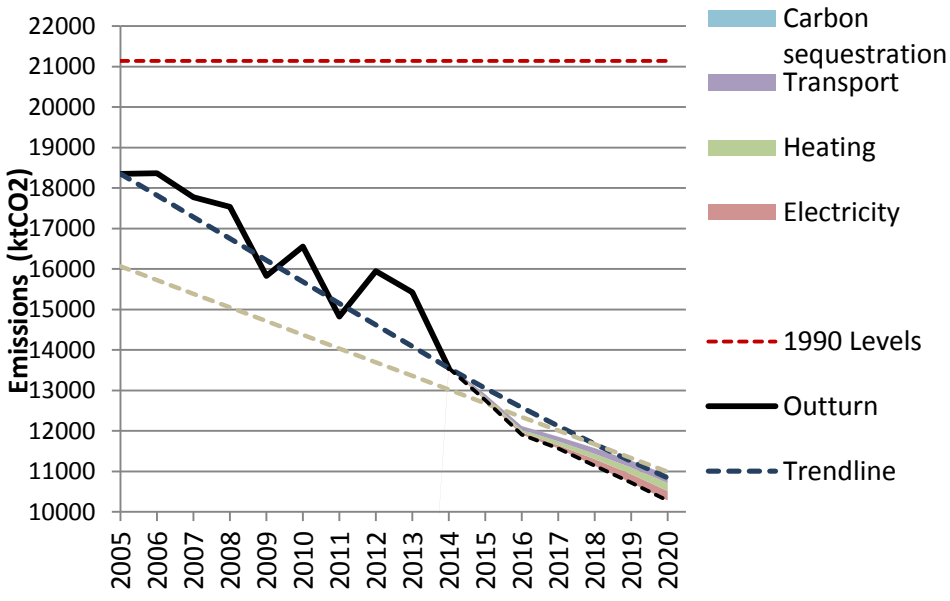
- £3.5 million secured for carbon reduction and eco-innovation business support through the Business Growth Hub. The project will provide 540 businesses with intensive one-to-one support and achieve 6,000 tonnes of annual CO2e savings by December 2018.
- The Green Growth project supported 50 businesses in 2016 with 12 jobs created, and over 2,000 tonnes CO2e and nearly £1 million annual cost savings in the pipeline.
- Continuation of light touch online services: 80 companies have now logged environmental business pledges and 500+ are receiving fortnightly tailored news and advice e-bulletins.
- Love Food Hate Waste, 10 cities campaign (year 2); Supported WRAP to deliver, with R4GM, via events that encouraged food waste prevention.
- Production and sale of Revive Compost – continue to increase base level sales by promotion of Revive. 2015/16 – 442,290 litres of compost sold.

Sector & Skills

- £1.3 million secured for Business Growth Hub support to develop and grow the LCEGS sector to December 2018. The project will provide 200 businesses with intensive one-to-one support and create 50 jobs over its lifetime, running in parallel with the carbon reduction and eco-innovation services. 60 businesses were assisted in 2016, creating 7 jobs and £500K in new sales.
- Nearly 200 GM businesses in the LCEGS sector have joined the online Low Carbon Network, giving GM a visible and easy-access means to identify local suppliers.

PERFORMANCE 2016

Key Performance and operational Indicators :	Available data	2020 Targets (unless stated)
CO_2 emissions (mt CO_2)	13.551 (2014)	11 mtCO_2e
Tonnes CO_2/£m GVA (Production approach in current basic prices)	224 (2014)	Na
GM Renewable Electricity Generation	0.38 TWh (2015)	0.68 TWh
GM Renewable Heat Generation	0.12 TWh (2015)	0.54 TWh
Energy Consumption (Electricity)	11.75 TWh (2014)	Non set
Energy Consumption (Gas)	21.64 TWh (2014)	Non set
Tonnes Domestic CO_2 per capita	5.0 Tonnes (2014)	2.0 Tonnes (by 2050)
GM Installed Photovoltaic capacity	95.67 MW (2015)	238 MW
Properties in flood warning areas	30,000 (2012)	
Proportion of journeys to work by GM residents made by non-car modes.	26% (2010/11)	26% (2016/7)
Index of cycle use, from up to 60 automatic cycle counters	107 (2010/11)	118 (2016/7)
Percentage of people travelling other than by car	225% (2012)	35% (2018)
Waste diverted from Landfill	83.76% (2015/2016)	
Overall waste recycled	41.04% (2015/2016)	
District waste recycled	44.1% (2015/2016)	
% Households in fuel poverty	14.5 (2014)	Non set
LCEGS Sector:		
Number of companies	2013 = 2000	Non set
Number of employees	2013 = 38000	Non set
Value of sales	2013 = £5bn	Non set
Annual growth rate	2013 = 4.9%	Non set



Greater Manchester is:

- A 'role model' city to UNISDR's resilient Cities campaign
- Awarded membership of Rockefeller funded '100 Resilient Cities'.
- 'Fully Compliant' to the Compact of Mayors commitment, newly merged with the Mayor's Adapt commitment, now the Global Covenant of Mayors for Climate and Energy
- A signatory to 'Under 2MOU' and Core Cities climate change commitments
- Part of the Carbon Disclosure Project

GM's businesses and organisations can make their own Pledge at: www.green-growth.org.uk

The Future

The Climate Change and Low Emission Strategies Whole Place Implementation Plan for Greater Manchester, details the following Key Actions for 2017:

- Commence design of a large-scale demonstrator of smart heat systems within Greater Manchester to test and explore the viability of the Energy System Catapult's Smart Systems and Heat master-planning work in Bury
- Completion of GM Smart Communities, heat pump and demand aggregation project and assess options for continued monitoring.
- Initiate a Civic Quarter District Heat Network
- Progress solar roof installations across GM, particularly on Birley Fields and with MMU and UoM estates as part of Triangulum.
- Establishment of a District Energy Procurement Agency (DEPA) specialising exclusively in the goods and services necessary for the development, construction and operation of heat networks.
- Continue to strengthen GMs knowledge and evidence base on cost benefit analysis and long term carbon pathways with academia.
- Complete feasibility study on establishing a Clean Air Zone and, if appropriate, commence implementation
- Commence commercialisation of the GM Electric Vehicle charging infrastructure to support increased adoption
- Establish a Non Domestic Energy Efficiency programme for GM and continue ECO energy efficiency on domestic properties.

Links: www.gmlowcarbonhub.com www.greatermanchester-ca.gov.uk www.tfgm.com

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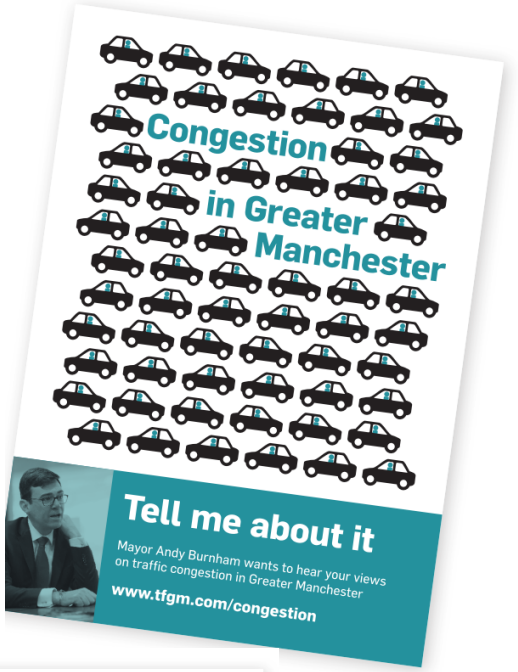
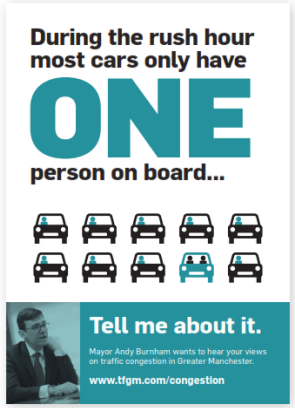
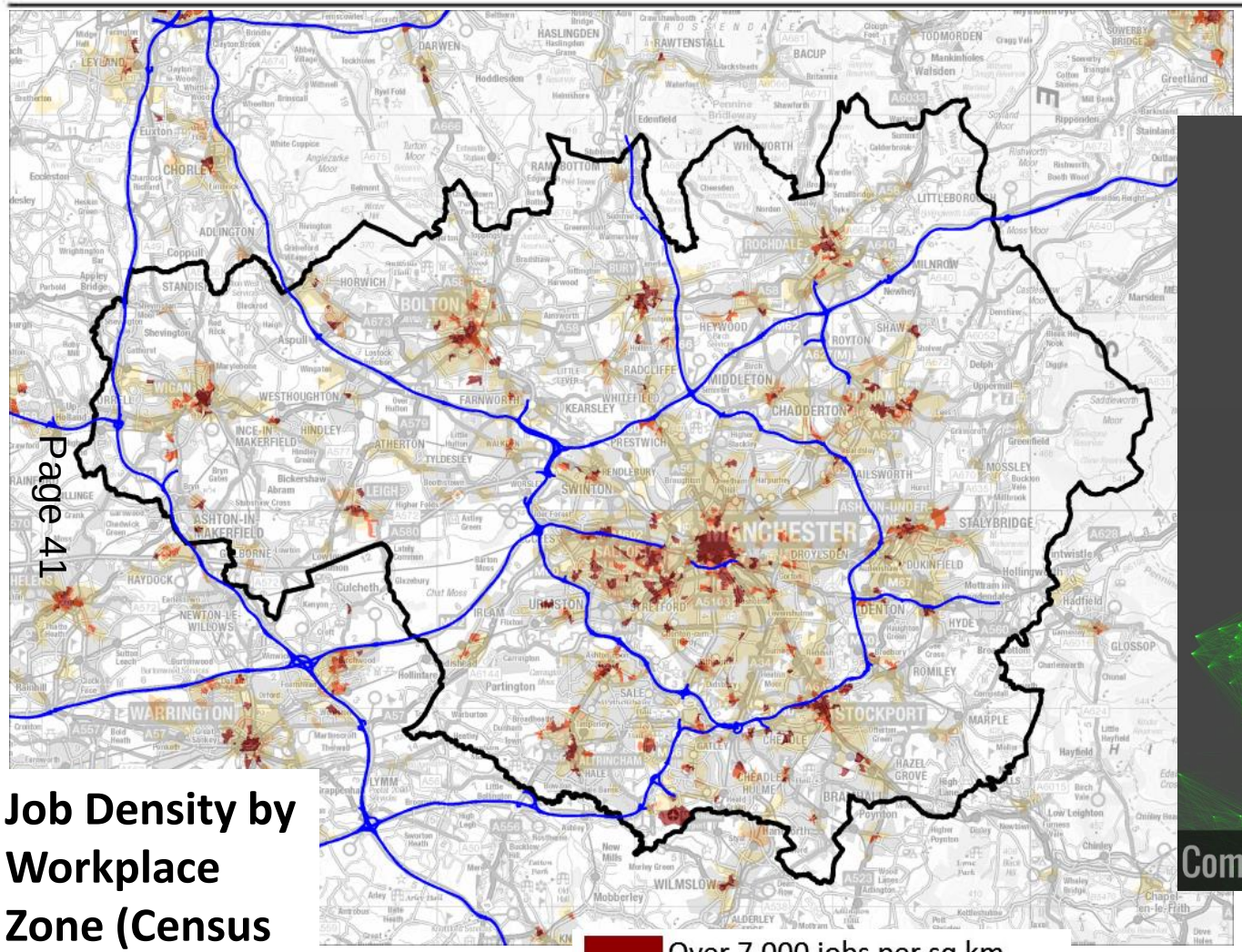
Congestion and Greater Manchester

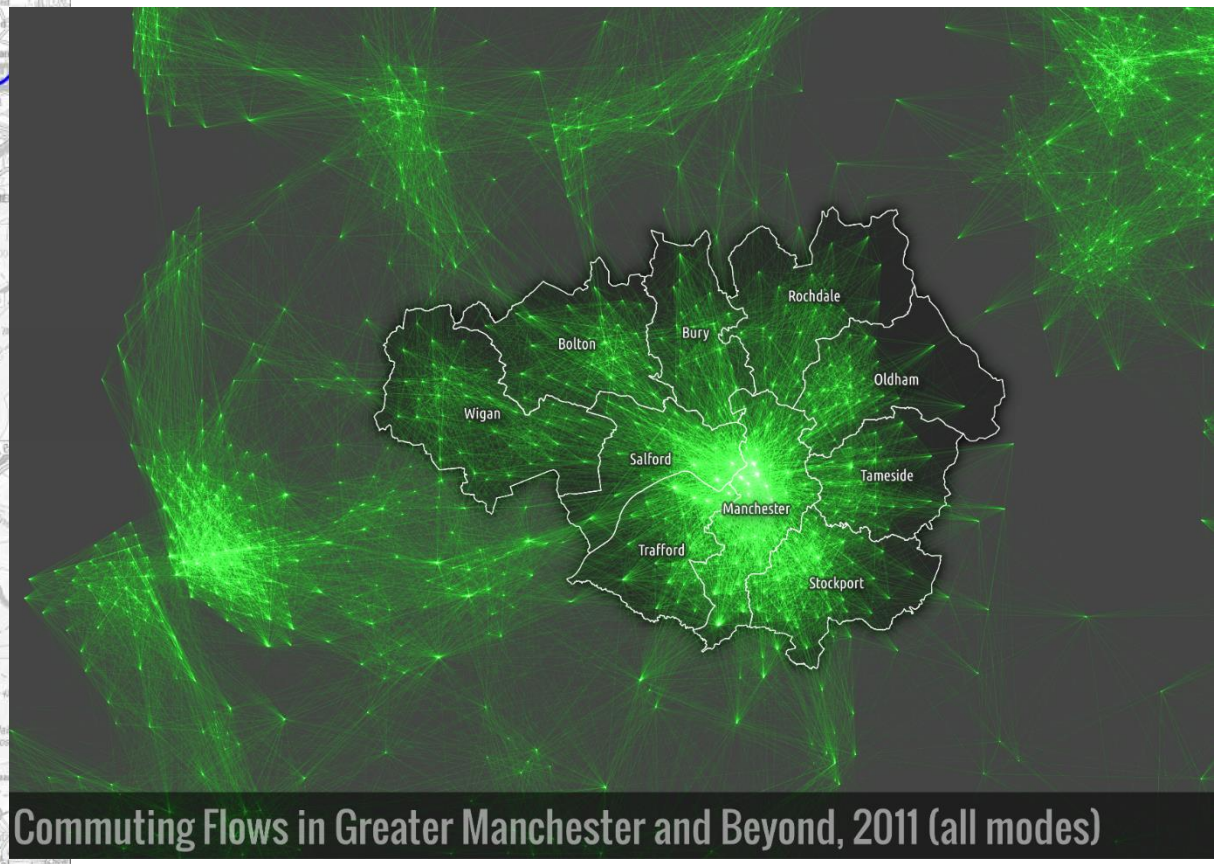




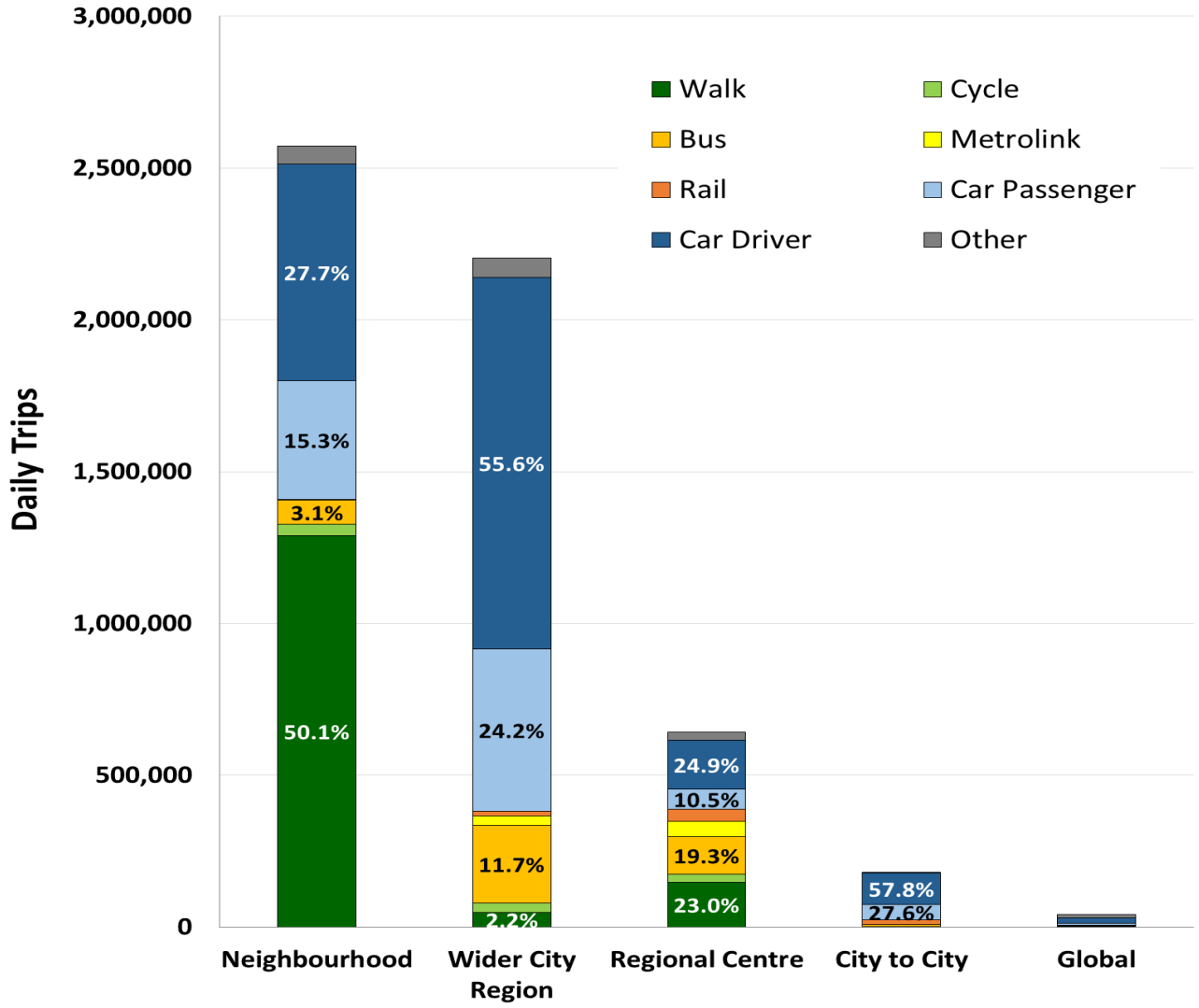
Diverse commuter flows in GM



Job Density by Workplace Zone (Census 2011)



Daily Trips by Trip Type



Global = a trip with an end at Manchester Airport and surrounding developments

City-to-City = a trip with one end in GM, and the other more than 10km from GM. Excludes trips with a non-work trip attraction end at Manchester Airport and surrounding developments

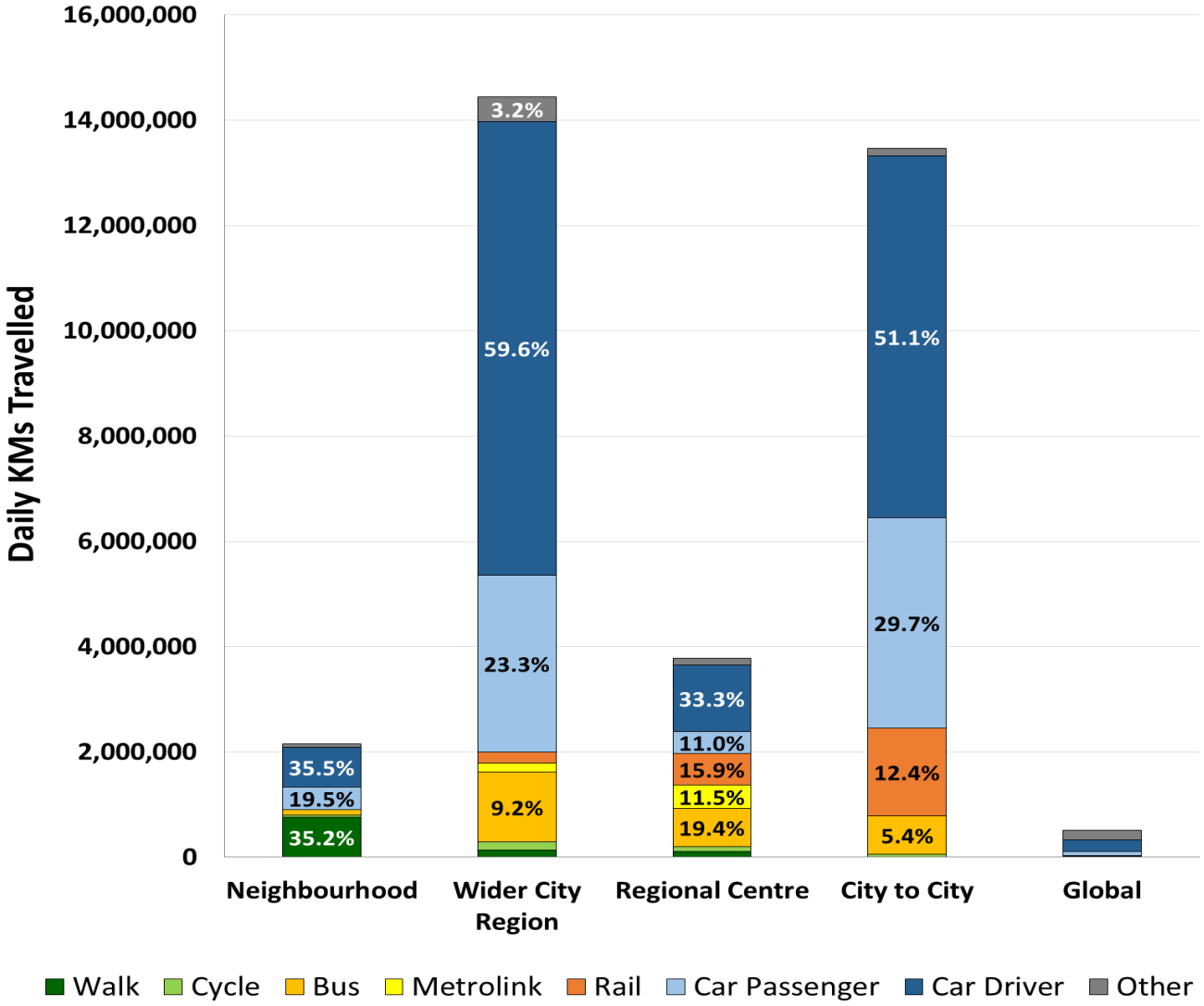
Regional Centre = a trip with an end in the Regional Centre

Wider City-Region = a trip with at least one end in GM, and both ends within 10km of GM. Excluding Global, Regional Centre, and Neighbourhood trips.

Neighbourhood = all trips less than 2km (straight line) with neither end in Regional Centre or Manchester Airport.

Source: GMTRADS household travel diary survey: Greater Manchester residents.

Daily Trip KMs by Type of Trip – traffic volumes



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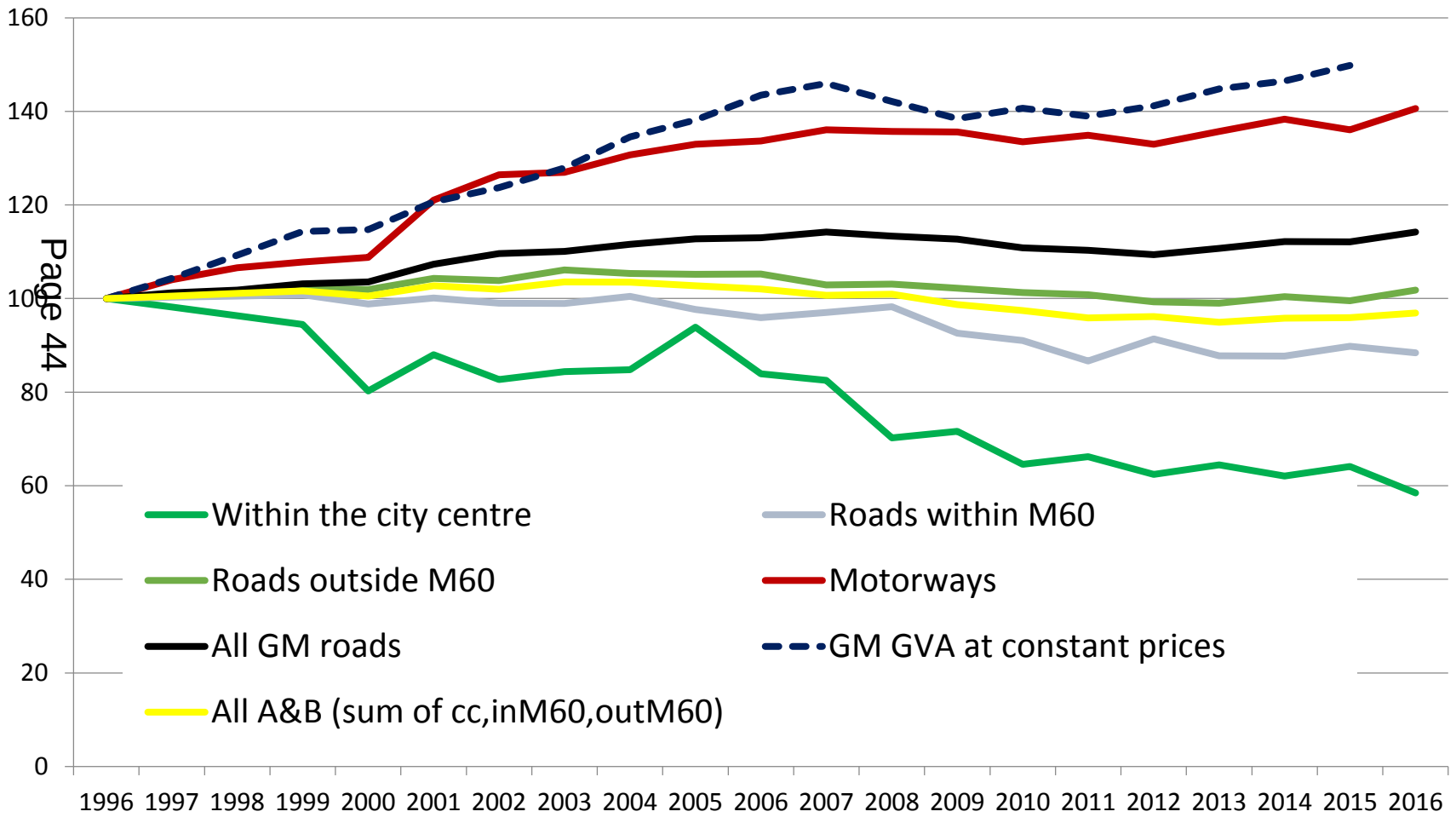
Source: GMTRADS household travel diary survey: Greater Manchester residents.

Traffic Trends Vary Significantly Across The Network

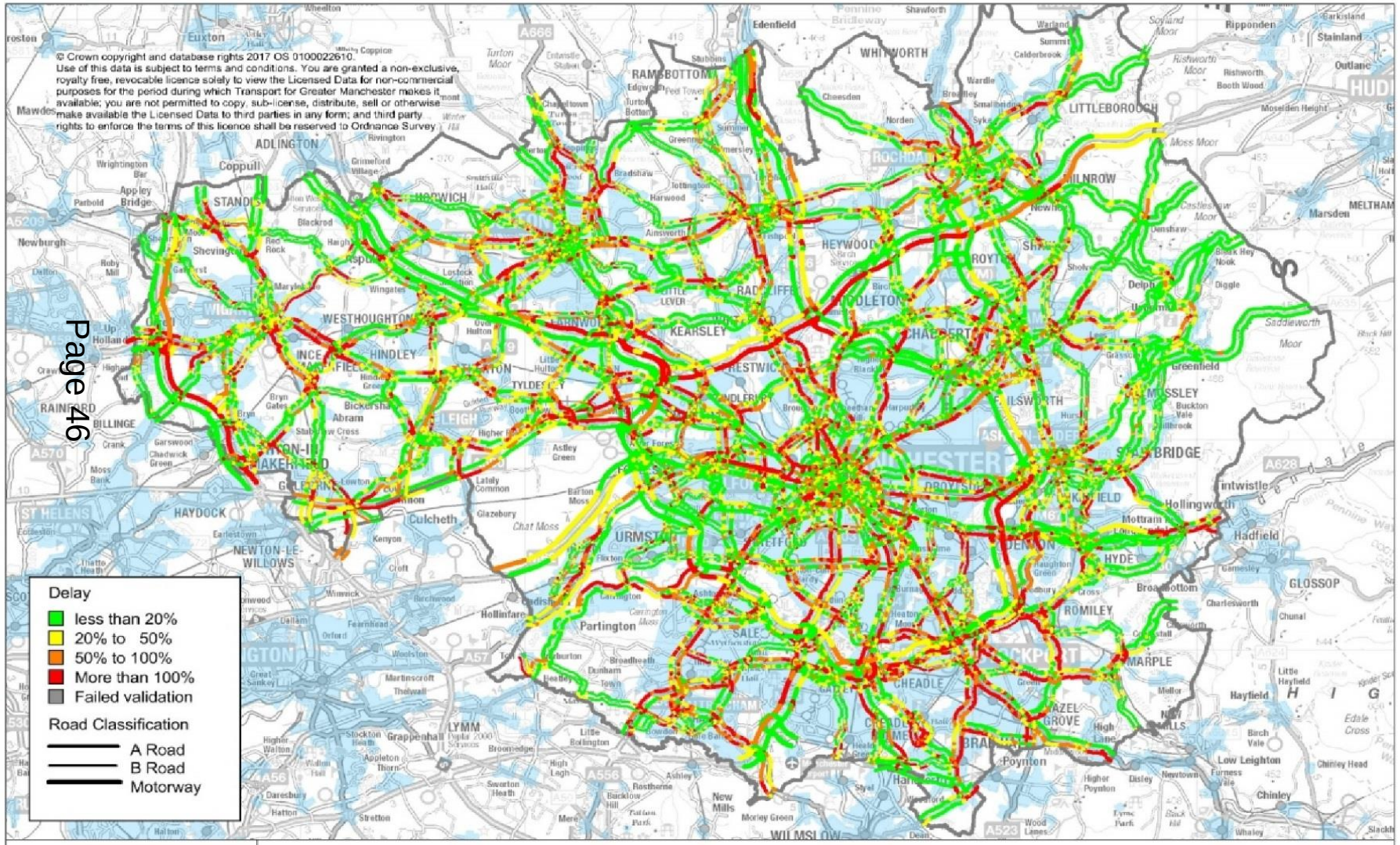
Motor vehicle trip-km by road-type in Greater Manchester (index, 1996 = 100)



Traffic within M60 has fallen during a period of higher economic and population growth in that area compared with outside M60.

The scale and nature of the congestion problem in GM

What does congestion in Greater Manchester look like?



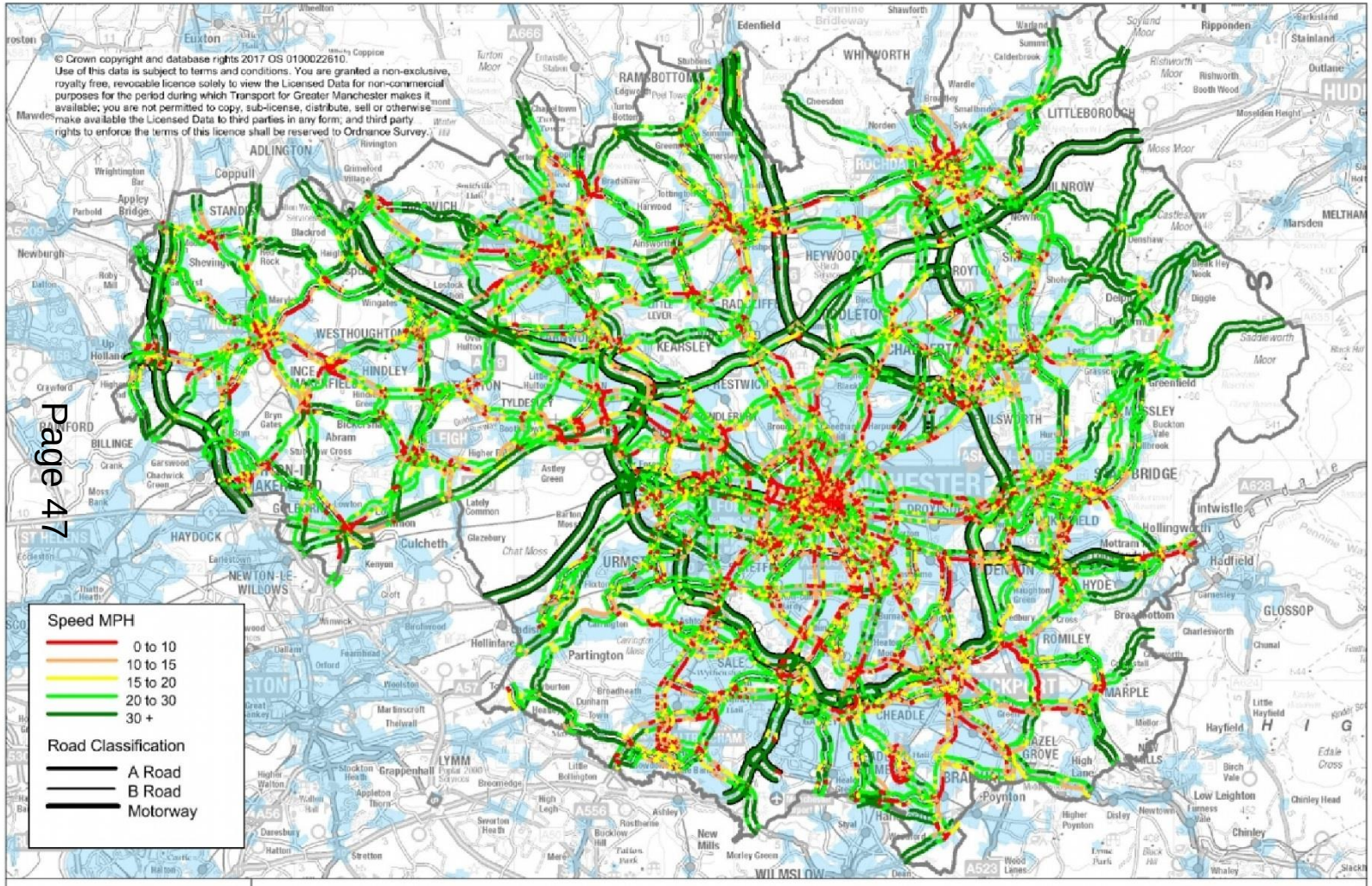
% difference in motor-vehicle journey-time between am-peak hour and night-time

% delay calculation:

100 *(t(am peak) – t(night)) / t(night)

Data from Trafficmaster, 2015-16.

What does congestion in Greater Manchester look like? – am-peak-hour motor vehicle speed (mph)



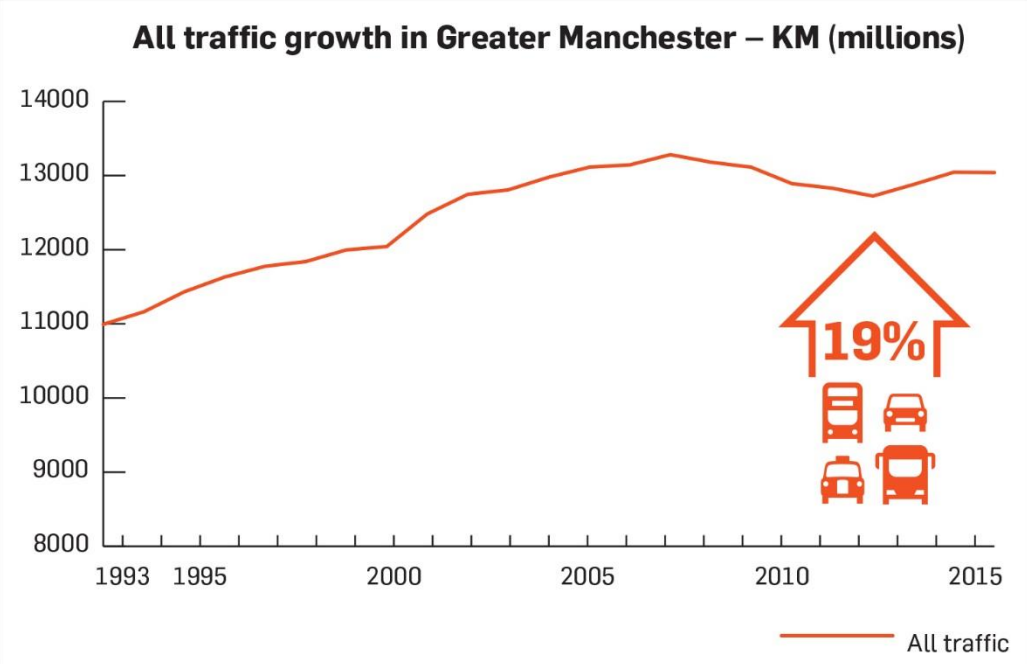
AM peak hour motor vehicle speeds are lowest:

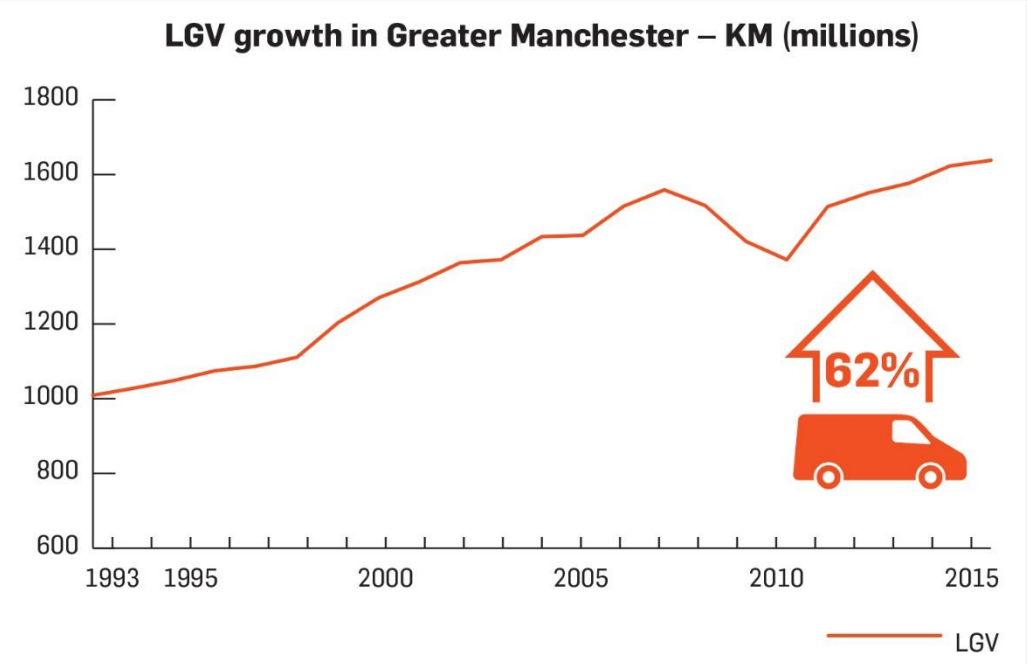
- near Manchester City Centre
- near major town centres
- on all-purpose roads near M60.

Data from Trafficmaster, 2015-16.

Note: approximately 45% of traffic in Greater Manchester is on the motorway network – mostly with at least one end in Greater Manchester

Growth in the number of Light Goods Vehicles on Greater Manchester's roads.





Between 1993 and 2015 traffic in Greater Manchester increased by around **19%** whereas Light Goods Vehicles (LGV) using GM roads increased by around **62%** in the same period.

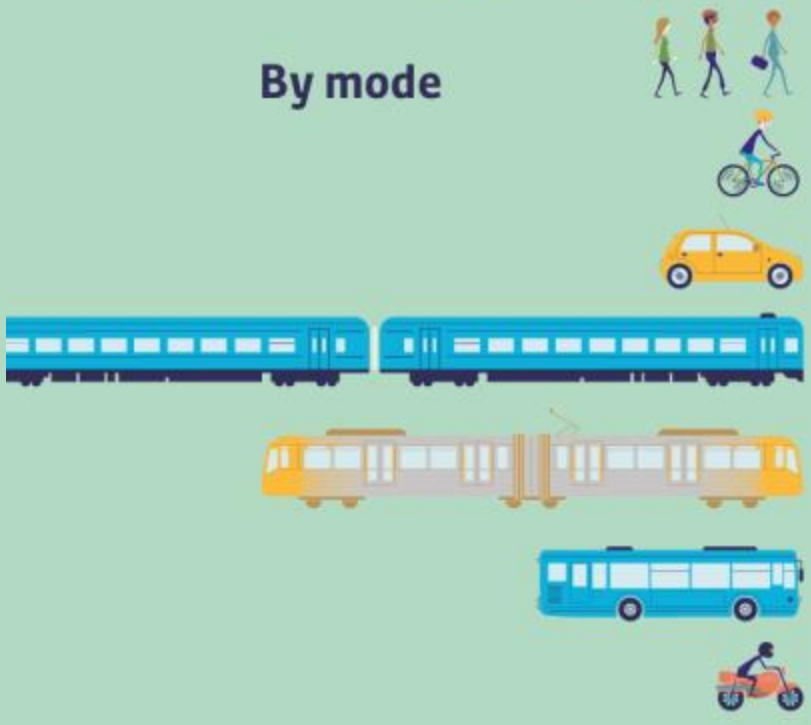
LGVs now account for over 1.6 billion kilometres on GM roads.

What's our long-term plan?

Integration at the heart of our 2040 Strategy

Old way

By mode



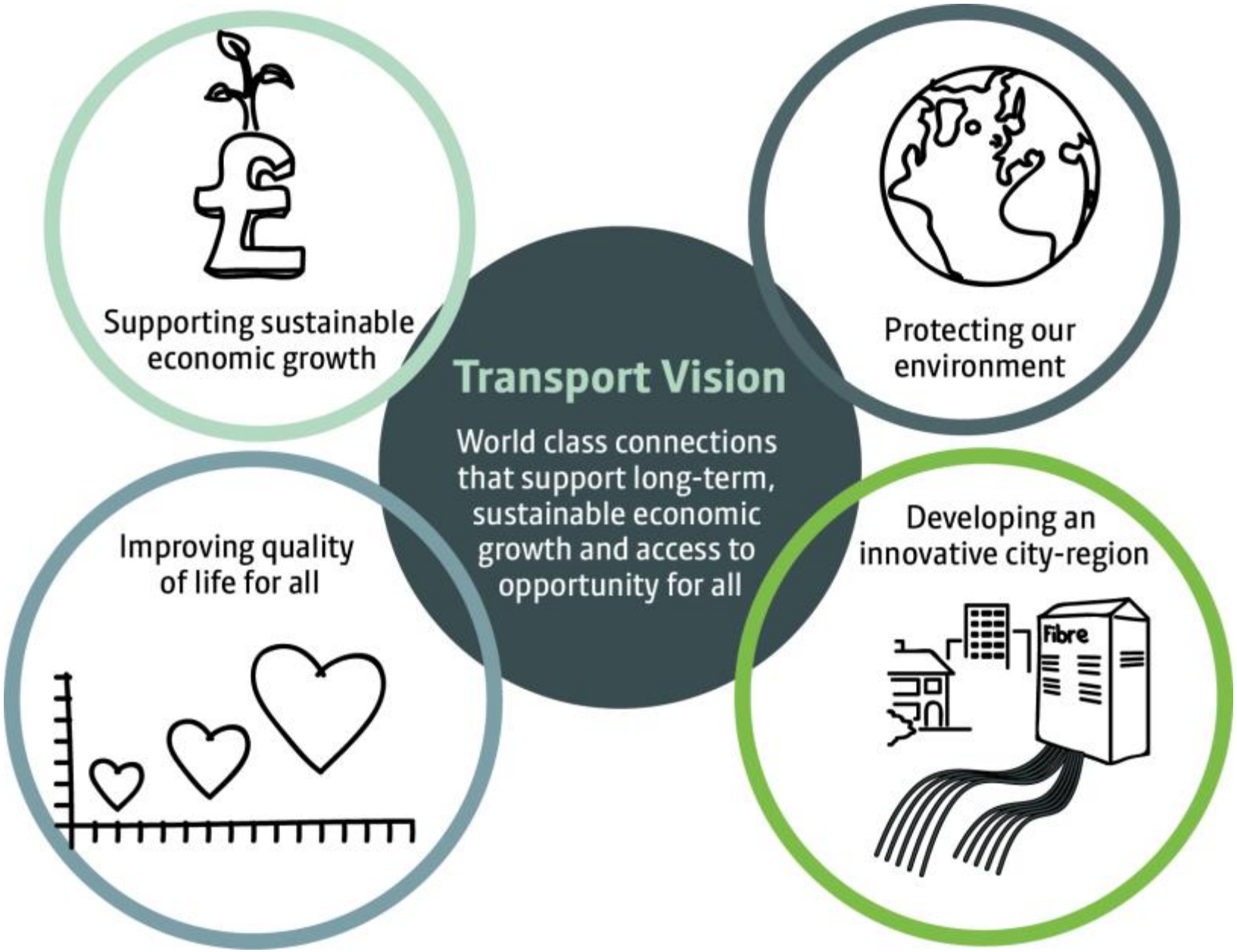
By district

New way

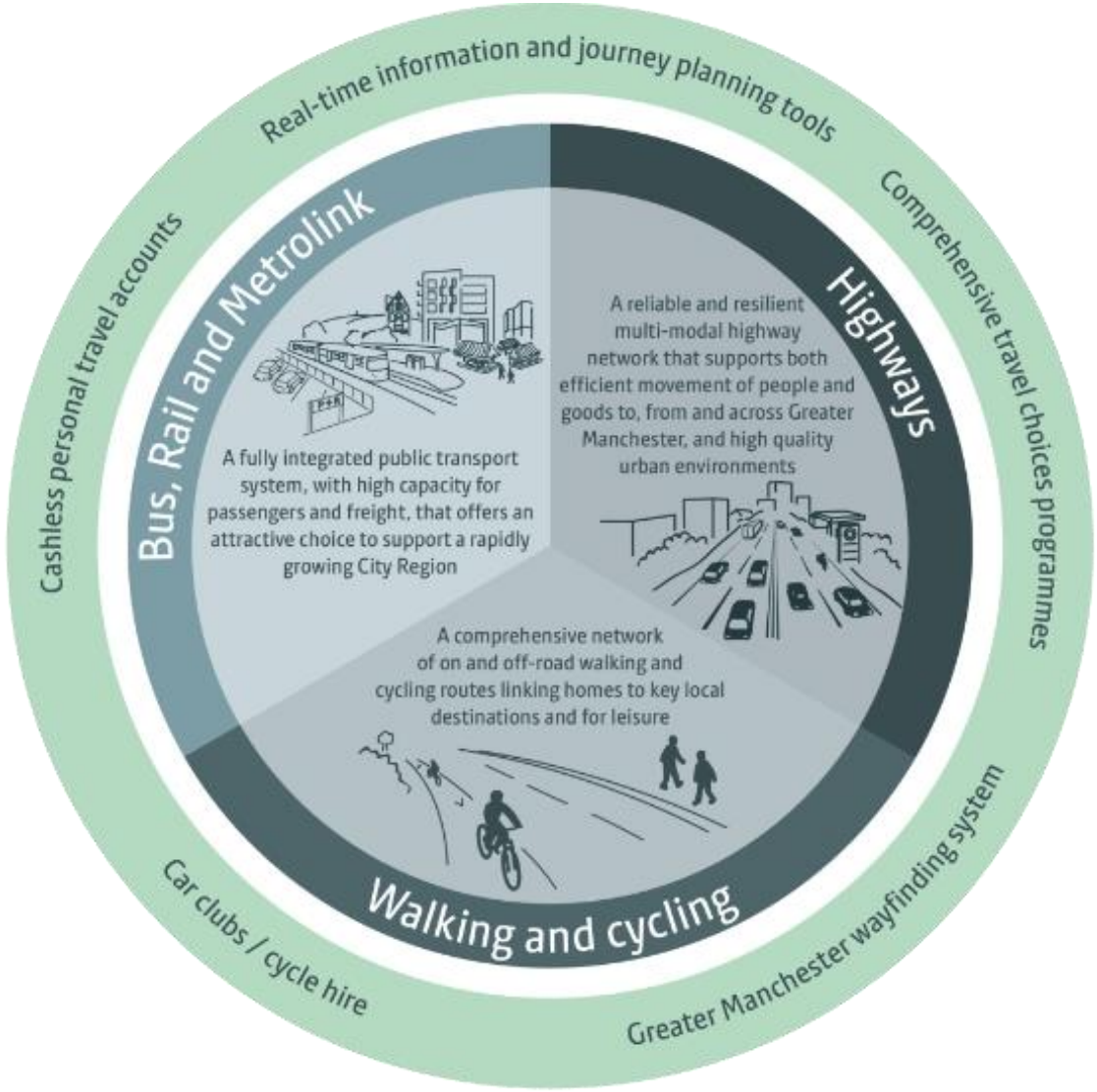
People

Places

Seamless journeys


Supporting sustainable economic growth
Protecting our environment
Transport Vision
World class connections that support long-term, sustainable economic growth and access to opportunity for all
Improving quality of life for all
Developing an innovative city-region
Fibre

A fully integrated approach to planning for different modes



Transport for Greater Manchester

How do other cities tackle congestion?

Los Angeles

Copenhagen

Transport for Greater Manchester

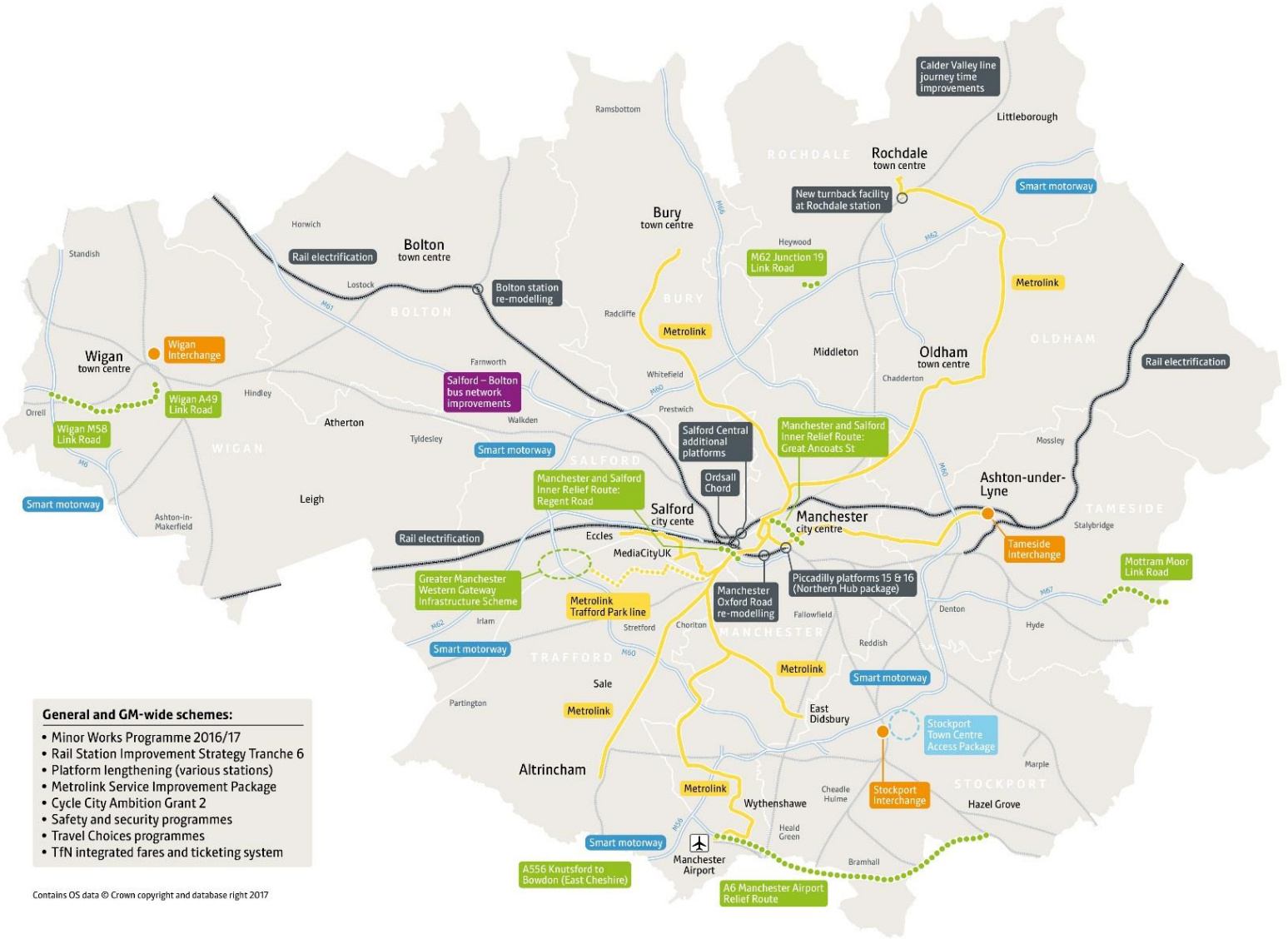
How do other cities tackle congestion?

Item	Los Angeles	Copenhagen
Transport policies	Exceptionally high provision of highway lane-miles per sq km	High provision of pedestrian zones, cycle routes and public transport investment
Congestion status	Rated second-worst city in US for congestion in 2015 by Texas Transportation Institute. Few alternatives to car travel.	Peak highway speeds down by c. 40% 1980 to 2010. But offers good alternatives to car travel.
Economic status	43rd out of 280 US metropolitan areas in per capita income	15th out of 270 European regions in per-capita income
Urban structure	Polycentric, density similar to Greater Manchester	Strong city centre, high-density urban core
Main drivers of congestion status	Long-term interaction between transport and land-use	Long-term interaction between transport and land-use

What have we been doing to manage congestion to-date?

10 Local Highway Authorities
Highways England
Transport for GM

What measures are we taking? – Greater Manchester's funded transport schemes

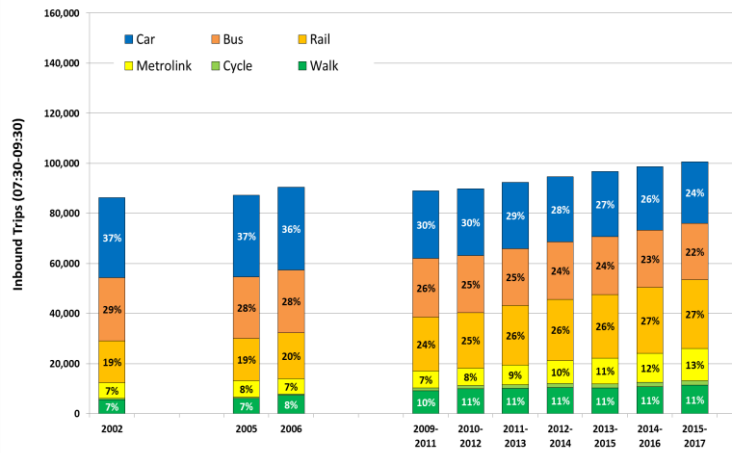


What measures are we taking? Highway management

- Established the KRN
- Improved data and knowledge of performance
- Smart traffic signals
- Permitting and co-ordination of roadworks
- Management of planned and unplanned disruption
- Traffic regulation and enforcement
- Better information to road users
- Co-ordinated asset management

What measures are we taking? – Encouraging mode shift

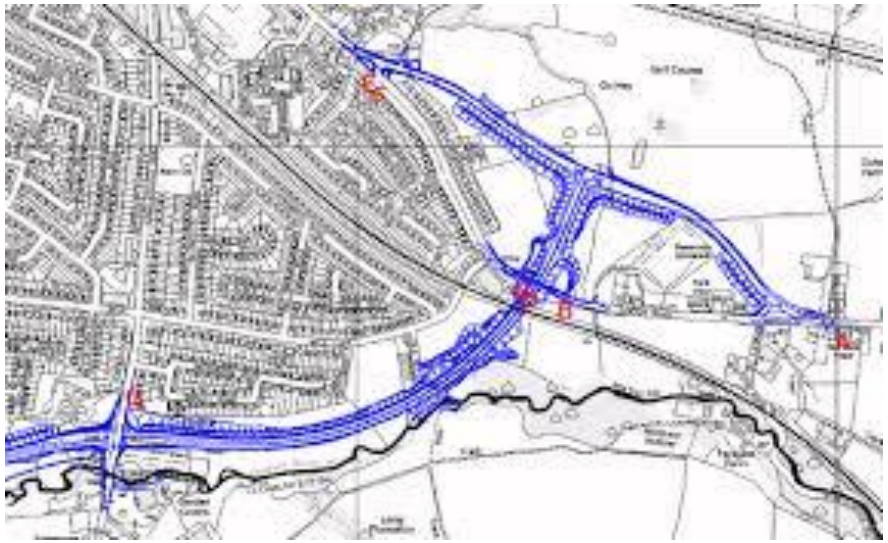
- Improving public transport
- Investing in active travel
- Roadspace reallocation
- Workplace and personal travel planning
- Freight/ servicing management
- Maximum car parking standards



City Centre AM Peak (07:30-09:30): Total Inbound Trips by Mode

What measures are we taking? - Providing more roadspace

- Building more road capacity
- Tackling key bottlenecks
- Remove obstructions to traffic – e.g. management of on-street parking
- Junction improvements



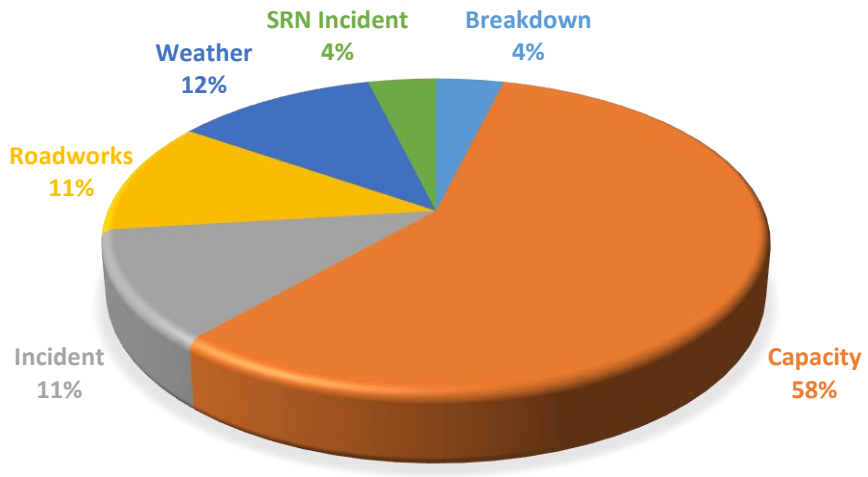
The Congestion Plan needs to build upon how we are already working together

- Knowledge exchange at Highways Group
- Collaboration at Highways Partnership Board
- Integration at Highways Strategy Board
- Strategic planning at Transport Strategy Group
- Safety focus at GM Casualty Reduction Partnership Board
- Scheme Delivery – eg GM Transport Fund and Growth Deal Programme

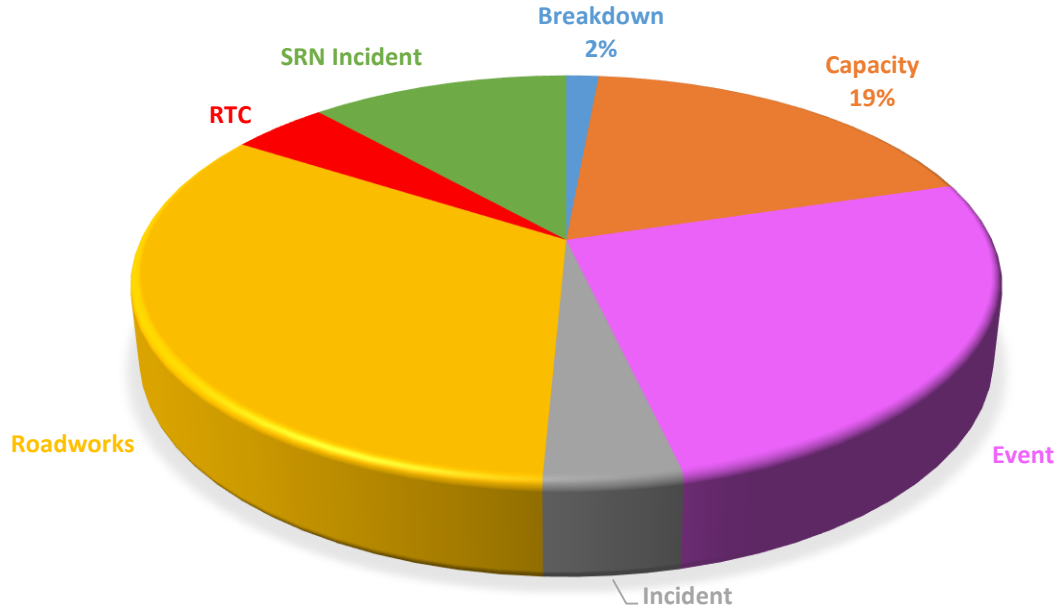
Transport for Greater Manchester

Control Room Peak Reporting (October 2016 – September 2017)
Serious incidents

Morning Peak Period (n=26)



Evening Peak Period (n=69)



WORK PROGRAMME

HOUSING, PLANNING & ENVIRONMENT OVERVIEW AND SCRUTINY COMMITTEE

The table below sets out the Scrutiny's work programme for Members to develop, review, and agree. This is a 'live' document and will be updated where necessary at each meeting to ensure that the Committee's work programme remains current.

The Committee is asked to outline specific requests to be addressed by the report authors in preparing the reports coming forward to this Committee.

At the Committee's first meeting the following standing agenda items were agreed:

- brief update on the Greater Manchester Spatial Framework (if no substantive item is on the agenda)
- work programme

In addition the Committee will be circulated with the GMCA's register of key decisions and the GMCA's monthly decision notice.

The Committee may wish add to their work programme in February to use the chance to examine the proposed new GMS Performance Management Framework.

The Committee may also choose to establish a task and finish group to investigate a particular topic in more detail.

MEETING DATE	TOPIC	CONTACT OFFICER	REASON FOR SUBMISSION TO SCRUTINY COMMITTEE
15th Jan 2018 10.30	Update on work on town centres	Simon Nokes	The committee wished to explore the background to the recent mayoral announcements concerning GM's town centres work.
	Inclusive design of GM's Transport Infrastructure	TfGM	Accessibility to ensure that GM's transport infrastructure is designed and maintained in an inclusive way
15th Feb 2018 6pm	Timetable for preparation of the revised GMSF	Anne Morgan Head of Planning Strategy, GMCA	To ensure that the committee remain fully briefed on the production of the revised strategy.
	The Air Quality Plan		
13th Mar 2018 10.30pm	Green Summit Tbc	Mark Atherton GMCA Green City Region Lead Officer	

17th Apr 2018 6pm	Progress with GM's work on bus services in GM		
	Updated GMS Implementation Plan	John Holden, Assistant Director of Research & Strategy	
	Performance Management Framework for GMS	John Holden, Assistant Director of Research & Strategy	
15th May 2018 10.30pm			
Items that have been previously considered			
18th Oct 2017 6pm	GM Strategy Implementation Plan	Simon Nokes (John Holden) GMCA	Provides an update on the development of the Greater Manchester Strategy Implementation Plan. This will provide the Committee with information as to the key policy areas of the GMCA which could shape their work programme and an opportunity to comment on the plan before it is submitted to the GMCA.
	Bus Services in Greater Manchester'	Rod Fawcett TfGM	Further detail on how bus services were currently provided and the options that the Bus Services Act 2017 may provide.
16th Nov 2017 10.30	Transport Strategy Update	Simon Warburton TfGM	An overview of GM's transport strategy to assist the committee's understanding of this area and identify where they can add value to this work.
	Greater Manchester Housing Affordability	Paul Beardmore GMCA Housing Lead	The committee highlighted this as an area of interest.
13th Dec 2017 6pm	GM as a carbon neutral city region.	Mark Atherton GMCA Green City Region Lead Officer	The committee highlighted this as an area of interest.
	Congestion		The committee highlighted this as an area of interest.
	National infrastructure	Anne Morgan Head of Planning Strategy	Consultation draft response

ITEMS TO BE SCHEDULED

- Strategic work on tenure, social housing and work to improve the quality of homes in the private rented sector.
- Work being undertaken to address long term empty homes across Greater Manchester.
- Housing.
- Work being undertaken on busses, regulation and providers.
- Waste.
- An item exploring inclusive design, access and safety issues.
- Requested that as work on housing affordability and the GMCA housing strategy develops that it be brought to the committee prior to it being considered by the GMCA.

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Overview & Scrutiny Committee Supplementary Agenda

GMCA
GREATER MANCHESTER COMBINED AUTHORITY

Title: **Housing, Planning & Environment**

Date: **Wednesday 13 December 2017**

Time: **6.00 pm to 8.00 pm**

Venue: **GMCA, Churchgate House, 56 Oxford Street, Manchester M1 6EU**
(location map attached)

Notes: Please find attached the **Interim National Infrastructure Assessment Consultation report from Andy Burnham, GM Mayor** which the Chair has agreed can be put forward for consideration as urgent business by the Housing, Planning & Environment Overview & Scrutiny Committee on Wednesday 13 December 2017.

The reason for the urgency is to allow Members of the Committee the opportunity to comment on the content of the draft response before it is considered by the Greater Manchester Combined Authority on 15 December 2017. The deadline for responses to the consultation is 12th January 2018.

Item No	Title	Page No
6a.	**Interim National Infrastructure Assessment Consultation** Report of Andy Burnham, Mayor of Greater Manchester	**Page 4**

Notes:

- The Contact Officer for this agenda is Susan Ford, Governance & Scrutiny, GMCA ☏ 0161 778 7009 ✉ susan.ford@greatermanchester-ca.gov.uk.
- If any Member requires advice on any agenda item involving a possible Declaration of interest, which could affect their ability to speak or vote are advised to contact Jenny Hollamby at least 24 hours in advance of the meeting.
- For copies of papers and further information on this meeting please refer to the website www.greatermanchester-ca.gov.uk. Alternatively, contact the above Officer.
- Please note that this meeting will be held in public and will be livestreamed (except where confidential or exempt information is being considered).

Membership:	Councillor Andrew Morgan	Conservative Member for Bolton
	Councillor Elaine Sherrington	Labour Member for Bolton
	Councillor Jamie Walker	Labour Member for Bury
	Councillor James Wilson	Labour Member for Manchester
	Councillor Hannah Roberts	Labour Member for Oldham
	Councillor Linda Robinson	Labour Member for Rochdale
	Councillor Michele Barnes	Labour Member for Salford
	Councillor Robert Sharpe	Labour Member for Salford
	Councillor Lisa Smart	Liberal Democrat Member for Stockport
	Councillor Elise Wilson	Labour Member for Stockport
	Councillor Gill Peet	Labour Member for Tameside
	Councillor Bernard Sharp	Conservative Member for Trafford
	Councillor Lynn Holland	Labour Member for Wigan
	Councillor Fred Walker	Labour Member for Wigan
	Vacancy	Conservative Member

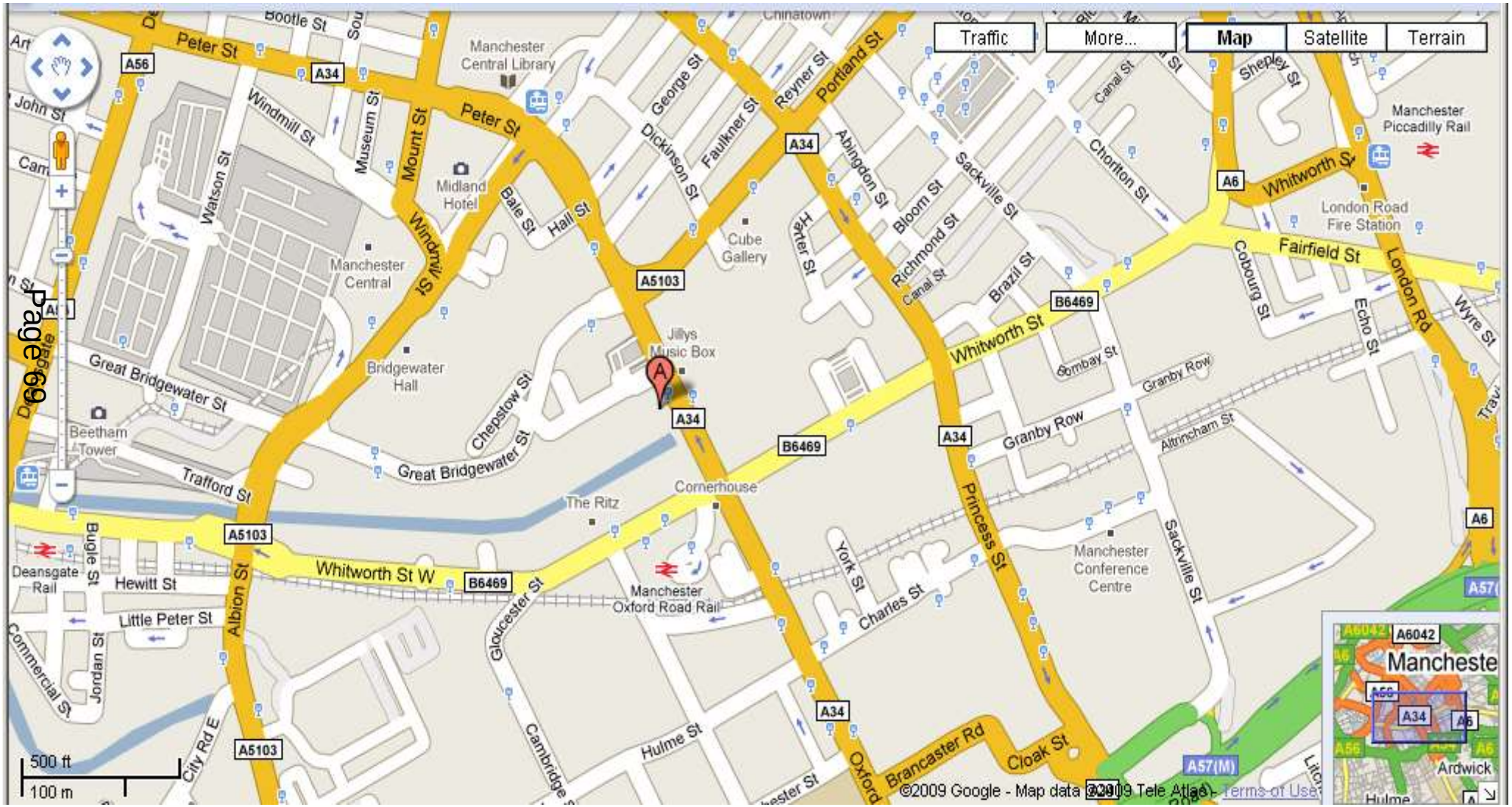
Substitutes: At the GMCA meeting on 29 September 2017, it was agreed that the following be appointed as substitutes to each of the three committees:

Councillor David Greenhalgh	Conservative Member for Bolton
Councillor Debbie Newall	Labour Member for Bolton
Councillor Rebecca Moore	Labour Member Manchester
Councillor John McCann	Liberal Democrat Member for Oldham
Councillor Peter Malcolm	Labour Member for Rochdale
Councillor Christopher Clarkson	Conservative Member for Salford
Councillor Karen Garrido	Conservative Member for Salford
Councillor Adrian Pearce	Labour Member for Tameside
Councillor Ruth Welsh	Conservative Member for Tameside
Councillor James Grundy	Conservative Member for Wigan
Councillor Michael Winstanley	Conservative Member for Wigan

Eamonn Boylan
Secretary and Chief Executive, GMCA

Location Map: Churchgate House, Churchgate House, 56 Oxford Street, Manchester M1 6EU

Nearest parking- NCP Great Bridgewater Street
Nearest disabled parking – Great Bridgewater Street on street parking
Churchgate House is facing Valerie Patisserie on Oxford Street



Planning, Housing & Environment Overview & Scrutiny Committee

Date: 13 December 2017

Subject: Interim National Infrastructure Assessment Consultation

Report of: Andy Burnham, Mayor of Greater Manchester

PURPOSE OF REPORT

To provide a briefing for Scrutiny members on the interim national infrastructure consultation that was launched on the 13 October 2017 and is being considered by the GMCA on the 15 December 2017. The response is a working draft.

RECOMMENDATIONS

Members are asked to:

1. Note the report and key issues identified – section 2.5
2. Note the emerging issues for Greater Manchester – section 4.
3. Identify any specific issues that Scrutiny would like to highlight.
4. Note that work on responses to the detailed questions is still underway and the final response will be signed off by the GMCA Chief Executive in consultation with the Portfolio Lead.

CONTACT OFFICERS

Eamonn Boylan, Chief Executive, GMCA
Eamonn.boylan@greatermanchester-ca.gov.uk

Simon Nokes, Executive Director of Policy and Strategy, GMCA
Simon.nokes@greatermanchester-ca.gov.uk

David Hodcroft – Principal (Planning and Housing Team), GMCA
David.hodcroft@greatermanchester-ca.gov.uk

1. BACKGROUND

1.1 The National Infrastructure Commission (NIC) was created in 2015 to provide independent advice and analysis to the Government on the infrastructure requirements and future strategy for infrastructure decisions in the UK.

1.2 The NIC was formally launched on the 30th October 2015, with Lord Adonis appointed as Chair. The NIC is an executive agency of HM Treasury and its formal role is to: provide expert, independent advice on pressing infrastructure issues and produce an in-depth assessment of the UK's major infrastructure needs on a 30-year horizon. Its objectives are to:

- Foster long-term and sustainable economic growth across all regions of the UK
- Improve the UK international competitiveness
- Improve the quality of life for those living in the UK

1.3 The main output of the NIC is the National Infrastructure Assessment. This is a report analysing the economic infrastructure needs of the UK over the next 30 years with the NIC producing one National Infrastructure Assessment each Parliament which will then be formally laid before Parliament.

1.4 On the 27 October 2016 the NIC launched a 15-week Call for Evidence to shape the development of its National Infrastructure Assessment. All interested parties were encouraged to submit evidence, ideas and solutions. A joint GMCA/LEP response was submitted on the 9 February 2017. The responses to the call for evidence were published by the NIC on the 16 October 2017 and can be viewed at: https://www.nic.org.uk/publications/responses-call-evidence-interim-national-infrastructure-assessment-2/

1.5 The NIC are now consulting on the interim National Infrastructure Assessment. The first full assessment will be published in 2018 following this consultation and will lead to the development of a final view of the strategic vision to 2050 and the priorities for the next 30 years as well as recommendations to Government.

1.6 A briefing on this consultation was first provided to the 16 November Housing, Planning & Environment Overview and Scrutiny Committee.

1.7 The Greater Manchester response will be shaped by the new Greater Manchester Strategy (GMS): Our People our Place[1] following commitments in the implementation plan:

- Through the Infrastructure Advisory group, outline the vision, scope and process to develop a Strategic Infrastructure Plan to enhance the resilience of existing infrastructure and to accommodate growth and to

[1] See: https://www.greatermanchester-ca.gov.uk/news/article/214/blueprint_for_the_future_of_greater_manchester_revealed

- Work with GM's main infrastructure providers to promote collaboration and synchronisation of investment plans

2. INTRODUCTION

2.1 Consultation on the interim National Infrastructure Assessment was launched on 13 October 2017[2]. The chairman (Lord Adonis) of the National Infrastructure Commission was supported at the launch by five of the country's seven Mayors – from the West Midlands, Greater Manchester, London, Cambridge and Peterborough and the West of England.

2.2 The consultation includes a number of immediate announcements and recommendations primarily focussed on existing transport, energy and digital projects and regulatory frameworks (see Appendix A). It should also be viewed within context of the autumn budget announcements relating to transport, digital innovation, housing delivery and planning reform reported to the GMCA on the 24 November 2017[3].

2.3 The opening section of the assessment highlights the commission's commitment to work with the recently elected metro mayors. Stating that: *"In parallel with the Assessment the Commission will work with them on developing integrated and comprehensive infrastructure strategies. Whilst transport planning will be central to this work, the Commission will also aim to take a broader perspective, encouraging metro mayors to consider the full spectrum of potential priorities for each city-region*….they need their own infrastructure plan of priority projects, policies and delivery systems, complementing Government plans and the work of the National Infrastructure Commission.

2.4 The assessment covers all of the key sectors of economic infrastructure. It encompasses transport, energy, water and sewerage, flood risk, digital and waste. Whilst the assessment doesn't cover housing, it is identified as *"the greatest capacity challenge of them all".* The assessment is guided by the Commission's objectives to support sustainable economic growth across all regions of the UK, improve competitiveness and improve quality of life.

2.5 The interim National Infrastructure Assessment examines seven key areas, and sets out the vision and priorities for helping meet the country's needs up to 2050. The seven areas and key points identified in the assessment are:

1. **<u>Building a digital society: fast, reliable data services everywhere -</u>** Requirement for substantial investment in digital infrastructure in the form of fibre optic cables and mobile networks. But choice over how to deploy it. Infrastructure has a long life and needs to be build and designed well. Support from a national design council covering all of the main

[2] See: https://www.nic.org.uk/our-work/national-infrastructure-assessment/
[3] See: https://www.greatermanchester-ca.gov.uk/meetings/meeting/475/greater_manchester_combined_authority

infrastructure sectors. New ways to measure the state of the UKs infrastructure will be developed. Cost benefit analysis is widely used but has its limitations.

2. **Connected, liveable city-regions: linking homes and jobs -** Cities are the engine of growth but to succeed they need effective infrastructure, this includes intercity connections but is more than this and urban transport is not joined up. New technology will play a part such as 'mobility as a service' but will not solve issues of congestion or capacity. The new Metro Mayors provide an opportunity to correct the existing lack of integrated transport and it is crucial that they have funding and resources.

3. **New homes and communities: supporting delivery of new homes -** Housing supply has failed to keep up with demand. Housing cannot be created without the underpinning of transport and utilities. Smart, sustainable and liveable communities depend upon reliable and high-quality infrastructure. In return the value of new and existing infrastructure is enhanced if it enables housing to be built and gives people choices of where to live and work. System limitations include poor co-ordination between new infrastructure in relation to housing supply and the lack of responsiveness with some infrastructure framework. Better co-ordination is needed.

4. **Low-cost, low carbon: ending carbon emissions from power, heat and waste -** There are strong targets for the reduction of greenhouse emissions and good progress has been made. The cost of some supply options has decreased more rapidly than predicted. New storage and demand management technologies will be needed to enable even high levels of renewable energy. There is a gap between existing Government targets and policy and sudden changes in policy have increased the risk for private sector investors. It will not be possible to continue using natural gas to heat buildings. Carbon capture and storage will be needed as well as energy from waste. Demand will have to be managed. There are two priorities (1) improve energy efficiency and (2) provide long term certainly to deliver low cost energy.

5. **A revolution in road transport – seizing the opportunities of electric and autonomous vehicles -** Most journeys are made by road, predominantly by car. The car is about to undergo a revolution with electric, autonomous and connected vehicles will make road travel more comfortable and safer. Society will have to make choices about what changes in road design and use are acceptable for new vehicles. And whether motorist are willing to give up some degree of individual control to improve overall traffic flows. With electric vehicles, fuel duty income will decline. A new pricing system will be needed and new forms of pricing will be required alongside new forms of vehicle ownership.

6. **Reducing the risk of extreme weather: Making sure the UK can stand up to drought and flooding -** The UK relies on water and flood risk infrastructure that dates back in some cases more than a century. Risk are

increasing including from climate change, a growing population and higher environmental standards. The public has a low awareness and has a short term focus on the value of water infrastructure. Efficiency and resilience as well as demand management are needed. A longer term, more joined up and integrated approach to flooding, drainage and sewerage is required. Green infrastructure approaches to flood risk management and river catchment management can provide multifunctional benefits, as can changes to agricultural subsidies but are not necessarily effectives against extreme flooding events and investment in traditional defences are required.

7. **Financing and funding infrastructure in efficient ways: getting the balance right between public and private sectors -** The UK's infrastructure is built, owned and run by a mix of the public and private sectors. Constraints set by the Governments fiscal remit mean that access to private sector finance will continue to be key to serving the UKs infrastructure needs. However projects can only be financed if there is a clear funding stream and a way to pay back the upfront costs. The European Investment bank and the Green Investment bank have played an important role in financing infrastructure by undertaking due diligence on complex and 'first of a kind' project The EIB may leave the UK market post Brexit. However the GIB may change after privatisation. New institutions may still be needed.

2.6 There is an emphasis on liveability and the integration and interdependency between planning for homes and homes, transport infrastructure and other critical utilities such as digital, water, flood risk management, energy and greenspace. The assessment is about setting the right framework now to help different localities plan for the future and shape their own destiny.

2.7 The consultation is supported by 28 open consultation questions (See Appendix B for the draft GMCA response) and the deadline for responses to the consultation is **12 January 2018**.

3. DEVELOPING THE GREATER MANCHESTER RESPONSE

3.1 The following groups and boards are being utilised to gather views from different organisations and stakeholders on the strategic infrastructure issues that Greater Manchester should raise through the consultation. These groups have a good fit with the seven key areas identified in the consultation. The identified groups/boards are:

1. Greater Manchester Planning and Housing Commission
2. Greater Manchester Digital Infrastructure Leadership Group
3. Greater Manchester Infrastructure Advisory Group (including support from the Chief Resilience Officer)
4. Natural Capital Group / Low Carbon Hub
5. Transport for Greater Manchester
6. Greater Manchester Waste Disposal Authority

3.2 The GMCA Planning and Housing Team are responsible for co-ordinating the Greater Manchester response and have been liaising with the NICs thematic advisors, have connected themes leads to the NIC team to initiate ongoing dialogue and engagement. This work is ongoing.

4. EMERGING ISSUES

4.1 In our response to the Call for Evidence, we made a number of recommendations and it's encouraging that many of the issues raised have been identified in this consultation. Whilst the issues are acknowledged there are few proposed solutions therefore it is recommended that the Greater Manchester response needs to reiterate our earlier recommendations where they are still relevant as well as responding to some of the new proposals/issues raised in the consultation. The following issues are emerging as important.

Maximising opportunities offered by devolution

4.2 For the UK's cities to succeed they need effective infrastructure and integration with wider strategic for housing and economic development. The identification, planning, design, delivery and operation of critical city infrastructure is challenging for a number of reasons. Infrastructure is owned and operated by numerous private sector companies, many of whom are required to satisfy the needs of their shareholders and the financial markets. These companies are regulated by a number of organisations such as Ofgem and Ofwat. These utility companies plan their future capital and maintenance work over different time horizons. These infrastructure investment plans need to be approved by their regulators. Our cities and towns do not have governance over the infrastructure that is critical to their success and survival.

4.3 The responsibility for city region infrastructure tends to be fragmented and poorly organised in England. In 2014 the GMCA and LEP established an Infrastructure Advisory Group (IAG) to create a sense of form around infrastructure planning and ensure there is a single voice for dialogue between the utility companies/infrastructure providers and the GMCA. The proposed focus on supporting the recently elected metro mayors in developing integrated and comprehensive infrastructure strategies builds on these foundations and is strongly supported.

4.4 The National Infrastructure Plan should reflect the Government's Northern Powerhouse Strategy and existing government commitments to this strategy, which will both drive a requirement for additional infrastructure provision and be driven by that additional infrastructure provision and thereby add to the diversity of the UK international offer. A bold plan for sustainable and inclusive growth requires a bold plan for infrastructure investment in Mayoral and devolved areas. The National Infrastructure Plan should also recognise the key role of Piccadilly station and also the need to consider commuting into the City Region not just Inter-city commuting. It is essential that any proposals to improve intercity services do not lead to a reduction in commuter services into the City Region.

An integrated infrastructure plan for Greater Manchester to support the delivery of the Greater Manchester Strategy

4.5 To deliver our Strategy: Our People, Our Place we need to actively promote collaboration and synchronisation of investments plans between the Mayor/GMCA and the main infrastructure providers: Highways England, TfGM, United Utilities, Electricity North West, Environment Agency, Cadent and BT Open Reach.

4.6 The regulated utilities should be subject to a statutory duty to co-operate to ensure that infrastructure providers and the regulators e.g. Ofcom, Ofwat and Ofgem are required to actively engage with Mayoral/Combined Authority areas, to ensure that future investment plans are consistent with the future development strategy for larger than local geographical areas.

4.7 This would encourage early dialogue between developers and infrastructure providers to identify the infrastructure needs arising from new development and ensuring that these are addressed through appropriate planning, investment, building design, utility networks and connections in time to serve the proposed development.

4.8 It is also important to ensure that national planning policy and legislation supports the phasing and infrastructure 'pooling' for sites in multiple ownership and / or where build out will be delivered by different developers.

4.9 The NIC acknowledges that better co-ordination is needed and that digital mapping of existing and proposed infrastructure and developments across a broad strategic region can be useful tools. The NIC identified the MappingGM project as a good practice example created to help the Greater Manchester Combined Authority co-ordinate housing, growth, planning and infrastructure[4]. The work undertaken is the start of the process and using the joint Future Cities Catapult and Belfast City Council example: http://growthplanner.net/ there is certainly scope for additional data and insights from the utility companies to be added and utilised.

Infrastructure to support the delivery of new homes

4.10 The NIC is right to identify housing as the greatest infrastructure challenge of them all. Ultimately, people can only live where there is housing. Housing, in turn, requires infrastructure. The mutual benefits of infrastructure and housing have been frustrated by systemic limitations, with poor coordination between how new infrastructure is planned, invested in and delivered in relation to housing supply. Different utilities operate on different investment timetables often using different growth projection and rules. Often it is at the planning application stage that investments are triggered. Communities facing new development in areas with existing infrastructure issues are demanding certainty that the development will not make the existing situation worse.

[4] See: http://mappinggm.org.uk/about.htm

4.11 Furthermore a lack of responsiveness within some infrastructure frameworks to market signals, leaving infrastructure development out of kilter with local growth. There are clear benefits to putting this right. Infrastructure and housing development should work together to help shape attractive, well-connected communities where people want to live and work.

4.12 Basic infrastructure can take a long time to procure and deliver e.g. a primary substation can take two years. Therefore, investors and developers interested in developing a site, usually in response to market needs, could be faced with unreasonable/unrealistic programmes to bring a housing or commercial development to the market. Theoretically, a network operator is allowed to "invest ahead of need" where it is efficient to do so, but in reality this is not a common practice. One of the main reasons for this is that any such investment will be assessed for efficiency after the fact. Ofgem have yet to consult upon, develop or determine the rules for assessing efficiency.

4.13 One of the challenges for investing ahead of need is the risk of stranded assets i.e. the investment has taken place but the planned development doesn't take place or is delayed. The question is essentially one of risk and certainty, who underwrites the risk that the demand/ development will happen and how any forward investment is paid for and paid back.

Capturing value from infrastructure investment

4.14 Improved infrastructure often increases the value of surrounding land and properties. These uplifts in land and property value can provide windfall benefits to those who own them. By funding projects based on their local capacity to capture this value uplift, there is a strong incentive for scheme promoters and designers to maximise the benefits of any scheme. We are pleased to be working with the GLA and other CA areas to analyze best fit models to achieve LVC.

4.15 Local funding can also strengthen local accountability. The interim assessment acknowledges this issue and indeed uses a quote from the GMCA response that: *'It is notoriously difficult for the planning system to capture land value uplift with existing mechanisms such as section 106 agreements and the Community Infrastructure Levy. This may be fine for site specific infrastructure spending such as a new highway junction but has limitations where significant new investment is required or as an approach to convince local residents that the existing infrastructure issues will be resolved."*

4.16 In response to this issue the commission intends to explore the development of new mechanisms to capture land value. Land value capture is not a panacea to pay for all infrastructure needs. But it may be able to play a role in ensuring a fairer distribution of the costs of infrastructure between general tax payers and property owners who receive windfall gains. The commission suggests that it could help ensure that the infrastructure needs of London and the South East – where land value uplift can make a more significant

contribution to costs – are less directly in competition for national funding with the needs of other parts of the country where land values are lower.

Well designed and performing infrastructure

4.17 Good design is clearly essential to many aspects of the built environment and particularly infrastructure projects as their physical and social impacts are so large and long lasting. However, good design should be defined in terms of not only is aesthetic and functional contribution but also its safe delivery and operation, its capital and operational cost and it timely delivery.

4.18 Infrastructure covers a wide spectrum e.g. digital to drainage, hence any "expert national infrastructure design panel" will need to draw on a range of design and user experts in a particular field of infrastructure.

4.19 Many designers already operate a design review process to test the appropriateness of developing design solutions. On major infrastructure projects the remit of an expert design panel should cover the scope, performance requirements, planning, design, delivery and operation of the asset.

4.20 The proposed performance metrics are good and ambitious but cost-benefit analysis too often focuses on producing too much detail about too few alternatives. As the NIC has already highlighted *"the methods used to inform transport investment decisions do not currently support integrated transport and housing planning. Standard economic appraisal methods for transport are good at assessing benefits, such as quicker or safer journeys, but it is harder to capture the benefits from new housing or commercial developments enabled by transport projects".*

4.21 We believe that additional emphasis should be placed on the wider social impacts such as health and wellbeing, inclusiveness, social return on investment. DfT models of business case evaluation are a prime example as they do not work in respect of forward looking infrastructure investment but merely serve to reflect lack of capacity on existing infrastructure. They do not allow for the reflection of future growth unlocked by any investment to be reflected in any evaluation. This has to be a priority for change.

4.22 There should be some performance assessment of the interrelationship and hence interdependence of a specific infrastructure with other existing or proposed infrastructure systems the aim being to have better system integration to improve efficiency and effectiveness.

4.23 There is a need to give more consideration to the whole life cycle of water supply, drainage/sewage and waste treatment to provide more efficient and effective.

Replacing EU and European Investment Bank Funding

4.24 If the UK loses access to EIB funding, a new institution/funding programme would undoubtedly be required to ensure continued infrastructure investment and to prevent significant delays. Such an alternative institution would take considerable time to establish. Therefore an interim measure would be required.

4.25 In establishing an alternative, consideration should be made as to the strengths, limitations and restrictions of the current EIB funding structure in order to structure a new programme in the most beneficial way.

4.26 It is also be important to consider ways in which to ensure diversity of the portfolio in order to limit risk. Detailed analysis of existing loans and those in the pipeline would need to be undertaken in order to identify the nature of funding requirements (sectors, terms, geography, pricing, risk etc).

5. RECOMMENDATIONS

5.1 Recommendations are found at the front of the report.

ANNOUNCEMENTS

- The Government should complete all preparatory work needed for a Parliamentary decision to be taken on a third runway for Heathrow airport, and progress other aviation policy decisions to boost air traffic capacity, particularly in the south-east of England.

- The Government should introduce the hybrid Bill for phase 2a (Birmingham to Crewe) of High Speed 2 and publish the finalised route for Phase 2b (Crewe to Manchester and Birmingham to Leeds), including connections with High Speed 3, and let the major work contracts for the project, by the end of July 2017.

- The Government should publish by the end of 2017 a single integrated plan for the first phase of High Speed 3, incorporating proposals for electrifying and upgrading the trans-Pennine (Manchester to Leeds) rail route, plans for the northern sections of HS2, and plans for the redevelopment of Manchester Piccadilly station, as set out in the Commission's High Speed North report.

- The Government should by the end of 2017 publish a plan, agreed with the Mayor of London, for the funding and phased construction of Crossrail 2, and for securing the necessary parliamentary consent, taking account of the recommendations in the Commission's Transport for a World City report.

- The Government should take a decision on planning permission for the Silvertown Tunnel by the end of October 2017. It should also announce its financing strategy for the new Lower Thames Crossing (to relieve the congested M25 Dartford Crossing), and begin the Environmental Impact Assessment process, no later than September 2017, paving the way for consultation on the detailed route in 2018 and the submission of the development consent application in 2019. And it should agree a policy with the Mayor of London for the next road crossing of the Thames in East London by the end of 2017, to enable substantial new housing development.

- The Government should publish its plan for smart energy systems, as set out in its response to the Commission's Smart Power report, including the actions it will take to enable greater deployment of electricity storage, interconnectors and demand flexibility, no later than September 2017.

- The Government should publish its firm forward plans for supporting renewable energy, at least to 2025, including the use of the remaining funds from the £730m agreed in the last Parliament, by October 2017, and specific longer-term goals in the Autumn Budget.

- The Government should publish its strategy for the decarbonisation of energy, including its emissions reduction plan, no later than October 2017, and set out its trajectory for the future level of the "carbon price floor" in the Autumn Budget.

- The Government should by the end of the year publish a strategy and timetable for replacing the services provided by the UK's membership of Euratom to

support the timely delivery of the new Hinkley Point C nuclear power station and any future nuclear projects.

- The Government should, by the end of 2017, publish its final broadband Universal Service Obligation decision and set out minimum acceptable standards for mobile coverage.

- The Government and Ofcom should implement the recommendations from the Commission's Connected Future report and prepare for the widespread deployment of 5G technology from 2020.

- The Government should finalise the Strategic Policy Statement for Ofwat by the end of September 2017 and publish its review setting out proposals for the effective management of surface water flooding by the end of 2017.

- Responsibility for digital infrastructure should reside in one place in Government.

- Infrastructure should be in place for 5G mobile connectivity on motorways and key rail routes by 2025.

- Local Government should actively facilitate the deployment of mobile telecoms infrastructure.

- Development of meaningful performance metrics for the coverage people actually receive, and use these to determine a mobile Universal Service Obligation.

- A review of the existing regulatory regime to ensure it supports the sharing of telecoms infrastructure between different Mobile Network Operators.

- A review of how 'spectrum' (the range of mobile communication frequencies) is allocated to facilitate greater access, particularly for communities, local or regional networks and businesses requiring connectivity inside buildings.

- Additional investment in northern connectivity should include taking forward an enhanced 'HS3' rail network, beginning between Manchester and Leeds, the two largest economies in the North, and an early boost in road capacity on the M62. Further work is needed to develop and agree a prioritised strategy for HS3, but the aim should be for the initial phases to be delivered broadly alongside Crossrail 2 in London.

- Better connections to the UK's network from countries with cheap, green power supplies, such as Norway and Iceland are needed.

- The Government should exploit the UK's opportunity to become a world leader in energy storage technology, by creating a level playing field between generation and storage.

- The Government should demand flexibility – using technology to allow consumers to save money and cut emissions without inconvenience.

- The Government should give infrastructure the right priority – choosing long-term investment over consumption

- The Government should enable decisions to be made in good time on good projects, and not reopened

- The Government should make full use of leading edge technology – smart infrastructure for a smart nation

- The Government should incorporate innovation in finance and funding – managing demand and driving efficiency

- The Government should focus on design from the beginning – good design is the starting point for delivering high quality infrastructure

- The Government should enhance the environment and protect natural capital, including by improving air quality and driving down carbon emissions

- People and businesses up and down the country should be involved in the creation of a national framework that incorporates local and regional priorities

CONSULTATION QUESTIONS

ISSUE 1: *The UK is preparing to leave the European Union. While the terms of exit are currently uncertain, this raises a wide range of issues. The Commission is focused on strategic issues (eg the implications for environmental policies, such as the Habitats Directive) rather than delivery issues, which are the responsibility of the Infrastructure and Projects Authority (eg the future supply of skilled labour).*

QUESTION 1) How does the UK maximise the opportunities for its infrastructure, and mitigate the risks, from Brexit?

GMCA Response

A stable and clear long term regulatory framework provide certainly for investors, supply chains and skills provision.

Given the decision to withdraw from the European Union, we need to focus on maximising our existing competitive advantages. Greater Manchester has always been an outward looking city with a rich history of global trade and welcoming of diversity and talent. Remaining open, international and connected will be ever more important in the coming years. As the heart and driver of the Northern Powerhouse economy, we need to prepare for, and take advantage of, the transformational opportunities major infrastructure improvements, such as HS2 and Northern Powerhouse Rail, will provide.

Regulations have delivered environmental improvements that have resulted in measurable benefits to Greater Manchester. Our strategy commits us to a reduction in carbon emissions and air pollution, increased resilience, more sustainable consumption and production, and an outstanding natural environment. Expertise and experience of dealing with contaminated land, energy challenges and water management has created skills and jobs in environmental good and services that can be deployed locally and internationally.

ISSUE 2: *Good design is essential to ensuring infrastructure that lasts, is useful and enhances both its environment and the quality of life of citizens.*

QUESTION 2) How might an expert national infrastructure design panel best add value and support good design in UK infrastructure? What other measures could support these aims?

GMCA Response to be added (if necessary).

ISSUE 3: *The Commission proposes to identify a small set of high-level metrics to assess the UK's progress in achieving high quality, resilient, affordable and sustainable infrastructure. The Commission's initial proposals are set out in Annex A.*

QUESTION 3) How can the set of proposed metrics for infrastructure performance (set out in Annex A of the interim assessment) be improved?

GMCA Response to be added (if necessary).

ISSUE 4: *Cost-benefit analysis is a key source of evidence used to inform decisions on infrastructure investments. However, too often it narrows down to a preferred option without giving sufficient consideration to alternatives.*

QUESTION 4) Cost-benefit analysis too often focuses on producing too much detail about too few alternatives. What sort of tools would best ensure the full range of options are identified to inform the selection of future projects?

GMCA Response:
We believe that additional emphasis should be placed on the wider social impacts such as health and wellbeing, inclusiveness, social return on investment. DfT models of business case evaluation are a prime example as they do not work in respect of forward looking infrastructure investment but merely serve to reflect lack of capacity on existing infrastructure. They do not allow for the reflection of future growth unlocked by any investment to be reflected in any evaluation. This has to be a priority for change.

ISSUE 5: *The UK has invested less in 'next generation' infrastructure than many other advanced economies.*

QUESTION 5) What changes are needed to the regulatory framework or role of Government to ensure the UK invests for the long term in globally competitive digital infrastructure?

GMCA Response to be added (if necessary).

ISSUE 6*: Fixed and mobile networks are converging. Both the technology itself and its uses are driving this increasing convergence.*

QUESTION 6) What are the implications for digital infrastructure of increasing fixed and mobile convergence? What are the relative merits of adding more fibre incrementally over time compared to pursuing a comprehensive fibre to the premises strategy?

GMCA Response:
The objective may be the same for all areas but different places have different starting points. The GMCA has developed a digital infrastructure plan. To implement this plan the GMCA intends to work closely with industry, Department for Digital Culture Media & Sport, the regulator Ofcom and key strategic organisations include the Digital Catapult to ensure the actions within this plan are effectively delivered. For Greater Manchester to be considered world leading our digital infrastructure will need to be built upon the foundations of having a full fibre network[1]. Fibre to the home or business – 'full fibre' – is considered to be the best technology available. It provides the highest quality of service in terms of speed and reliability. However, physically connecting fibre to every home and office may not be essential in the long term. Many devices are already connect in the first instance via the radio spectrum, through Wi-Fi or Bluetooth. Deploying fibre to support future mobile technologies,

[1] Where all premises have fibre connections

whether 5G mobile or its successors could be a future option. In the medium to long term devices within homes and offices might then connect directly to 5G, or via a 'fixed wireless broadband' device, which would provide Wi-Fi within the building and connect via 5G rather than needing fibre within the building.

QUESTION 7*: Connectivity has become a necessity where people live work and travel, in both urban and rural areas. Rural areas however continue to be excluded. The Commission want to know what role central and local Government should play to ensure ubiquitous connectivity.*

QUESTION 7) What are the key factors including planning, coordination and funding, which would encourage the commercial deployment of ubiquitous connectivity (including, but not only, in rural areas)? How can Government, Ofcom and the industry ensure this keeps pace with an increasingly digital society?

GMCA Response:
The acceleration of investment in Full Fibre to the Premises and universal high speed broadband coverage is not solely dependent upon securing Government funding. The opportunities from public sector demand would could still help drive market investment - albeit at a smaller scale. However, it is essential that it is supported by a suite of additional actions in the Plan that can accelerating market investment in Full Fibre by minimising the cost and administrative barriers to Full Fibre Investment and increasing demand. These are:

1. Making available to all market providers key public assets including Metrolink and National Rail ducting.
2. Adoption of a Standardised Wayleave pioneered by City Of London across Greater Manchester to reduce the cost and time involved in delivering fibre to the premises.
3. Fully mapping dark fibre and ducting assets and encouraging a "one dig" approach where ducting is installed on an opportunist and low cost basis when major road and pavement works are undertaken.
4. Adopting policy within the Great Manchester Spatial Framework to specify the provision of open ducting for all new development.
5. Drive demand through targeted business fibre voucher scheme supported by Government funding and leveraging market capacity.

ISSUE 8*: As infrastructure systems become more smart, complex and interdependent, the potential for unintended interactions in the system increases. As a result, the likelihood of accidents also increases. Greater use of digital connectivity can make the impact of these 'system accidents' (unanticipated interactions of multiple failures in complex, interconnected systems) accidents more damaging than ever before.*

QUESTION 8) How can the risks of 'system accidents' be mitigated when deploying smart infrastructure?

GMCA Response to be added (if necessary).

ISSUE 9: *The economic benefits of concentrating economic activity in cities is driving the growth of cities, but this is causing congestion on city transport networks and a shortage of land for housing. Congestion can't be solved by simply building more roads, and current arrangements for infrastructure planning aren't joined up with planning for new housing.*

QUESTION 9) What strategic plans for transport, housing and the urban environment are needed? How can they be developed to reflect the specific needs of different city regions?

GMCA Response:
The Greater Manchester Strategy (GMS)[2] outlines our vision and priorities for the future. We are fortunate in Greater Manchester to be working on a joint plan - The Greater Manchester Spatial Framework (GMSF) which allows us to take an integrated, strategic and spatial approach to planning across the city-region, based on a clear understanding of the role of places and the connections between them.

The GMSF alongside our developing housing strategy will boost the pace of housing development and improve the quality, choice and affordability of the homes on offer so that our housing markets meet the requirements and aspirations of existing and future residents. We will continue to develop the high density urban offer in and around the regional centre to attract the increasing number of people who want a city centre lifestyle. We will also look to increase the density of our housing supply around public transport hubs. As part of a broader approach to repurposing and reinvigorating our town centres we will develop Greater Manchester's town centre offer for housing for a broader range of households, to make town centres residential locations of choice.

The GMSF will also include a strategy for the environment and the ecosystem services it provides, protecting the critical green infrastructure assets, especially in the urban areas in light of increasing pressures from people, the economy and a changing climate. The GMSF will seek to protect our existing green spaces by pursuing a brownfield and town centres first approach to housing and employment site development and improving the quality of our parks, rivers and canals.

The Greater Manchester 2040 Transport Strategy sets out our strategy to develop a high quality, fully integrated transport system for Greater Manchester, with travelling customers at its heart. We will take a whole-system approach to the management, maintenance and renewal of the transport network across all modes – roads, trains, trams, buses, active travel and freight, and catering for all types of journey – from local neighbourhood trips to global travel. We will ensure our transport infrastructure and services are accessible to all, including disabled people and those with mobility problems.

ISSUE 10: *Currently there is no stable long-term funding arrangement for the major investment needed in city transport outside London. Making this a priority would mean trading off against other objectives within limited resources for transport*

[2] See: https://www.greatermanchester-ca.gov.uk/news/article/214/blueprint_for_the_future_of_greater_manchester_revealed

investment, which is especially difficult in the 2020s given existing commitments for major road and rail links between cities.

QUESTION 10) What sort of funding arrangements are needed for city transport and how far should they be focused on the areas with the greatest pressures from growth?

Awaiting response from TfGM.

ISSUE 11: *Capturing a greater portion of land and property value uplift could help to fund infrastructure. However, the potential for uplift differs dramatically across the country.*

QUESTION 11) How can the Section 106 and Community Infrastructure Levy regimes be improved to capture land and property value uplift efficiently and help fund infrastructure? Under what conditions are new mechanisms needed?

GMCA Response
Improved infrastructure often increases the value of surrounding land and properties. These uplifts in land and property value can provide windfall benefits to those who own them. By funding projects based on their local capacity to capture this value uplift, there is a strong incentive for scheme promoters and designers to maximise the benefits of any scheme. We are pleased to be working with the GLA and other CA areas to analyze best fit models to achieve LVC.

Local funding can also strengthen local accountability. The interim assessment acknowledges this issue and indeed uses a quote from the GMCA response that: *'It is notoriously difficult for the planning system to capture land value uplift with existing mechanisms such as section 106 agreements and the Community Infrastructure Levy. This may be fine for site specific infrastructure spending such as a new highway junction but has limitations where significant new investment is required or as an approach to convince local residents that the existing infrastructure issues will be resolved."*

In response to this issue the commission intends to explore the development of new mechanisms to capture land value. Land value capture is not a panacea to pay for all infrastructure needs. But it may be able to play a role in ensuring a fairer distribution of the costs of infrastructure between general tax payers and property owners who receive windfall gains. The commission suggests that it could help ensure that the infrastructure needs of London and the South East – where land value uplift can make a more significant contribution to costs – are less directly in competition for national funding with the needs of other parts of the country where land values are lower.

ISSUE 12: *Currently, infrastructure and housing are often not financed, designed, timed or delivered compatibly, which leads to infrastructure delaying housing delivery.*

QUESTION 12) What mechanisms are needed to deliver infrastructure on time to facilitate the provision of good quality new housing?

GMCA Response
We would welcome the opportunity to work with the NIC to determine whether new mechanism are needed, whether existing mechanist need to work better and then an options appraisal of the likely options and intervention required to address specific issues in different geographical areas.

The mutual benefits of infrastructure and housing have been frustrated by systemic limitations, with poor coordination between how new infrastructure is planned, invested in and delivered in relation to housing supply. Different utilities operate on different investment timetables often using different growth projection and rules. Often it is at the planning application stage that investments are triggered. Communities facing new development in areas with existing infrastructure issues are demanding certainty that the development will not make the existing situation worse.

Furthermore a lack of responsiveness within some infrastructure frameworks to market signals, leaving infrastructure development out of kilter with local growth. There are clear benefits to putting this right. Infrastructure and housing development should work together to help shape attractive, well-connected communities where people want to live and work.

Basic infrastructure can take a long time to procure and deliver e.g. a primary substation can take two years. Therefore, investors and developers interested in developing a site, usually in response to market needs, could be faced with unreasonable/unrealistic programmes to bring a housing or commercial development to the market. Theoretically, a network operator is allowed to "invest ahead of need" where it is efficient to do so, but in reality this is not a common practice. One of the main reasons for this is that any such investment will be assessed for efficiency after the fact. Ofgem have yet to consult upon, develop or determine the rules for assessing efficiency.

One of the challenges for investing ahead of need is the risk of stranded assets i.e. the investment has taken place but the planned development doesn't take place or is delayed. The question is essentially one of risk and certainty, who underwrites the risk that the demand/ development will happen and how any forward investment is paid for and paid back.

ISSUE 13: *The UK has an established and mature gas grid, which provides a reliable supply of gas for heating. However, the continued burning of natural gas for heating is not sustainable as the UK progresses towards a low carbon energy system. This brings into question the future role of the gas grid.*

QUESTION 13) What will the critical decision factors be for determining the future of the gas grid? What should the process for deciding its future role be and when do decisions need to be made?

GMCA Response to be added (if necessary).

***ISSUE 14**: The UK has a relatively old and energy inefficient building stock, which results in higher energy consumption. Upgrading the energy efficiency of buildings will enable consumers to save money in the short and longer term as the UK switches to low carbon heat infrastructure. Building refurbishment could be integrated with other enhancements, such as installing solar panels or alternative forms of heating.*

QUESTION 14) What should be the ambition and timeline for greater energy efficiency in buildings? What combination of funding, incentives and regulation will be most effective for delivering this ambition?

GMCA Response to be added (if necessary).

***ISSUE 15:** Keeping the cost of low carbon energy down is one of the most important inputs into a successful industrial strategy for the UK. Well-designed market mechanisms should ideally be open, competitive and technology neutral.*

QUESTION 15) How could existing mechanisms to ensure low carbon electricity is delivered at the lowest cost be improved through:

- **Being technology neutral as far as possible**
- **Avoiding the costs of being locked in to excessively long contracts**
- **Treating smaller and larger generators equally**
- **Participants paying the costs they impose on the system**
- **Bringing forward the highest value smart grid solutions?**

GMCA Response to be added (if necessary).

***ISSUE 16:** Nuclear power is an expensive form of generation and is unlikely to get built without Government intervention. However, if electricity is selected as the primary way to heat our buildings in the future, it is unlikely that renewables could generate sufficient electricity to meet total demand. It is also unclear whether system stability can be maintained with very high levels of renewables.*

QUESTION 16) What are the critical decision factors for determining the role of new nuclear plants in the UK in scenarios where electricity either does, or does not, play a major role in the decarbonisation of heat? What would be the most cost-effective way to bring forward new generation capacity? How important would it be for cost-effectiveness to have a fleet of nuclear plants?

GMCA Response to be added (if necessary).

***ISSUE 17:** Carbon capture and storage has the potential to support the transition to a low carbon energy system in multiple ways, including enabling the creation of greener gases for heating, and reducing emissions for fossil fuel power stations and industry. However, it has had a difficult history in the UK. Internationally, it is predominantly used for enhanced oil recovery, rather than reducing carbon dioxide emissions.*

QUESTION 17) What are the critical decision factors for determining the role of carbon capture and storage in the UK in scenarios where electricity either does, or does not, play a major role in the decarbonisation of heat? What would be the most cost-effective way to bring it forward?

GMCA Response to be added (if necessary).

ISSUE 18: *Waste can be a valuable fuel for the difficult-to-decarbonise sectors. New and established technologies could make a contribution to the heat and transport sectors.*

QUESTION 18) How should the residual waste stream be separated and sorted amongst anaerobic digestion, energy from waste facilities and alternatives to maximise the benefits to society and minimise the environmental costs?

GMCA Response:
The first requirement is a long term waste policy and strategy for England. The current targets only go to 2020 and there is no visibility beyond that point in time as to how the Government will implement EU requirements such as the Circular Economy. This lack of a long term vision will not stimulate investment in new infrastructure. A clear policy vision is required that takes a whole life approach to resource management through the chain of utility rather than simply seeking to provide end of pipe infrastructure.

Products need to be designed for maximum reuse and recyclability at the point of production. Plastic is a prime example with a range of food packaging that cannot currently be recycled (see response to question 19). Supermarkets and retail outlets need to be specifying products that have high recycled content and also use a limited range of materials to make recycling easier for members of the public. Collection systems and materials collected for recycling across the country need to be more consistent in order to increase participation and reduce contamination. Greater investment is needed in communication and engagement with residents on what they can recycle and how they can make more informed choices as consumers.

This change of approach will stimulate demand for recycled products which will therefore require investment in reprocessing capacity. Significant tonnages of recyclable materials are exported from the UK to Europe and China for reprocessing. Post Brexit the European market will be more stringent on what materials it will accept as the Circular Economy regulations are implemented and China is already imposing strict contamination requirements. The UK therefore needs to adopt the approach outlined above to collect better quality materials for recycling and also to invest in its own reprocessing infrastructure.

A similar position exists with energy from waste with many operators predicting a shortfall in capacity over the next 10 years. Over 3 million tonnes of waste are currently export to Europe for energy recovery representing a significant lost opportunity for domestic energy generation. Uncertainty exists over what will happen to this material post Brexit, but with the current predicted shortfall in domestic EfW capacity, it will lead to an increase in gate fees with greater competition and

potentially some landfill of material. Work is therefore required now to look at strategic planning for additional capacity to develop a domestic market for EfW and avoid further exports.

ISSUE 19: *The first best option to reduce waste costs for households and businesses is to minimise the amount of waste produced. The packaging recovery note system places costs on the producers of packaging to account for the end-of-life impact.*

QUESTION 19) Could the packaging regulations be reformed to sharpen the incentives on producers to reduce packaging, without placing disproportionate costs on businesses or creating significant market distortions?

GMCA Response:
A fundamental change in the approach to Packaging is required. The packaging industry has adapted its approach to the targets set out in the Regulations in order to comply which has had a significant knock on effect for resource management. For example, light weighting has resulted in a shift from glass coffee jars to foil pouches. This enables the producer to meet their target obligations but creates a plastic coated foil lined pouch that is not recyclable. This cannot have been the intention behind the Regulations but a weight based target imposed on a manufacturing sector will result in changes to product manufacture to meet a target as opposed to meeting an environmental outcome. In line with the response to question 18 above, a whole life approach is required to consider how Packaging can be made easier to recycle, have higher recycled content and can be made easier to separate from the waste stream.

There are currently 5 main polymers used for plastic food packaging, with only one (Polypropylene) having a demand and a market as a secondary raw material. This makes it very difficult for the public to understand whether a yoghurt pot or ice cream tub is recyclable. Many councils collect these materials for recycling, in reality they will be rejected during the separation process and used for energy recovery.
If all food packaging were made from similar grade Polypropylene then public engagement and participation in recycling would increase, a single polymer plastic stream can be separated and reprocessors will have demand for this material to manufacture new packaging materials. This kind of approach requires investment in manufacturing capacity, packaging manufacturers to limit the range of plastic polymers used, supermarkets to specify polypropylene packaging, local authorities to collect this material and reprocessing capacity to be developed in the Country. This requires Government intervention on a number of fronts and will not simply come from reforming of the Packaging Regulations. It will require a cross Government approach from DEFRA, Treasury and DBIS to establish a whole approach to resource management.

ISSUE 20: *After 100 years of incremental change in the design and operation of road vehicles, a new generation of connected and autonomous vehicles will offer higher quality and safer road travel. However, car manufacturers are mainly focusing on building future cars for existing roads, and relatively little work has been done on how the roads themselves should be adapted and used.*

QUESTION 20) What changes to the design and use of the road would be needed to maximise the opportunities from connected and autonomous vehicles on:

- **motorways and 'A' roads outside of cities?**
- **roads in the urban environment?**

How should it be established which changes are socially acceptable and how could they be brought about?

Awaiting response from TfGM

ISSUE 21: *The impact of road transport on air quality is severe, and the Government's greenhouse gas emissions target means that nearly all vehicles on the road will need to run on low carbon power or fuels by 2050. Electric vehicles provide the most promising means of addressing these challenges, but unmanaged charging can put additional strain on the electricity distribution network, potentially requiring costly reinforcements.*

QUESTION 21) What Government policies are needed to support the take-up of electric vehicles? What is the role of Government in ensuring a rapid rollout of charging infrastructure? What is the most cost-effective way of ensuring the electricity distribution network can cope?

Awaiting response from TfGM

ISSUE 22: *Meeting the Government's greenhouse gas emissions target means that fuel duty revenue will have fallen towards zero by 2050. Traffic congestion is also a significant and increasing cost to society.*

QUESTION 22) How can the Government best replace fuel duty? How can any new system be designed in a way that is fair?

Awaiting response from TfGM

ISSUE 23: *Given increasing pressures from climate change and population growth, and the need to safeguard the environment, it will be necessary to make better use of the water that is available. Metering can help identify leaks and encourage customers to use less water but will not be enough by itself.*

QUESTION 23) What should be done to reduce the demand for water and how quickly can this have effect?

GMCA Response:
We believe that increased smart metering is the way to maximise the potential for demand management. Better insight into consumption patterns will enable smarter, more appropriate targeting of water efficiency campaigns. It would also allow for better quantification of the actual savings achieved and more robust cost-benefit analyses. Having more metered data will enable the development of new, more attractive tariffs for our people that will enable them to financially benefit from wiser water consumption and be more conscious of their water usage.

A Water Efficiency Strategy for the UK (Waterwise, 2016), also supports the view that “if people do not pay for the amount of water they use, there is no financial incentive to use water efficiently” and that “for unmetered customers, it is important to seek alternative ways to incentivise the efficient use of water”. It also recommends to give “freedom for water companies to introduce full metering for benefits beyond water stress status”. Increase in the number of homes that have a water meter is one of means to help in demand management stated in 2011 Mayor of London Water Strategy (GLA, October 2011) on the basis that “Having a meter helps consumers be aware of how much they are using and provides information to help control their bills”.

The framework (Water UK, 2016) also states that: “UK may achieve PCC levels in line with the most efficient European countries over the next 50 years, through preferred metering programmes, sustainable house building and macroeconomic factors, though this is by no means assured”. In the extensive comparison carried by OFWAT (OFWAT, 2007) UK’s PCC is by far the highest (UK PCC 150 l/head/day, second highest – Denmark 131 l/head/day, lowest – Belgium 107 l/head/day). By no means UK is less developed or has significantly poorer infrastructure than any of these countries. The main difference is that in each of these countries’ meter penetration exceeds 90%, whereas in the UK less than 50% of domestic customers are metered.

It is stated in the framework (Water UK, 2016) that there are major uncertainties in the long-term costs of achieving and maintaining ambitious, large-scale savings in both PCC and leakage. These uncertainties are ~ 100% of cost, and depend heavily on both cost of installation of various devices and the cost of maintaining these over time. It is therefore recommended that major large-scale trials of smart meters are implemented as soon as possible to better understand the significant variations in household demand that occur nationally and refine demand forecast uncertainty. The sheer volume of data available from these trials will enable to model any re-bound effects and appropriately include effect of these in planned demand reductions.

Increase in meter penetration will also help in leakage management activities. As leakage is not directly measured, its accuracy depends on the accuracy of the components used in the leakage calculation, of which consumption is one of the key ones. Improving accuracy and frequency of consumption data will enable to calculate and target leakage more effectively.

In 2019 Price Review consultation Ofwat challenged water companies to take steps to reduce leakage beyond sustainable economic level of leakage (SELL). Its review of SELL concluded that the current approach does not incentivise efficiency or innovation. There is a potential that this industry wide drive for leakage reduction, aside from the environmental benefits, will also boost the need for innovation in leakage management enabling new technologies to become cheaper and more readily available. This should make achieving leakage reductions more affordable and efficient over time. We should see impact of reducing leakage levels on demand by 2025, end of the next asset management period (AMP7).

For new development, the NIC should consider whether this is an issue limited to the South East or whether there are universal benefits from reducing demand overall. For new development, the optional building standards for water stressed areas already enable a higher water efficiency standard to be adopted by the Local Authority via its Local Plan. Local Authorities must however present evidence of need, viability and deliverability. The developer will still have the opportunity to negotiate against the standard in the Plan.

ISSUE 24: *Reducing demand is unlikely to be enough to secure resilient water supplies. Some major new water supply infrastructure is likely to be needed well within the next 30 years.*

QUESTION 24) What are the key factors that should be considered in taking decisions on new water supply infrastructure?

GMCA Response:
When taking decisions on new water supply infrastructure it is necessary to consider the current day to day operational requirements of the water supply system as well as abnormal extreme events and future operational requirements.

There is a balance to be struck between providing sufficient system capacity to meet current and future demands versus the need to provide water that is of a high quality. This can often prevent the installation of large assets (pipes, reservoirs etc.) with lots of head room in advance of new developments as the current lower demands may lead to water quality issues as a result of low turnover. Therefore understanding the scale and pace of development is key to planning the staged implementation of new infrastructure to avoid water quality problems.

Water usage by new industrial customers can be highly variable and have a large impact on the performance of the existing (fast filling of storage tanks can cause shocks to the pipe network and lead to bursts and pressure issues). It is important the water companies work with new industrial customers to manage their supply of water in a way that benefits both them and other customers in the area, this could be through the installation of additional water storage or control devices to protect the distribution network.

The new developer charging reforms being implemented by the water industry in April 2018 (UU is currently out for consultation with a new developer charging scheme which can be found here https://www.unitedutilities.com/services/builders-developers/new-connection-charges-consultation/focus-groups/) will remove existing cost barriers to individual developers in areas with no spare capacity and will require water companies to take a more proactive approach to planning water infrastructure upgrades to ensure the system is fit for the long term growth of the region.

When designing new infrastructure it is important to consider how the assets will be operated and maintained and factors such as where the asset is located (highway, path or open land) and how it will be accessed to carry out maintenance. Other factors that need to be considered in the design of any new infrastructure include

ground conditions; geology, contaminated land, traffic loading and other underground utilities and services such as gas, electricity, broadband and drainage.

ISSUE 25: *There is limited understanding of current drainage and sewerage capacity. Although pressures are increasing, there is little long term planning.*

QUESTION 25) How can long-term plans for drainage and sewerage be put in place and what other priorities should be considered?

GMCA Response:
In Greater Manchester responsibility for water management is defrayed across multiple organisations: United Utilities, the Environment Agency, ten Lead Local Flood Authorities. The national flood risk strategy was published in 2011, since then there have been a succession of regional plans and strategies coveting water quality (River Basin Management plan), Regional Flood Risk Management Plans (2015), Preliminary Flood Risk Assessments (2011), North West River Basin Management Plan (2015) and ten Flood Risk Management Plans produced by the Lead Local Flood Authorities. Water companies produce their own Sewerage Management Plan and now Integrated Drainage Area Strategies. Each of these plans has been produced for different purposes with scale too large or too small. The most up to date plans for individual and functional catchments are the catchment Flood Management Plans produced in 2009.

A review of long-term drainage and wastewater planning is being undertaken by Atkins on behalf of Defra to assess the current use of Drainage Strategy Frameworks (DSF) and different approaches used by water companies. This is to build on principles outlined in the DSF, embed consistency of approach and draw upon best practice. The results from this, should be considered when implementing long-term drainage plans.

Integrated long term plans should include all aspects of risk and opportunity associated with drainage and sewerage treatment. Risks of network flooding from other causes (blockages etc.), hydraulic risk, sewer overflow increases, river water quality, wastewater treatment works capacity and performance etc. It should involve various stakeholders during the planning and implementation including Water and Sewerage Companies, Local Authorities, Environment Agency, Lead Local Flood Authorities (LLFAs) and other relevant bodies.

Long term plans for drainage and sewerage can be delivered by improving the planning system and through a systems thinking driven approach which integrates the use of assets, leverages data intelligence and employs new technology and work. Some of the ways to implement long term plans are:

Governance, Standards and legislation

- Implementation of National Standards on sustainable drainage and the inclusion of Sustainable drainage Systems (SuDS) on all new development sites as a requirement of legislation rather than negotiation through the planning process.

- Rate of discharge decisions to be determined by the organisations responsible for the receiving conduit e.g. sewerage companies for sewer and lead local flood authorities for watercourses.
- Review Riparian rights to discharge to watercourse to reduce the cost and delays associated with third party negotiations.
- Improved mechanism for developers to access 3rd party land to undertake drainage works
- Enhanced powers to planning authorities to enable infrastructure to be delivered in a coordinated manner as part of site wide infrastructure strategies.
- LLFAs better equipped and resourced to respond to challenges such as riparian ownership. Increased drainage expertise would enable them to review proposals more effectively and efficiently and understand the full impact.
- The right to connect surface water to combined and surface water systems should only be pursued when there are no alternative options. The broader, long term costs to water bill payers should be considered when making decisions about the surface water discharge to sewer.

Catchment Management and Partnership Working to deliver the plan

- Geographical planning boundaries for WwTWs drainage areas and river catchment areas should be used.
- Include a short, medium and long term plan (5, 25 and potentially 50 year scenario) for context with relevant review milestones.
- Better information sharing to map risks and opportunities to ensure stakeholder needs are identified more efficiently.
- Obtain a full understanding of partner organisation goals and objectives with closer collaboration and early dialogue.
- Agree drainage plans ahead of development, with all developers clear on where their development impacts on the long term plan.
- Regular liaison during planning and implementation so that early information on specific locations, size, timescales etc. of developments can be reviewed and accounted for efficiently.
- Regular interaction with developers as part of the wider plan
- Further exploration of pilot studies of drainage management to share lessons learnt and best practice.

Surface Water Management and SuDS

- Priority to surface water management should be given at all new developments with a clear agreed hierarchy on the most sustainable interventions to apply as part of the development scope. Options to consider removal of all surface water to the drainage network, reducing the volume to the network, retaining the peak flows during high rainfall events and only discharging surface water to the network when there is no alternative solution. This should apply to all sizes and locations, not just large urban developments
- Guidance and information on appropriate types of SuDS can be provided to developers in the early stages for them to incorporate as part of their plans.
- Include a joined up approach to drainage with the adoption of SuDS by the sewerage provider where appropriate.

- Plan a surface water removal programme in collaboration with customers, Local authorities, developers, Environmental groups etc.
- Provision of educational resources and guidance for households and businesses on managing surface water at property level should be included in the overall plan

Other priorities to be considered are the opportunities that a sustainable drainage plan could provide. The additional benefits of green and blue infrastructure to residents, businesses and the local economy can be considered and taken into account when assessing the overall benefit of a proposed plan and the increase in natural capital.

We believe that significant benefits could be delivered through the development of flood risk management strategies at the Mayoral / Combined Authority Level. These should be developed in partnership by the Environment Agency, the relevant drainage authorities and Lead Local Flood Authorities. The Environment Agency have a statutory responsibility to take strategic overview role of flood risk. The development of these strategic should be initiated by the EA but should be accountable to the Mayoral / Combined Authority.

In our call for evidence last February we recommended that regulated utilities should be subject to a statutory duty to co-operate to ensure that infrastructure providers and the regulators are required to actively engaged with the Greater Manchester Mayor and Combined Authority to ensure that future investment plans are consistent with the future development strategy for larger than local geographical areas.

The existing requirements for co-operation outlined in the 2010 Flood and Water Management Act should apply to the Environment Agency and drainage authorities in so far as this related to strategic flood risk and water management activities.

Environment Agency / Defra grant-in-aid calculations remain a challenge for urban areas. The partnership funding formula is principally driven by protecting residential properties (as opposed to benefit, including economic benefits to areas in general) therefore it's harder in some circumstances to defend urban areas and town centres using GiA where there is less residential. Pursing the strategic and catchment approach to flood risk alongside spatial development strategies and integrated infrastructure plans would enable all partners to take a strategic approach to capital and support the delivery of multiple outcomes in specific geographical areas.

ISSUE 26: *Flood risk is increasing due to climate change and population growth. A range of actions are already being taken to manage risk, but the overall level of ambition is unclear.*

QUESTION 26) What investment is needed to manage flood risk effectively over the next 10 to 30 years?

GMCA Response:
All water planning should be managed holistically at a catchment level, to include water quality and quantity together. Many natural measures promoted to slow upland

flows have significant quality and biodiversity benefits as well as reducing flood peaks, so the costs and benefits of these should be reviewed holistically.
Our view is that flood spending is disproportionately targeted at hard engineering such as flood barriers and other options to tackle flooding through “slow the flow” techniques on upland catchments and in urban areas are not given sufficient consideration. Managing surface water runoff rates at source provide a benefit under any storm condition whereas flood barriers can only protect from a fixed water level. Government sourced funding is not necessarily aligned with other water quality or flooding objectives, particularly farm payments under the Common Agricultural Policy.

A review of how all land management subsidies interact to provide the best overall outcome for farming, flooding and the environment would help to resolve this. Adequate maintenance funding should be provided for highway drainage, gulley cleaning and watercourse management to reduce the impact on sewerage operations.

Drainage and flooding responsibilities in England and Wales are fragmented and the system will only operate effectively where all parties fulfil their role and are adequately funded to do so.

Guidance and assurance over long-term funding of upland catchment management would help deliver a more catchment based approach. There would be a real benefit of bringing River Basin Management Panels and Regional Flood and Coastal Committee closer together to maximise the efficiency of water quality and flood plans at a river catchment level.

Through the delivery of our innovative ‘Sustainable Catchment Management Programme’ (SCaMP) we are recognised as industry leaders in securing multiple benefits at a landscape scale. Working with the Environment Agency we routinely design catchment safeguard zones to protect water sources from pollution. Safeguard zones and other catchment initiatives rely heavily on partnership funding and working with land owners and other stakeholders to deliver sustainable and resilient catchments.

It is important to recognise that restoring natural process, which is a requirement for natural flood management, can take several decades to establish. The most extreme example is the restoration of peatlands, where species of moss can hold up to 20 times their dry weight in water. Peat forms very slowly at a rate of 1mm per year meaning a restoration time of 50-70 years for a fully ‘active’ peatland.
[We may also include an indication of how much we are planning to spend (or have spent) on sewer flooding reduction in the next AMP (or this AMP) but this is to be agreed]

ISSUE 27: *The European Investment Bank and the Green Investment Bank have played an important role in financing infrastructure, but this may change following Brexit and privatisation of the Green Infrastructure Bank. The UK will need to have continued access to a similar range of services and expertise.*

QUESTION 27) What would be the most effective institutional means to fulfil the different functions currently undertaken by the European Investment Bank if the UK loses access? Is a new institution needed? Or could an expansion of existing programmes achieve the same objectives?

GMCA Response:
If the UK loses access to EIB funding, a new institution/funding programme would undoubtedly be required to ensure continued infrastructure investment and to prevent significant delays.

Such an alternative institution would take considerable time to establish. Therefore an interim measure would be required. In establishing an alternative, consideration should be made as to the strengths, limitations and restrictions of the current EIB funding structure in order to structure a new programme in the most beneficial way.

It would also be important to consider ways in which to ensure diversity of the portfolio in order to limit risk. Detailed analysis of existing loans and those in the pipeline would need to be undertaken in order to identify the nature of funding requirements (sectors, terms, geography, pricing, risk etc).

This would take time and there would be a period of stagnation during the period that no funding was available and the new alternative was set up. The time period is unknown but the risk is that it is considerable.

ISSUE 28: *There is no widely accepted comparable data on the whole life costs and benefits of different financing models for publicly funded infrastructure. This may mean that opportunities are being missed to deliver projects more efficiently, at lower cost and sooner.*

28) How could a comprehensive analysis of the costs and benefits of private and public financing models for publicly funded infrastructure be undertaken? Where might there be new opportunities for privately financed models to improve delivery?

GMCA Response:
Detailed analysis of all PFI schemes entered in to would need to be performed to understand the reasons why these deals ultimately proved to be so excessive on the public sector purse, including challenge of the approach to the deals. For example:

- What was the basis of the deals being structured in the way that they were and how could this be improved?
- Was the level of risk retained/transferred appropriate/necessary?
- How effective/value for money were the payment mechanisms as structured
- How was the pricing/negotiation process undertaken and how can this be managed on future deals to ensure better value for money?
- Were appropriate limitations/caps/claw back arrangements in place to limit costs/ensure sharing of savings made?
- Where sufficient incentives provided to the private sector to limit costs and drive efficiencies?

- To what extent were considerations of change in technology, society, political and environmental factors taken in to consideration in developing deals (for example contract terms)
- Did the SPV structure work or could a centrally funded approach work across a variety of projects?

It would need complete consideration of all individual factors influencing the decisions made and what the alternative solutions or approach would have been/would be today whether using public or private sector monies.
The fundamental challenge to any review is that you are measuring against what would have happened if you had not let the contracts and this is impossible to determine and any analysis of it is subjective.