

JANUARY 2019

PHYSICAL INFRASTRUCTURE



GMSF 2018 Topic Paper: Physical Infrastructure		
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1 Introduction

- 1.1 A series of Topic Papers has been prepared to support the 2019 consultation on the GMSF. Each Topic Paper summarises and cross-references the relevant evidence and explains how this has informed the draft GMSF, along with summarising the previous consultation comments that are relevant to the topic. The Topic Papers explain how the draft GMSF policies and allocations have been derived based on the evidence, consultation comments and Integrated Assessment on the 2016 draft GMSF.
- 1.2 This Topic Paper is about physical infrastructure required to support the growth of Greater Manchester, the scope of this paper is limited to the consideration of energy supply infrastructure, water and wastewater, and telecommunications infrastructure. Other types of infrastructure such as flood risk management, water quality, waste, minerals, transport and social infrastructure are considered elsewhere.
- 1.3 Please see the Greater Manchester Joint Waste Development Plan Document for more information on waste development, including waste water treatment plants, which are also considered to be waste development. Regarding minerals planning, this is considered within the Greater Manchester Joint Minerals Development Plan Document.
- 1.4 The GMSF is a joint plan of all ten local authorities in Greater Manchester, providing a spatial interpretation of the Greater Manchester Strategy which will set out how Greater Manchester should develop over the next two decades up to the year 2037. It will:
 - Identify the amount of new development that will come forward across the 10 districts, in terms of housing, offices, and industry and warehousing, and the main areas in which this will be focused.
 - Ensure we have an appropriate supply of land to meet this need.
 - Protect the important environmental assets across the conurbation.
 - Allocate sites for employment and housing outside of the urban area.
 - Support the delivery of key infrastructure, such as transport and utilities.
 - Define a new Green Belt boundary for Greater Manchester.

2 Policy context

National Planning Policy Framework (2018)

- 2.1 The importance of effective infrastructure planning is recognised throughout the different stages of plan making, decision taking, and delivery of development. The National Planning Policy Framework (NPPF) sets out that the three physical infrastructure types covered by this topic paper (water and waste water, telecommunications, and energy) require strategic policies within Plans to enable them to support the strategy for the pattern, scale and quality of development, and to make sufficient provision of those types of infrastructure (paragraph 20).
- 2.2 As infrastructure provision is a strategic matter that can cross administrative boundaries, the duty to cooperate applies, therefore strategic policy-making authorities should engage with infrastructure providers, to ensure that a positively prepared and justified strategy is produced (paragraphs 24-27).
- 2.3 As set out in paragraph 8 of the NPPF, identifying and coordinating the provision of infrastructure is an important factor in helping to achieve the economic objective of achieving sustainable development. The role of infrastructure in helping to achieve elements of sustainable development is further recognised, with particular regard given to communications, whereby a supportive approach to the provision and expansion of high quality and reliable communications infrastructure is deemed to be essential for economic growth and social well-being (paragraph 112).

National Planning Practice Guidance

- 2.4 National Planning Practice Guidance (NPPG) recognises the relationship between strategic policy-making and infrastructure required to deliver a positive vision for the area, and describes the need to identify what infrastructure is required, and how it can be funded and brought forward. (Paragraph: 055 Reference ID: 61-055-20180913)
- 2.5 An aspirational but realistic approach to Plan making is encouraged, with Plans aiming to meet infrastructure needs of the area, and unmet needs of neighbouring areas where this is consistent with policies in the NPPF as a whole. (Paragraph: 002 Reference ID: 12-002-20140306)
- 2.6 Strategic policy-making authorities will need to demonstrate they have engaged with infrastructure providers, to demonstrate that there is a reasonable prospect that large scale developments such as new settlements can be delivered. Infrastructure providers are encouraged to reflect the infrastructure requirements set out in Plans within their funding and investment decisions. (Paragraph: 056 Reference ID: 61-056-20180913)

- 2.7** A collaborative approach to infrastructure planning is expected to be taken at an early stage in the plan-making process, to assess the quality and capacity of infrastructure, and its ability to meet forecast demands. The need to take account for strategic infrastructure within the area is also required. Evidence of infrastructure requirements should be set out in an Infrastructure Funding Statement, which should set out the anticipated funding from developer contributions, and how these contributions will be used by local authorities. This information can be used during the examination to demonstrate the delivery of infrastructure through the plan-period. (Paragraph: 055 Reference ID: 61-055-20180913)
- 2.8** Annual reviews of the infrastructure funding statement should feed back into review of plans to ensure that plans remain deliverable. (Paragraph: 056 Reference ID: 61-056-20180913)

Nationally Significant Infrastructure Projects

- 2.9** Nationally significant infrastructure projects are determined in accordance with the decision-making framework set out in the Planning Act 2008 and relevant national policy statements for major infrastructure, as well as any other matters that are considered both important and relevant (which may include the National Planning Policy Framework). The scope of this topic paper is limited to those types of infrastructure that have a role in supporting the delivery of GMSF, rather than infrastructure projects that would be considered nationally significant.

National Policy Statement for Waste Water

- 2.10** This is a framework document for planning decisions on nationally significant waste water infrastructure. This National Policy Statement (NPS) sets out Government policy for the provision of major waste water infrastructure. It will be used by the decision maker as the primary basis for deciding development consent applications for waste water developments that fall within the definition of Nationally Significant Infrastructure Projects (NSIP) as defined in the Planning Act 2008.
<https://www.gov.uk/government/publications/national-policy-statement-for-waste-water>

3 Summary of evidence

- 3.1** The planning, design, delivery and operation of the types of physical infrastructure covered by this topic paper are challenging because they are delivered, owned and operated by private sector companies, who are required to satisfy the needs of their shareholders and the financial markets. These companies are regulated by Ofgen, Ofwat and Ofcom, therefore the GMCA and individual local authorities do not have control over the provision of these critical types of infrastructure.
- 3.2** The utilities companies plan their future capital and maintenance work over different time horizons, which do not necessarily align with the phases of development set out within the GMSF. This section provides a summary of information relating to physical infrastructure provision in Greater Manchester, and how organisations have been working together, covering the following groups, topics and strategies:
- Greater Manchester Strategic Infrastructure Board
 - Greater Manchester Infrastructure Framework and emerging Strategy
 - Greater Manchester Digital Infrastructure Strategy (2018)
 - Greater Manchester Resilience Strategy (emerging)
 - Potable water and waste water infrastructure
 - Telecommunications infrastructure
 - Energy infrastructure

Greater Manchester Strategic Infrastructure Board

- 3.3** The Greater Manchester Infrastructure Advisory Group (GMIAG) was established in June 2014 to advise the Local Enterprise Partnership and Greater Manchester Combined Authority on strategic infrastructure matters. The group includes representatives from United Utilities, Open Reach, Electricity North West, Cadent (formerly known as National Grid UK Gas Distribution), Environment Agency, Highways England, Homes England (formerly known as the Homes and Community Agency), Transport for Greater Manchester, and the GMCA Planning and Housing Team. The GMIAG meets on a regular basis throughout the year, and brings together senior representatives of the Infrastructure Providers who operate within Greater Manchester to share ideas and to help better co-ordinate future plans on infrastructure needs and in particular to support the GMSF.
- 3.4** In addition to the ongoing liaison across infrastructure providers over the past 4 years, a number of pieces of evidence and supporting strands of work have been prepared, or are ongoing, to help inform the approach to infrastructure planning across Greater Manchester. These have been brought together into the Greater Manchester Infrastructure Framework. A summary of this is set out below.

- 3.5 One of the recommendations from the Infrastructure Framework was that Greater Manchester should reconsider its governance arrangements in the light of the key challenges and the GMCA agreed on 11 January 2019 to reconfigure the Infrastructure Advisory Group to become the Greater Manchester Strategic Infrastructure Board.

Greater Manchester Infrastructure Framework

- 3.6 Greater Manchester like others areas in England does not have governance over all the infrastructure that is critical to our success. Responsibility for infrastructure tends to be fragmented, poorly organised and unaccountable. It 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. Furthermore utility companies plan their future capital and maintenance work over different time horizons and in an uncoordinated way. This has led to the mutual benefits of infrastructure and development being frustrated by systemic limitations, with poor coordination between how new infrastructure is planned, invested in, delivered and maintained. This is why an Infrastructure Framework has been produced.
- 3.7 The framework covers the following physical infrastructure elements broadly in line with the remit of the National Infrastructure Commission, these are:
- Transport
 - Energy
 - Water and Waste Water
 - Flood Risk Management
 - Digital Communications
 - Green and Blue
- 3.8 The Infrastructure Framework is a precursor to the development of the Greater Manchester Infrastructure Strategy in 2019. It looks to frame the key issues and priorities which the Infrastructure Strategy should seek to address and sets out:
- The key trends affecting Greater Manchester’s infrastructure to 2040
 - How those trends will affect each infrastructure network
 - The eleven challenges that will have to be overcome through a series of ‘responses’
- 3.9 The eleven challenges are:
- Challenge 1: Greater Manchester needs infrastructure capable of delivering **low/zero carbon heat**
 - Challenge 2: There needs to be a substantial programme of **reduction in heat demand** from existing and new buildings

- Challenge 3: The current **electrical infrastructure** needs to be able to accommodate the growth of local renewable generation, rapid electric vehicle charging and, potentially, the electrification of heat.
- Challenge 4: Greater Manchester's **transport infrastructure** networks should provide the capacity, connectivity and diversity to meet the future needs of its residents.
- Challenge 5: Greater Manchester needs the infrastructure to **support ultra-low emission vehicles**
- Challenge 6: Provision of infrastructure that maintains and/or reduces **flood risk** across Greater Manchester whilst accommodating developmental growth and climate change.
- Challenge 7: Providing **green and blue infrastructure** reacting to the spatial pressures on the finite space and maximises the eco-systems services that it provides and improving accessibility.
- Challenge 8: Providing pervasive, affordable, resilient **digital connectivity**
- Challenge 9: Greater Manchester's infrastructure needs a **collaborative and co-ordinated approach** to meet the present and future needs of the region
- Challenge 10: Sourcing of **funding** to meet the present needs and enable change for the future
- Challenge 11 Infrastructure that is **resilient** to shocks and stresses

Greater Manchester Digital Infrastructure Strategy

3.10 The Digital Strategy was approved by the GMCA at the end of February 2018 following consultation and engagement with partners in industry, the public sector, academia and voluntary and community groups.

3.11 The Strategy sets out the challenges to achieving our vision, these include infrastructure, productivity, inclusion, skills and talent, digital public services and marketing and communications. It includes a Strategic Action Plan highlighting key activities that will build on our strengths and the challenges we need to address to Greater Manchester a leading digital city-region, and how the success of those actions will be judged across a range of measures. A key component of this Strategy is the Digital Infrastructure Implementation Plan which was approved in January 2018 which is aimed at delivering full fibre across GM as quickly as possible, ensuring we are at the forefront of next generation mobile technology and addressing gaps in broadband provision. Supported by this Plan, in March 2018, GM secured the largest £23.8M Government Local Full Fibre Networks allocation for full fibre investment in the UK. GM is also working with the private sector partners to accelerate next generation 5G mobile roll out.

Greater Manchester Resilience Strategy

3.12 Pioneered by The Rockefeller Foundation, The 100 Resilient Cities (100RC) helps cities around the world become more resilient to social, economic and physical challenges that are a growing part of the 21st century. In May 2016, Greater Manchester was selected to be one of 100-city global network of peer cities to share best practices. In partnership with the 100RC, Greater Manchester is undertaking work to become more resilient to 'shocks' such as catastrophic events like storms, pandemic diseases and floods. As part of this work, a Resilience Strategy is being prepared which is due for publication in 2019. It is likely that this strategy will contain recommendations that will need to be taken into account in the way that Greater Manchester and partner organisations plan for the provision and maintenance of physical infrastructure.

Potable Water and Waste Water Infrastructure

3.13 The water and sewerage sectors in England and Wales have to comply with several different Acts of Parliament and European Directives. The legislation covers the following broad areas:

- economic regulation of the sector
- water supply
- sewerage services
- drinking water quality
- environmental standards
- customer service
- flood and drought protection and adaptation.

3.14 The Water Industry Act 1991 sets out the main powers and duties of the water and sewerage companies, as are relevant to infrastructure planning and provision, setting out the duty to provide fresh water for domestic purposes and to take and treat foul water (sewage) from domestic uses. In the North West, United Utilities (UU) is the company that supplies both potable (drinking) and raw water, and collects, treats and disposes of sewage and sewage sludge. UU serves 3.2 million homes and 200,000 businesses across the region, which includes those in Greater Manchester.

3.15 Ofwat regulates prices and levels of customer service, while the Drinking Water Inspectorate monitors drinking water quality and the Environment Agency covers environmental protection. Customers' interests are represented by the Consumer Council for Water.

- 3.16** UU has a duty to develop and maintain an efficient and economical system of water supply; Greater Manchester's water supply comes from the Thirlmere and Haweswater Aqueducts, plus north Wales and other smaller supply points. UU is also responsible for providing and developing the public sewerage system in order to meet increasing demand through new connections, and to provide, improve and extend a system of public sewers to ensure an area is effectually drained.
- 3.17** Water companies have a statutory duty to prepare and maintain a Water Resources Management Plan (WRMP) every five years, which must demonstrate how they can maintain the balance between supply and demand over the next 25 years. The current Water Resources Management Plan (WRMP) for the North West was published in March 2015, and sets out UU's approach to the investment needed to ensure that we have sufficient water to continue supplying our customers for the years ahead, covering 2015-2040.
- 3.18** Even though the North West's population is growing, the amount of water forecasted to be taken from reservoirs and rivers is actually reducing, due to a number of reasons. Much of this is due to projects completed by UU at reducing losses of water through leakage. By replacing old metal water pipes with modern plastic ones, locating and fixing underground leaks and controlling water pressure in the network, the amount of water that drips away into the ground has been reduced by more than half since 1992. Education programmes to promote water efficiency are also playing a part, as is the installation of free water meters in older properties, which allows customers to manage their water use more carefully. In the future, we may experience more severe droughts due to changing rainfall patterns and UU may need to take less water to help improve the flow in some of our rivers for the benefit of fish and other species that live there.
- 3.19** On the 2nd March 2018, UU published a Draft Water Resources Management Plan 2019 which covers the period 2020-2045. This draft plan has been shaped and created with feedback from customers and stakeholders which includes feedback taken during pre-consultation in autumn 2016. In summary, it is expected that the total demand for water from homes and businesses in the North West will reduce by just under 3% between 2020-2045, even though the region's population is predicted to increase from 7.4 million to 8.3 million.

Telecommunications Infrastructure

- 3.20** Openreach owns and looks after the fibres, wires and cables that connect the country through telephone and broadband. Openreach is a subsidiary company of BT Group, but is operated independently. They work on behalf of over 500 service providers (such as Sky, TalkTalk and BT) to maintain the physical network covering 30 million customers. The main cable service provider in the UK is Virgin Media and the current maximum speed available to their customers is 362 Mbit/s.

3.21 Although there are many companies that provide mobile phone contracts, most of these companies 'piggyback' onto the network provided by the four main mobile phone operators in England:

- 3 / Three
- EE (formed through the merger of Orange and T-Mobile)
- O2 (the trading name of Telefónica UK Limited)
- Vodafone.

3.22 EE are now owned by BT, but continue to operate as an independent business, retaining the brand name. For cell infrastructure, Vodafone and O2 formed a joint venture partnership known as Cornerstone Telecommunications Infrastructure Limited (CTIL) in 2012 to manage the network of sites for both companies to create a single, consolidated grid. This has resulted in efficiencies of cell site deployment and the operation of the network infrastructure.

3.23 In terms of broadband infrastructure, GM, like the rest of the UK, is falling behind its international competitor cities in terms of full fibre to the premises (FTTP) connectivity. Currently, FTTP coverage is on average only 2% in the UK and 4% in GM, but 60% in Spain and Portugal.

3.24 In terms of mobile internet, despite good public WiFi coverage in most public buildings across GM, and on Metrolink and many buses, WiFi provision is patchy in public places and there are still barriers to access (registration requirements and cost) in many parts of GM. In terms of mobile internet, despite good public WiFi coverage in most public buildings across GM, and on Metrolink and many buses, WiFi provision is patchy in public places and there are still barriers to access (registration requirements and cost) in many parts of GM.

Energy Infrastructure

3.25 The electricity distribution networks and gas distribution networks are regulated by the Office of Gas and Electricity Markets (Ofgem). It is a non-ministerial government department and an independent National Regulatory Authority, whose principal objective is to protect the interests of existing and future electricity and gas consumers.

3.26 The electricity distribution network operator ENWL, and the gas distribution network operator Cadent, need to have detailed information about new developments which are seeking a connection to the gas or electricity network. New infrastructure cannot be agreed or installed until the requirements are fully understood. They are prevented from installing surplus capacity by the energy regulator Ofgem. More detail on planning for energy is set out below.

Electricity

3.27 The electricity network in Great Britain is considered to be one of the most resilient in the world. The most common cause of outages is when pavements and highways are dug up by utilities providers and the electricity cable is accidentally damaged, for example this can happen when new broadband cables are being laid.

3.28 The electricity industry in England is divided into four main sectors:

- The generators, who own both the large power stations and smaller renewable generators. The generators produce electricity from a variety of fuel sources.
- The transmission companies, who own and operate the 400kV and 275kV transmission network that links the major power stations and transports electricity in bulk across the country. National Grid Electricity Transmission is responsible for the transmission network in England and Wales.
- The distribution companies, who own and operate the lower voltage electricity network, connecting the smaller power stations and the national grid to every electricity customer in Britain. This is comprised of overhead lines and cables at 132kV and below.
- The electricity suppliers, who buy the electricity produced by the generators, sell that electricity to their customers and pay the network operators for the transportation of that electricity across their networks.

3.29 Companies that own and operate the infrastructure that delivers electricity to premises are called distribution network operators (DNOs). Most are regional monopolies, so you do not choose a DNO; it is based on location. There are 14 licensed distribution network operators (DNOs) in Britain and each is responsible for a regional distribution services area. In Greater Manchester, the distributor is Electricity North West Limited (ENWL). ENWL are responsible for maintaining and upgrading 13,000 km of overhead power lines and more than 44,000 km of underground electricity cables.

3.30 An Independent Distribution Network Operator (IDNO) is a company licensed by Ofgem, to develop, operate and maintain local electricity distribution networks. An IDNO network will be connected to the local power network, which is owned by ENWL. However, the IDNO will be responsible for managing and operating their local network, including all future maintenance and fault repairs. Networks that are built or operated by ICPs will be adopted by either a Distribution Network Operator such as Electricity North West or by an Independent Distribution Network Operator (IDNO). Each of the 14 DNOs covers a separate geographical region of Great Britain. IDNOs own and operate smaller networks located within the areas covered by the DNOs. IDNO networks are mainly extensions to the DNO networks serving new housing and commercial developments.

New Connections to the Electricity Network

- 3.31** ENWL plan for electricity capacity on a reactive basis rather than a proactive basis, as prescribed by their regulator. ENWL are fined by the regulator for any losses within the network; losses are incurred when an asset such as a substation is installed and then the capacity provided by this substation is not utilised. Therefore ENWL will not normally deliver infrastructure in advance of development coming forward to align with future growth aspirations, as they will be financially penalised by Ofgem for not providing an efficient and cost effective service to consumers.
- 3.32** When developing a new site, an electricity supply is required. Distribution Network Operators are legally obliged to provide customers with an offer to connect to the electricity distribution network. Developers contact ENWL, providing details of the requirements of the site, and ENWL will provide a quote for supplying a suitable connection for the anticipated load. A connection offer provides a detailed assessment of the network, point of connection and a formal offer for all work required to provide a connection. If a new substation is required, the developer will need to pay the full cost for this. If the substation provides more capacity than the development requires, they will be entitled to an apportioned refund if another development takes up the remaining capacity of the substation in the future.
- 3.33** There are limited scenarios where ENWL may proactively introduce additional capacity within the network, and this is normally in relation to development that has an extremely high level of certainty of being delivered, (and where are existing capacity issues – is this correct? Mike from ENWL to confirm). An example of this is the “Northern Gateway” in Manchester, which has the potential to deliver up to 10,000 homes over the next 10-15 years, and is being delivered by the Far East Consortium.

Gas

- 3.34** National Grid owns the high pressure gas transmission system in Great Britain, enabling the bulk transfer of gas around the country. Gas needs to travel through this high pressure transmission system, then through the Local Transmission systems, Intermediate, medium and low pressure distribution networks to reach the consumer. The gas distribution networks (GDNs) are the penultimate stage in the delivery process. There are eight distribution networks throughout Britain which are owned by Cadent, Northern Gas Networks, SGN and Wales & West Utilities. Cadent owns and manages the following networks:
- North West England
 - West Midlands
 - East Midlands

- East Anglia
- North London

New Connections to the Gas Network

3.35 The expansion of the gas network to serve domestic and business customers across Greater Manchester is delivered by Cadent. Cadent provides local gas infrastructure to new homes and businesses on a reactive approach, rather than a proactive approach, as prescribed by the regulator Ofgem.

3.36 As part of the preparation of Local Plans, Local Authorities can share information on allocations, and the numbers and locations of other new properties with Cadent. From this, Cadent undertakes modelling work, undertaking an initial assessment of whether there is capacity in the existing network to accommodate the growth, with a high level “yes / no” result regarding the available capacity. No additional work is done until a developer approaches Cadent in relation to a development proposal, and then this is managed through the detailed connections process.

3.37 Once the specific types and numbers of properties and gas demand are known for a development proposal, modelling work ascertains whether the network would fail, and if it does, Cadent considers the most appropriate methods to reinforce the network. Any identified reinforcement design is then also passed through an “economic test” to determine how the costs are to be split between the developer/utility provider and Cadent. There are a variety of ways that Cadent can reinforce the network:

- Elevate the pressure of the gas in the nearby network. This is a nil cost solution to the customer.
- Capital investment to lay parallel gas mains to increase the capacity of the network.
- Install a pressure reduction station to provide an additional supply into the network by injecting extra gas from a higher pressure tier.

Energy Strategic Direction

3.38 Over recent years, electricity consumption has not been increasing, and this is in part because of technological innovations, as appliances within existing and new homes are becoming increasingly energy efficient. However, with the potential increase in the number of electric cars being charged from private dwellings, the way that electricity is consumed may change drastically over the near future. It is recognised that the pace of technological change is increasing, in relation to the provision, distribution and consumption of electricity, and that this needs to be planned for.

- 3.39** There is a nationwide project underway that is being led by the Energy Networks Association (ENA). Launched in January 2017, the “Open Networks Project” will lay the foundations of a smart energy grid in the UK. The Project will enable the UK’s local distribution networks to move from their traditional role of simply delivering electricity in one direction from centralised power plants to our homes and communities, to one where they act as a smart platform that enables a whole range of new energy technologies that generate, consume and manage electricity.
- 3.40** Local networks will become more active managers of supply and demand within their area, which will require new services and interactions with the wider network, transforming their roles and responsibilities. These technologies and services, when part of a smarter grid, have huge potential to make our electricity grid cleaner. For example, renewable energy generates electricity at different times of day and under different weather conditions. These changes to the grid will mean we will be able to store and use more electricity locally in batteries. It will also mean that network companies can connect new technologies more cheaply, by avoiding having to pay to reinforce the grid for example. Electric vehicles will not just be re-charged from the network but they will feed electricity back into it. New technology will make it easier for people to buy and sell electricity to and from the grid and businesses will have the chance to take advantage of new services that will help them use energy more intelligently too. This Project is about defining how the interactions between local and national networks will change, and the responsibilities for each.
- 3.41** The Greater Manchester Combined Authority and individual local authorities will continue to work with the operators to plan for future capacity in the locations for growth, at the point it is most appropriately required.

4 Summary of consultation

4.1 The first draft of the GMSF was published for public consultation for 10 weeks in October 2016. Comments regarding physical infrastructure provision were received from members of the public, developers and utilities providers, with the headline messages being:

- That the document lacks ambition in terms of infrastructure types/solutions going forward.
- Consider the impact of large scale development on infrastructure and the overall impact on the environment.
- When examining the viability of potential sites consider: utility infrastructure; schools capacity; ground conditions / potential contamination; ownership; and mining activity.
- Take account of the impact of growth options set out on water supply and drainage.

4.2 Comments were also made on the following issues:

- A large number of respondents felt that the existing strain on infrastructure must be addressed before the additional development proposed by the GMSF takes place and some suggested that upfront investment was required.
- Many respondents were sceptical that the development industry would pay for the infrastructure required, with concerns over the impact on viability and compliance with national tests/regulations, and that it would require increases in council tax and government investment to bridge the funding gap.
- The policy on each strategic location should set out how it will deliver development including infrastructure.
- Concerns that GM24 would be placing burdens on developers that are the responsibility of utilities providers, and suggested removal of the section relating to utilities provision, maintenance and enhancing resilience as this is the responsibility of the utilities provider and developers should not be burdened with this.
- Some comments suggested removing part of the policy relating to an infrastructure “pooling” strategy for sites in multiple ownership as this was better dealt with through CIL.
- Clarification was sought in terms of Greater Manchester’s intentions in relation to the Community Infrastructure Levy (CIL).

- Responses from developers stated that the policy needed to recognise the viability of developments and the need for any developer contributions to be supported by evidence to satisfy NPPF tests and Reg 122 of CIL to ensure appropriately justified.
- Engagement with utilities bodies is essential in order to determine the viability of the proposed sites.

- 4.3 Specific comments from United Utilities indicated that they can most appropriately manage the impact of development on their infrastructure if development is identified in locations where infrastructure is available with existing capacity. They set out that Green Belt locations typically have little or no existing infrastructure, therefore any growth needs to be carefully planned to ensure new infrastructure provision does not cause any unexpected delays to housing delivery.
- 4.4 UU encouraged consideration of the availability of alternatives to the public sewerage system for surface water discharges. For example, sites with land drains or near to watercourses are a more sustainable alternative to using the public sewer.
- 4.5 The experience of United Utilities is that where sites are in multiple ownership, the achievement of sustainable development can be compromised by developers / applicants working independently. Landowners should work together as part of a framework to achieve delivery in a sustainable and co-ordinated way. The following general text was suggested for each allocation, with the option to amend it to reflect any local changes:
- 4.6 *"The development of the site will be expected to incorporate Sustainable Drainage methods in accordance with national and local standards. Any drainage proposal will be expected to be part of a site wider strategy to avoid piecemeal development and demonstrate how the site delivers sustainable drainage as part of interconnecting phases. Applicants wishing to discharge to public sewer will need to submit clear evidence demonstrating why alternative options are not available. Approved schemes will be expected to be supplemented by appropriate maintenance and management regimes for the lifetime of any surface water drainage schemes."*
- 4.7 In relation to telecommunications, the feedback from the industry is that providers are most concerned about knowing about more medium term planning permissions 20 to 30 dwellings, as this piecemeal development is harder to plan for and deliver than large scale schemes. No major concerns were raised about the development proposed by GMSF.
- 4.8 In relation to electricity, ENWL have indicated that they are confident in being able to meet the network capacity requirements for the investment and growth in proposed in Greater Manchester, and have secured the appropriate regulatory allowances within their "Well Justified Business Plan". ENWL did not have any real concerns about the

levels of growth or locations proposed, and have undertaken high-level assessment of the expected impact of the proposed developments on the electricity network, considering the capacity of primary substations from forecasted loads. They have indicated that they are confident in being able to meet the network capacity requirements for the investment and growth proposed in Greater Manchester,

- 4.9** In relation to gas, no concerns were raised by the industry regarding the provision of infrastructure to support the levels of growth set out in the GMSF. This is consistent with their regulated requirement to deliver infrastructure on a reactive rather than a proactive basis.

5 Summary of the IA of the 2016 Draft Plan

- 5.1** An Integrated Assessment was commissioned to support the first draft of the GMSF. The Integrated Assessment is a key component of the GMSF evidence base, ensuring that sustainability, environmental, equality and health issues are addressed during its preparation. The Integrated Assessment combines the requirements and processes of the Sustainability Appraisal, Strategic Environmental Assessment, Equality Impact Assessment and the Health Impact Assessment into one document (the Habitat Regulation Assessment of the GMSF was completed separately by GMEU). The Integrated Assessment carries out an assessment of the draft GMSF policies by testing the potential impacts, and consideration of alternatives are against the plan's objectives and policies. This ensures that the potential impacts from the plan on the aim of achieving sustainable development are considered, in terms of the impacts, and that adequate mitigation and monitoring mechanisms are implemented.
- 5.2** The Integrated Assessment (IA) framework is made up of a series of IA objectives and assessment criteria which have been developed specifically for the GMSF. The IA Framework is used to identify the likely social, economic and environmental effects and guide mitigation and policy development. Using assessment criteria to appraise policies and sites helps the assessor to arrive at a conclusion about potential impacts in a methodical and consistent manner, and helps stakeholders to understand the reasoning behind the assessment.
- 5.3** In relation to Infrastructure (Policy GM24), the IA's suggested potential mitigation/policy inputs are set out below, which will need to be considered to inform the revised draft of the GMSF.
- Include a reference to housing within the policy itself.
 - Policy should make specific reference to employment sites directly and how the infrastructure relates to it.
 - Transport infrastructure would continue to be under the remit of TFGM. The GMSF should encourage a strategic approach to transport connectivity.
 - Design infrastructure to maximize local benefits and target deprived areas linking people and work opportunities.
 - Consider connecting communities and green space / recreation.
 - Minimising air quality effects should be a strategic aim, particularly for transport infrastructure.
 - Require suitable design for sensitive locations.
- 5.4** No relevant IA recommendations are identified for the topics of wastewater, nor are any identified for telecommunications.

6 GMSF Strategy, Policies and Allocations

- 6.1 In the 2016 draft of GMSF, there was one main policy relating to the provision of infrastructure, policy GM24. This sole policy mainly focused on physical and transport infrastructure; changes are proposed to this approach in response to the ongoing development of evidence, stakeholder engagement, public consultation and the suggestions of the IA 2016.
- 6.2 There are now proposed to be a group of policies which relate to the implementation, funding and monitoring of GMSF. On the specific needs of infrastructure provision in relation to development, many of these requirements are now integrated into the relevant chapters within the GMSF; for example requirements relating to full fibre broadband are set out in the Digital Connectivity policy. Taking a more holistic approach to securing infrastructure, supported by a suite of implementation policies, provides a more robust approach the delivery of GMSF, thus addressing the concerns raised at the last stage of public consultation.
- 6.3 The 2016 draft of GMSF also contained an overarching policy relating to delivering each of the proposed allocations, through policy GM25. This policy has removed from the current draft of the GMSF, and the relevant requirements have instead been incorporated across the thematic policies or site specific policies.
- 6.4 In addition to the key policy changes set out above, it is worth noting other means of providing clarity regarding infrastructure provision. In line with the guidance set out in the NPPG, an Infrastructure Funding Statement will be prepared by each Local Authority on an annual basis. This will demonstrate the delivery of infrastructure over the next five years, setting out the anticipated funding from developer contributions, and how these contributions are intended to be prioritised and spent by each Local Authority.
- 6.5 The strategic approach to infrastructure provision will be set out in an Implementation and Delivery Plan (IDP) to support the delivery and implementation of GMSF. This IDP will contain information on a variety of types of infrastructure, and will not be limited to those types covered within the scope of this topic paper; it will set out a range of infrastructure projects and actions for the GMCA, partner organisations and delivery agencies. For each implementation action or project, information about responsible delivery bodies, a timescale for delivery and a degree of certainty/commitment will be provided. The IDP will be prepared as a separate document to the GMSF, and published in draft form to accompany public consultation on a later stage of GMSF, and will be published to support the adoption of GMSF. Once in place, will be reviewed and updated on a regular basis, as part of the ongoing monitoring and management of the delivery of the GMSF.